CURRICULUM VITAE

Sheelagh Carpendale

Full Professor

Canada Research Chair: Tier 1: Data Visualization
Director: Innovations in Visualization (InnoVis)
Co-Director: Interactive Experiences Lab (ixLab)

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Executive Summary

Brief Biography (in 3rd person)

Sheelagh Carpendale is a full Professor and Canada Research Chair, Tier 1, Data Visualization, in the School of Computing Science at Simon Fraser University (SFU). She directs her InnoVis (Innovations in Visualization) Research Group and co-founded and co-directs ixLab (Interactive Experiences Lab) at SFU. She is a Fellow in the Royal Society of Canada. She transferred her NSERC/SMART Industrial Research Chair in Interactive Technologies to SFU, which completed in 2020. She has been awarded the IEEE VGTC Visualization Career Award and has been inducted into both the IEEE Visualization Academy (highest and most prestigious honor in the international field of visualization) and the ACM CHI Academy, which is an honorary group of individuals who are the principal leaders of the field having led the research and/or innovation in human-computer interaction.

Formerly, she was a Professor at University of Calgary, were she held a Tier 1 Canada Research Chair in Information Visualization and NSERC/AITF/SMART Industrial Research Chair in Interactive Technologies. In 2013, she was awarded the ASTech Award for Innovation in Information and Communications Technology and the Canadian Human Computer Communications Society (CHCCS) Achievement Award, which is presented periodically to a Canadian researcher who has made a substantial contribution to the fields of computer graphics, visualization, or human-computer interaction. In 2012 she was awarded the NSERC Steacie Fellowship, which is given to the six top scientists nationally across all science and engineering research areas and within 12 years of their PhD. She was featured in Canada's Science, Technology and Innovation Council State of the Nation 2012 report. She is also the recipient of a British Academy of Film and Television Arts Award (BAFTA) for Interactive Learning for Antarctic Waves in collaboration with BRAUNARTS, the British Antarctic Survey and the London Philharmonic (a BAFTA is the British equivalent to Canada's GENIE or in USA to an Oscar (film)). She is the recipient of several major academic and industrial grants from Natural Sciences and Engineering Research Council, Intel Inc., Canada Foundation for Innovation, and Forest Renewal British Columbia.

At the University of Calgary, she was instrumental in founding the interdisciplinary graduate program, Computational Media Design. Her research on information visualization, large interactive displays, and new media draws on her dual background in Computer Science (BSc. and Ph.D. Simon Fraser University) and Visual Arts (Sheridan College School of Design, and Emily Carr College of Art). She left high school with science scholarships but instead initially opted for fine arts, attending Sheridan College, School of Design and Emily Carr, Institute of Art and Design. For ten years she worked professionally in the arts. During this time she was part of establishing the Harbourfront Arts Centre at York Quay, in Toronto. She reconnected with her interests in math and science, completing a BSc and a PhD in computing science.

Her research expertise focuses on information visualization, interaction design, and qualitative empirical work and includes such projects as: visualizing ecological dynamics, using visualization to integrate scientific results and sounds from Antarctica to create a tool to inspire musical composition, visualizing uncertainty, visualizing social activities, and multi-touch and tabletop interaction. She has found the combined visual arts and computer science background invaluable in her research.

Research Overview

My research goal is to design, develop and evaluate interactive technologies so that they support the everyday-world practices of how people view, represent, manage, and interact with information. Central to this is my interest in information visualization with its potential to make information more accessible and comprehensible. In fact, the demand for effective information tools is increasing in response to the expanding deluge of information. Modern society demands that people manage, communicate and interact with digital information at an ever-increasing pace. While information is a crucial part of people's everyday lives, many people find today's technologies awkward, stressful to use, and overly intrusive in their lives. The problem is not with the information itself, but rather with its volume and the unwieldy ways now provided to present, exchange, view and interact with digital content. My primary motivation is to promote information comprehension by creating appropriate tools that can help people negotiate the everyday transformation of vast amounts of information into knowledge. In my research, I consider the fundamental nature of information and how people can effectively interact with it through technology, and how these technologies manifest themselves in ways that harmonize with the everyday practices and routines of people.

Research interests: Data Visualization, Information Visualisation, Personal Visualization, Interaction Design, Data Physicalization, Open Data Visualization, Large Display Interaction, Human Computer Interaction, Computer-Supported Cooperative Work, Cross-Disciplinary Arts/Science Research

Education

- PhD Computer Science, 1999, Simon Fraser University
- BSc Computer Science, 1992, Simon Fraser University
- Emily Carr, College of Art, 1981
- Sheridan College, School of Design, 1975

Employment and Appointments

- Full Professor, School of Computing Science, Simon Fraser University
- Tier 1: Canada Research Chair: Information Visualization

Publications

2 books, over 200 fully refereed publications in internationally recognized top venues; plus over 200 refereed workshop papers, posters and videos, refereed or invited book chapters, edited collections and proceedings; and over 20 exhibits and installations.

Supervision and Teaching

I teach visualization in the School of Computing Science at Simon Fraser University and currently in my research group I have 1 Post Doc, 3 Research Associates, 4 PhD students, and 1 MSc student. I also teach external workshops and courses. At University of Calgary, I was instrumental in founding the Interactions Lab (iLab), the interdisciplinary graduate programs (Master's and PhD) in Computational Media Design. At the University of Calgary I twice received the University of Calgary Excellence in Supervision Award. Over the years I have supervised 20 Postdoctoral Fellows, 23 PhD, 17 Masters. I regularly supervise additional students as research exchange students, summer undergraduate researchers and research employees in various capacities. I also regularly participate as a member and/or an examiner on PhD supervisory committees, thesis defences, candidacy examinations and PhD transfer committees.

Recent Major Grants

I have been awarded NSERC Tier 1 Canada Research Chair ($1,400,000), currently hold an NSERC Discovery Grant worth $370,000 and am co-investigator on the Canadian Consortium for Arctic Data Interoperability (CFI total is $5,281,812, my part $293,138). I recently completed the NSERC/SMART/AITF Industrial Research Chair worth $2,700,000 over its lifetime, and an approximately $1,900,000 Canada Energy Regulator (CER) Grant, and previously, at University of Calgary, held an NSERC Tier 1 Canada Research Chair worth $1,400,000. I was a theme leader in $5,000,000 / 5 year SURFNET NSERC Strategic Network Grant. I was a Network Investigator and Project Leader in GRAND, National Centre of Excellence ($23,000,000 / 5 year) and a member of $5,500,000/5 year NSERC NECTAR Research Networks Grant. I also previously held 2 terms as a Canada Research Chair Tier 2. My research has been supported by various industries such as SMART Technologies, Microsoft, and Intel.

Major Service Roles

- Member: IEEE Visualization Executive Committee (VEC) (2018 – 2023)
- Member: CHCCS (Canadian Human-Computer Communication Society) Awards Committee (2018 – 2023)
- Member: IEEE VIS Awards Committee (2019 – 2023)
- Chair: IEEE Information Visualization Steering Committee (2018 – 2020)
- Member: IEEE Information Visualization Steering Committee (2014 – 2018)
- Chair: ACM ISS Steering Committee (2016–19)
- Member: ACM ISS Steering Committee (2009 – 2019)
- Program Chair: IEEE PacificVis 2013
- Director for Computational Media Design: piloted, designed, proposed and shepherded this new interdisciplinary graduate program (Masters and PhD) through the approvals processes (2008-2013)
- Conference Chair: IEEE Information Visualization (2010)
- Program Chair: ACM ITS 2009;
- Papers Chair: IEEE Information Visualization 2009
- Papers Chair: IEEE Information Visualization 2008
- General Chair: Computational Aesthetics 2007

Education

Ph.D. (Computer Science) 1999

Simon Fraser University
School of Computing Science, Faculty of Applied Science

- Topic: Information Visualisation
- Dissertation: A Framework for Elastic Presentation Space
- Supervisors: F. D. Fracchia, T. Shermer, A. Liestman
- March, 1999

B.Sc. (Computer Science) 1992

Simon Fraser University
School of Computing Science, Faculty of Applied Science

- June, 1992

Art School

Emily Carr, College of Art, Vancouver, BC

- June 1981

Design School

Sheridan College, School of Design, Mississauga, ON

- June 1975

AWARDS

MAJOR AWARDS

2022 CS-CAN (Computer Science Canada) Lifetime Achievement Award. Recognize faculty members in Canadian Computer Science Departments, Schools, and Faculties who have made outstanding and sustained contributions to computing over their careers.

2021 Fellow of the Royal Society of Canada (RSC). RSC is the senior national, council of distinguished Canadian scholars, humanists, scientists and artists.

2020 Canada Research Chair, Tier I: Information Visualization: (2020). Simon Fraser University, Faculty of Applied Science, School of Computing Science. Canada wide award for excellence in research.

2019 Inducted into the IEEE Visualization Academy. (Induction into the Vis Academy is the highest and most prestigious honor in the field of visualization.)

2018 IEEE VGTC Visualization Career Award. (The IEEE VGTC Career Award recognizes and honors individuals who have made a significant contribution to the community through their research. In particular this was awarded for my work in interactive data exploration, in visualization in novel contexts such as wall and tabletop display, in rigorous qualitative evaluation methods, in bringing aesthetic considerations to the research community, and for her contributions in a wide range of application domains, including medicine, digital humanities, geography, the environment, personal data, and emergency management) https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8570932)

2018 Inducted into the CHI Academy. (The CHI Academy is an honorary group of individuals who have made substantial contributions to the field of human-computer interaction. These are the principal leaders of the field, whose efforts have shaped the disciplines and/or industry, and led the research and/or innovation in human-computer interaction.) https://sigchi.org/awards/sigchi-award-recipients/2018-sigchi-awards/

2017 Scholarship Award of Excellence in the Established Career category, Faculty of Science, University of Calgary

2016 University of Calgary Peak Scholar, Dr. Carpendale's research focuses on designing, developing and evaluating interactive visualizations and technologies so that they support the everyday practices of how people view, represent, manage, and interact with information. Her primary motivation is to promote information comprehension by creating appropriate tools that can help people negotiate the everyday transformation of vast amounts of information into knowledge.

2015: Distinguished Visitor: Scottish Informatics and Computer Science Alliance (SICSA). In spring of 2015 I was invited as a Scottish Informatics and Computer Science Alliance (SICSA) as a Distinguished Visitor, where I spent 3 weeks visiting, giving talks and organizing and running a workshop, at University of St. Andrews, University of Dundee, Napier University and Duncan of Jordanstone College of Art and Design (DJCAD).

2015 Faculty of Science, Established Career Research Excellence Award. 2015, University of Calgary

2015 Canada Research Chair, Tier I: Information Visualization: (2015). University of Calgary, Faculty of Science, Department of Computer Science. Canada wide awards for excellence in research. https://www.ucalgary.ca/utoday/issue/2015-04-10/eight-canada-research-chairs-announced

2014 NSERC/AITF/SMART Industrial Research Chair in Interactive Technologies: (2014)

2014 Faculty of Graduate Studies, My Supervisor Skills, GREAT Supervisor Award. Sept. 2014, University of Calgary

2014 INRIA DIGITEO Distinguished Visiting Scientist: Campus Paris Saclay: 2014 Oct.-Dec.

ASTech Award Winner: 2013 Innovation in Information and Communications Technology Sponsored by TELUS, Winner http://www.astech.ca/awardee/2013-ict-carpendale-dr-sheelagh

Canadian Human Computer Communications Society (CHCCS) Achievement Award: (2013) The CHCCS/SCDHM Achievement Award is presented periodically to a Canadian researcher who has made a substantial contribution to the fields of computer graphics, visualization, or human-computer interaction. http://www.cs.ubc.ca/~ksbooth/gi/archive/achvmnt2013.html

NSERC, E.W.R. STEACIE Memorial Fellowship Award: (2012). This fellowship is awarded nationally to up to six most outstanding and highly promising scientists and engineers in Canada, within 12 years of their PhD. (http://www.nserc-crsng.gc.ca/Prizes-Prix/Steacie-Steacie/Profiles-Profils/Carpendale-Carpendale_eng.asp)

Featured in Canada's State of the Nation Report: (2012). (http://www.stic-csti.ca/eic/site/stic-csti.nsf/eng/h_00058.html?Open&pv=1; http://www.stic-csti.ca/eic/site/stic-csti.nsf/eng/00066.html#demand **)**

NSERC, Discovery Accelerator Award: (2012) The Accelerator is awarded to a select few of the NSERC Discovery Grant applicants**.**

ASTech Award Honoree: (2011) for 'significant contribution through the discovery, application and/or implementation of technology products or processes.'

IEEE Recognition of Service Award: (2011). For service as Conference and Papers Co-Chair for IEEE Information Visualization.

Excellence in Supervision Award: (2009). This is a university wide award where one is nominated by their students, University of Calgary.

Canada Research Chair, Tier II: Information Visualization: (2009). University of Calgary, Faculty of Science, Department of Computer Science. Canada wide awards for excellence in research.

ACM Recognition of Service Award: (2009). ACM Conference Interactive Tabletops and Surfaces.

NSERC/iCORE/SMART Industrial Research Chair in Interactive Technologies: (2007)

Faculty of Science, Research Excellence Award: (2006) University of Calgary.

Canada Research Chair, Tier II: Information Visualization: (2004). University of Calgary, Faculty of Science, Department of Computer Science and Faculty of Communications and Culture.

NSERC UFA, University Faculty Award: (2003)

BAFTA (British Academy of Film & Television Arts Interactive Awards): (2002) Category: Interactive Learning. Project: Antarctic Waves: developed with BRAUNARTS, the British Antarctic Survey and the London Philharmonic. Position: Computer Visualisation

Consultant. (a BAFTA is the British equivalent to Canada's GENIE Award or in USA to an Emmy (television) or an Oscar (film))

NSERC UFA, University Faculty Award: (2000)**.**

Best PhD Award: (1999). School of Computer Science, Simon Fraser University.

NSERC, Postgraduate Scholarship B: (1994 – 1996). Canadian scholarship, top 2% of graduate students nationally.

NSERC, Postgraduate Scholarship A: (1992 – 1994). Canadian scholarship, top 2% of graduate students nationally.

PUBLICATION AWARDS

2023 Best Paper Honorable Mention Award. Helen He, Jagoda Walny, Sonja Thoma, Sheelagh Carpendale, Wesley Willett. (2023). Enthusiastic and Grounded, Avoidant and Cautious: Understanding Public Receptivity to Data and Visualizations. IEEE Transactions on Visualization and Computer Graphics (IEEE VIS). IEEE Computer Society Press.

2023 Best Poster Runner-Up. Foroozan Daneshzand, Charles Perin, Sheelagh Carpendale. Unfolding Climate Stories: Kirigami Data Art in the Wild. Poster. In Graphics Interface

2023 Best Demo Runner-Up. David Wong-Aitken, Parsa Rajabi, Sheelagh Carpendale, Parmit Chilana. Demo: Tangibooks. Designing For People Design Showcase 2023.

2021 Best Paper Award: Wesley Willett, Bon Adriel Aseniero, Sheelagh Carpendale, Pierre Dravgicevic, Yvonne Jansen. Perception! Immersion! Empowerment!: Superpowers as Inspiration for Visualization. *IEEE Transactions on Visualization and Computer Graphics (IEEE VIS)*, IEEE Computer Society Press.

2020 ACM CSCW Lasting Impact Award: Stacey D. Scott, Sheelagh Carpendale, and Kori M. Inkpen. Territoriality in collaborative tabletop workspaces. In *Proceedings of the 2004 ACM Conference on Computer Supported Cooperative Work*, pp. 294-303. 2004. (This award goes to a paper that is at least 10 years old and has had an impact on CSCW as a field. Nominations are taken from the community, and the decision is made by a committee of senior CSCW scholars. This year's committee consisted of Cecilia Aragon, Amy Bruckman, Karrie Karahalios, Michael Muller, Bonnie Nardi, Paul Resnick, and Naomi Yamashita).

2020 Best Paper, Honorable Mention: Bon Adriel Aseniero, Charles Perin, Wesley Willett, Anthony Tang, and Sheelagh Carpendale. "Activity River: Visualizing Planned and Logged Personal Activities for Reflection." In *Advanced Visual Interfaces (AVI)* (2020).

2020 Transactions on Visualization and Computer Graphics (TVCG) Journal Selection Paper Award: Fateme Rajabiyazdi, Charles Perin, Lora Oehlberg, and Sheelagh Carpendale. "Exploring the Design of Patient-Generated Data Visualizations." In Graphics Interface (GI). Canadian Information Processing Society, 2020.

2019 Best Paper Award: Jagoda Walny, Christian Frisson, Mieka West, Doris Kosminsky, Søren Knudsen, Sheelagh Carpendale, Wesley Willett. Data Changes Everything: Challenges and Opportunities in Data Visualization Design Handoff. *IEEE Transactions on Visualization and Computer Graphics (InfoVis track of IEEE VIS)*, IEEE Computer Society Press.

2019 Best Poster Design Award: Weina Jin, Sheelagh Carpendale, Ghassan Hamareh, Diane Gromala. (2019). Bridging AI Developers and End Users: an End-User-Centred Explainable AI Taxonomy and Visual Vocabularies. *Poster: VAST track, IEEE VIS*.

2018 ACM ISS Ten Year Impact Award: Mark Hancock, Thomas Ten Cate, Sheelagh Carpendale. Sticky tools: full 6DOF force-based interaction for multi-touch tables. In *Proceedings of the ACM International Conference on Interactive Tabletops and Surfaces,* pp. 133-140. ACM, 2009.

2018 Best Poster, Honorable Mention: Kendra Wannamaker, Lora Oehlberg, Sheelagh Carpendale, Wesley Willett. (2018) Data Embroidery. In *Posters IEEE VIS, InfoVis*, 2018.

2016 Best Poster, Honorable Mention: Bon Adriel Aseniero, Charles Perin, Marjan Eggermont, Sheelagh Carpendale (2016) Fireflies: Biomimicry-Inspired InfoVis for Exploring Public Opinion about an Infectious Disease *In Posters Compendium InfoVis*, 2016.

2015 Best Paper, Honorable Mention: Jagoda Walny, Samuel Huron, Sheelagh Carpendale. (2015). An Exploratory Study of Data Sketching for Visual Representation. Computer Graphics Forum. 34(3):231-240

2015 Best Paper: Bongshin Lee, Greg Smith, Nathalie Henry Riche, Amy Karlson, Sheelagh Carpendale. (2015). SketchInsight: Natural Data Exploration on Interactive Whiteboards Leveraging Pen and Touch Interaction. Proceedings of the IEEE Conference Pacific Visualization. pp199-206.

2014 Best Paper, Honorable Mention: Samuel Huron, Sheelagh Carpendale, Alice Thudt, Anthony Tang, Michael Mauerer. (2014). Constructive Visualization. In Proceedings of the ACM Conference on Designing Interactive Systems. pp 433-442, ACM Press.

2014 Best Poster, Honorable Mention: Jagoda Walny and Sheelagh Carpendale. Data Sketches: An Exploratory Study. In Posters Compendium InfoVis, 2014

2013 Best Short Paper: Alice Thudt, Dominikus Baur, Sheelagh Carpendale. (2013). Visits: A Spatiotemporal Visualization of Location Histories. In Proceedings of European Conference on Visualization, EuroVis'13. June 2013.

2013 UIST Best Demo, Honourable Mention: John Brosz, Miguel Nacenta, Ricky Pusch, Sheelagh Carpendale, Christophe Hurter. 2013. Transmogrification: UIST Demo. ACM Symposium on User interface software and technology (UIST)

2012 Invited to submit an extended version to the Journal TRACEY: Jagoda Walny, Sheelagh Carpendale. (2012) Towards Supporting Interactive Sketch-Based Visualizations. (2012) Thinking through Drawing 2012: Drawing in STEAM (Science, Technology, Engineering, Arts & Maths) Symposium, sponsored by International Drawing and Cognition Research, Wimbledon, UK. (12 pages)

2011 Best Paper: Jonathan Haber, Sean Lynch, Sheelagh Carpendale. (2011) ColourVis: exploring colour usage in paintings over time. In Proceedings of the International Symposium on Computational Aesthetics in Graphics, Visualization, and Imaging, pp 105-112, ACM Press.

2011 Best Paper: Marian Dörk, Sheelagh Carpendale, Carey Williamson. (2011). EdgeMaps: Visualizing Explicit and Implicit Relations. In *Proceedings of VDA 2011: Conference on Visualization and Data Analysis*. IS&T/SPIE, 2011.

2008 Best Paper, Honorable Mention: Charlotte Tang, Sheelagh Carpendale. (2008). Evaluating the Deployment of a Mobile Technology in a Hospital Ward. Proceedings of the ACM Conference on Computer Supported Cooperative Work (CSCW 2008). pp. 205-214.

2007 Best Paper: Holly Schmidt, Uta Hinrichs, Alan Dunning, Sheelagh Carpendale. (2007). memory [en]code - Building a Collective Memory within a Tabletop Installation. *Proc. Computational Aesthetics in Graphics, Visualization, Imaging, (CAe'07)*, pp. 135–142, Eurographics Ass.

2007 Best Paper, Honorable Mention: Mark Hancock, Sheelagh Carpendale, Andy Cockburn. (2007). Shallow-Depth 3D Interaction: Design and Evaluation of One-, Two- and Three-Touch Techniques. *Proc. Conference on Human Factors in Computing Systems (ACM CHI'07)*, pp. 1147–1156, ACM Press

My Graduate Students' Major Awards:

2022 Bon Adriel Aseniero: Honourable Mention (2nd in the world) in the 2022 IEEE VGTC Doctoral Dissertation Competition for his PhD thesis **'***An Autobiographical Reflection on Designing Visualizations for Personal Contexts'.*

2018 Alice Thudt: Honourable Mention (2nd in the world) in the 2018 IEEE VGTC VPG Doctoral Dissertation Competition for her PhD thesis **'***Visualizations for Personal Reflection and Expression'.*

2018 Tanja Blascheck, received EUROVIS Best Doctoral Dissertation for her PhD thesis '*Understanding Interactive Visualizations: Leveraging Eye Movements and Visual Analytics*'. I supervised Tanja Blascheck, PhD exchange student, University of Stuttgart as her Mitberichter.

2018 Kyle Hall: Best PhD Award: awarded best PhD in Faculty of Science, University of Calgary for his thesis *'Interweaving Computational Chemistry and Visualization: Explorations into Molecular Processes, Simulation Analysis, and Visualization Design.'*

2017 Jagoda Walny: Honourable Mention (2nd in the world) in the 2017 IEEE VGTC VPG Doctoral Dissertation Competition for her PhD thesis *'Thinking with Sketches: Leveraging Everyday Use of Visuals for Information Visualization*'.

2017 Jagoda Walny: Best HCI PhD in Canada awarded the (**Bill Buxton Award**): for her PhD thesis *'Thinking with Sketches: Leveraging Everyday Use of Visuals for Information Visualization*'. http://graphicsinterface.org/awards/bill-buxton/jagoda-walny/

2012-2015: Marjan Eggermont PhD student who founded, edits, and designs **Zygote Quarterly (**ZQ), which was a finalist **(2nd to Scientific American)** in the Digital Magazine Awards, Science and Nature category, in 2012, 2013, 2014, and 2015. (https://zqjournal.org/).

2012 Uta Hinrichs: Best HCI PhD in Canada (2012) awarded to my PhD student U. Hinrichs (Bill Buxton Award) for her PhD '*Open-Ended Explorations in Exhibition Spaces: A Case for Information Visualization and Large Direct-Touch Displays'*. http://www.cs.ubc.ca/~ksbooth/gi/archive/hci2012.html

2011 Lindsay MacDonald Digital Alberta Award: (2011). My MFA (Computational Media Design) student L. MacDonald was awarded the provincial award for the best student digital media piece for her work '*A Delicate Agreement*'.

2008 Uta Hinrichs and Holly Schmidt: Canadian New Media Awards: finalist. Students U. Hinrichs, H. Schmidt were one of the three finalists in Canada for Interactive Media for their piece '*EMDialog'*.

2008 Torre Zuk: The University of Calgary nominated my student Torre Zuk`s Ph.D. '*Visualizing Uncertainty*' for Best PhD thesis nationally.

2005 Stacey Scott: Best PhD Award: My student S. Scott was awarded best PhD in Faculty of Science, University of Calgary for her thesis '*Territoriality in Collaborative Tabletop Workspaces'.*

My Post-Doctoral Fellows' Major Awards:

Included to show the calibre of Post-Doctoral Fellows I attract

2023 Zezhong Wang: (My PostDoc 2022 to 2025) Honourable Mention (2nd in the world) in the 2023 IEEE VGTC VGTC Visualization Dissertation Award. Given by IEEE Visualization and Graphics Technical Community (VGTC) for his PhD thesis **'***Creating Data Comics for Data-Driven Story Telling'.*

2017 Søren Knudsen: (My PostDoc 2017 to 2021) awarded and fully supported by the **Marie Skłodowska-Curie Actions (MSCA) Individual Fellowship — Global Fellowships programme** for his project VIVIR — VIsualizing VIew Relations — VIsual representations of VIew Relations to support effective data analysis on large and high-resolution displays.

2015 Jo Vermeulen: (My PostDoc 2016 to 2017) received the 2015 **FWO-IBM Innovation Award, Best Belgian Computer Science Dissertation** (2015)

2015 Samuel Huron: (My PostDoc 2014 to 2015) received the **2015 IEEE VGTC VPG Doctoral Dissertation Award** for his PhD thesis *'Constructive Visualization: A Token-based Paradigm Allowing to Assemble Dynamic Visual Representation for Non-experts'*. This is a great example of the best that can happen when working at the intersection of two labs (InnoVis and JD Fekete's AVIZ at INRIA)

Research Overview

Information or data visualizations have typically been created for work-related tasks for data experts – scientists and analysts – to provide effective tools to handle data complexity. I expand this to include creating visualizations for both the general public and for personal use.

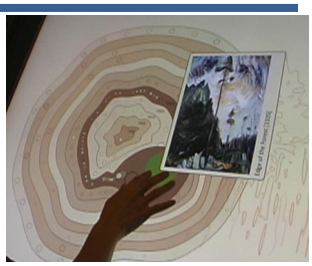

Fig 1: Exploring EMDialog

Visualization in Everyday Life: is a new research direction that investigates the use of information visualization techniques to enhance information presentation in public and social settings. As more and more information is presented to the public as data and often in visualizations, working to increase comprehension, accessibility and data empowerment for a greater diversity of people is rising in importance. Examples of this direction include: 1) EMDialog (see Fig 1), which was created by inventing interactive visualizations based on the data of Emily Carr's life and work as an installation for the Emily Carr Exhibition, at the Glenbow Museum, Calgary, providing public access to more in-depth information about Emily Carr through a large touch screen. Approximately 29,000 people attended this exhibition and EMDialog was one of 3 finalists in the Canadian New Media Awards. 2) Antarctic Waves (see Fig 2), involved inventing new interactive visualizations to create engaging experiences to inspire high school students to compose music based on science (led by Braunarts, with the London Philharmonic Orchestra, and the British Antarctic Survey). Antarctic Waves won a British Academy of Film and Television Arts, (BAFTA (British equivalent of an Oscar).

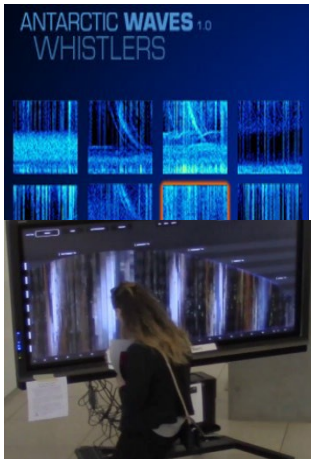

Fig 3: Slicing the Aurora Borealis

Recent open data research has included creating visualization installations in museums, libraries (see Fig 4), galleries, and Science Centres (for example, see Fig 3), including being featured by NSERC at the National Science and Technology Museum. Recently, we worked closely with Canada's Energy Regulator (CER) data experts on an open data project. We designed interactive visualizations that take a step towards making CER data more accessible and more transparent, resulting in an online platform. CER was awarded federally for this innovative open data project. The resulting visualizations are in use by industry, government, and the general public.

Fig 4: Detail of Bohemian Bookshelf - choosing a book by its cover colours

Our concept of Constructive Visualization (with S. Huron) offers a simple flexible physicalization creation method that has been demonstrated to be understandable by novices. This has led to a series of design teaching workshops, and is increasingly used in diverse classrooms and physicalization is becoming an active research direction that explores leveraging the power of our physical world to unlock the potential of our data deluge looking at how to integrate data, technology, and the physical to empower people. Team member, J. Boy, hired by United Nations (UN), ran workshops for governments using constructive visualization to teach about how to base decisions on data – he sent successful constructive visualization workshop pictures from Jordan and Indonesia.

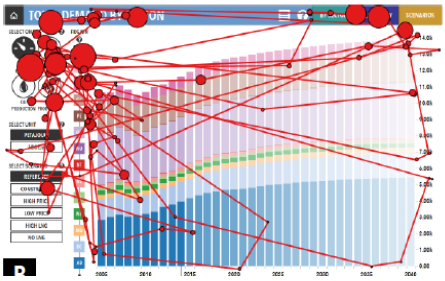

Fig. 5: Eye tracking to discover exploration

Novel Interactions: Computer interaction has expanded from typical single-person, single-desktop office-work setups to many sizes and shapes of displays that may be used in conjunction for supporting a great variety of activities such as planning, scheduling, brainstorming, design as well as a great variety of social activities. As technology has become pervasive in corporate, educational and social settings, access to digital information is becoming more important, calling for new interaction approaches. This has led to considerable research into facilitating access to and interaction with a great variety of types of information with new displays and input modalities. Our research has played a significant role in this, writing about evaluation methodologies, and running influential studies in interaction fundamentals. For example, Fig 5 shows use of eye tracking to understand how people decipher a visualization. Our research is known for repeatedly demonstrating the innovative potential of leveraging qualitative formative studies in the design of new interaction possibilities. Well-known examples include tabletop and sketch-based interactions streams of research showing how a better understanding of fundamental behaviours can be successfully translated into interaction design.

Large display and tabletop interactions. Based on observational studies, we recognized that human territoriality and orientation of items play significant roles in collaborative interaction. Combined, these theories have provided a basis for the development of entirely new tabletop interactions that support the organization and sharing of digital information during collaboration. This research has deeply influenced the tabletop research, being referenced in virtually all subsequent tabletop papers and has received CSCW's Lasting Impact Award. Our first fluid interfaces with flexible variations in tabletop territoriality support led to many subsequent research variations and extensions both in academic research and industrial tabletop interfaces (for a few examples see Fig 6). The extension in 3D interaction talk was so packed that the conference (ACM CHI) set up visual and audio broadcasting of

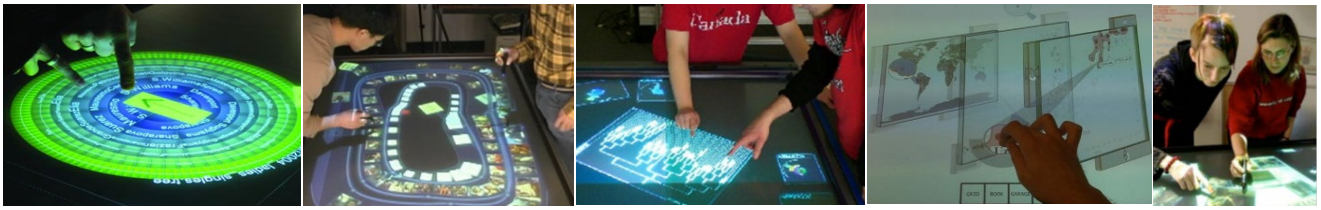

Fig 6: A few tabletop interactions: annotation, interface currents, comparing trees, 3D touch manipulation

this presentation so the large crowd in the hall outside the room could also see. This research led to the SMART Technologies NSERC/SMART/iCORE (later AITF) Industrial Research Chair (IRC) in Interactive Technologies, initially joint with Dr. S. Greenberg was subsequently myself solo. Tabletop displays were one of SMART Technology's most profitable items for over a decade. Media coverage included a Discovery Channel feature, an Innovation Alberta Interview by C. Chroucher, and a CBC News/Business Report.

Sketched-based interactions: Using sketching and drawing, even in casual situations such as on an available paper scrap or napkin, is known to be effective in promoting innovation, creativity and thinking in general. We have incorporated sketch-based practices and thinking activities from the beginning of our research. One result is the co-authored book *Sketching User Experiences: The Workbook,* which contains practical how-to examples of using sketching to approach interaction design. This book describes step-by-step sketching techniques for user experience design. This book is translated into four languages and sold over 20,000 copies. Sketches can be thought of as personal, spontaneous visualizations created on the spot to represent ideas and concepts and has led to improved understanding of common personal information work practices, for example, study whether active reading practices (see Fig 7) extend to visualization. To inform the design of visualizations, we have studied 'visualizations in the wild' to provide a better understanding of how people create visualizations/ sketches/diagrams and how they use these visuals that they create for themselves. This has enriched our ability to create and design new interactive visualizations. Examples include: 1) supporting use and manipulation of visualization in everyday conversations led to 'transmogrify', a group of interactive techniques (full paper at UIST, honourable mention UIST demo prize and a major French research prize); and 2) the idea of 'autocomplete' visualization – that one can start sketching a visualization and through computational recognition the system can fill in the data details alleviating considerable tedium. This, see Fig 8, done in conjunction with MSR research, led to SketchInsight (PacificVis Best Paper, and patent 2). Using these ideas led to expanding interactions (see visual control Fig 9) for brushing and linking to enable a sense of agency.

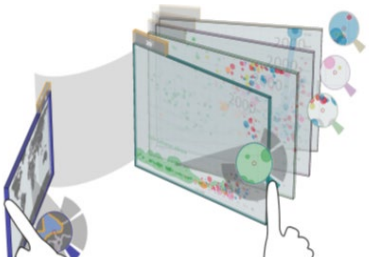

Fig. 9: 3D touch interaction

Fig. 7: Observing active reading of a visualization

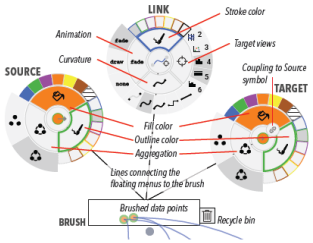

Fig 8: Configuration options for brushing and linking

Visualizing linguistic data: (PhD student C. Collins) has ranged from visualizing the uncertainty in machine-translated digital communications and offering human-in-the-loop interactions, and showing the word-based content of a document using the human-annotated IS-A noun hierarchy of WordNet. The complexity of linguistic data led to the development of VisLinks, a fundamentally new approach for exploring the relationships between representations of different aspects of data sets. VisLinks makes it possible to reveal relationships, to show connections between two or more primary visualizations, and to enable inter-visualization queries. VisLinks has been publicly praised in keynote talks by senior researchers in the field as a fore runner of future directions in visualization (C. Collins interviews: *CBC Radio One, Toronto Star, Fairchild TV*, *Media Focus*).

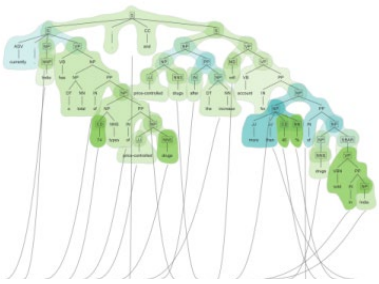

Fig. 10: Grammatical structure parse tree

Visualizing chemistry data. One of the persistent goals of visualization is to create visualizations for the data from active scientific research and have that visualization be recognized by the scientists as being crucial for new scientific insights. Surprisingly this is a rare occurrence. With PhD student K.W.

Hall and chemist P. Kusalik, this goal was achieved several times. Visualizations revealed how hydroxyl radicals can self neutralize in aqueous solutions, a result significant for cancer research. This discovery was enabled by visualizations that showed local molecular interactions during a full simulation in progress, without the occlusion of the rest of the molecules in the simulation. Through a new visualization projection, which utilized the fact that the molecules of interest were rotationally invariant to create a bilateral, polar, logarithmic projection that allowed one to view, from each side, the mutual approach of two hydroxyl radicals. Another example is a new visualization inspired by colour tunneling that enabled an exploration of the structure of mixed hydrate nucleation. Creation of these visualizations led to new insights about how molecular crystallization involves funnel-shaped potential energy landscapes, which has provided a new perspective on crystallization processes.

Visualizing Medical Data: (PhD student T. Zuk), with ***medical doctors*** Ghali and Baylis arose from considering the challenge of visualizing uncertainty (a noted grand challenge in visualization research). By combining cognitive science, semiology, design literature with a human computer interaction heuristic methodology we created guidelines that can be used for assessing uncertainty visualizations, which was a focus in a subsequent workshop, and is much cited. Also the research into incorporating uncertainty visualization support in diagnostic practices revealed that in reaching a decision both uncertainty in data and uncertainty in reasoning was relevant and has resulted in a model of how the combination of uncertainty in reasoning and data impacts visualization. The resulting decision support tool for diagnosing pulmonary embolism, is now deployed in the local hospital. Dr. Ghali says that they are monitoring its use and it may be saving up to 1 or 2 lives per week in the Foothills hospital alone. Also, we visualized UN's World Health Organization (WHO) 11th International Categorization of Diseases (ICD-11). This visualization was presented at WHO's 2019 planning meeting.

In collaboration with ***stroke neurologist*** Dr. Michael Hill and his research group QuICR with PhD student M. Hossenkani, we used visualization to better understand the process of the treatment of stroke patients. Given the possibility of brain damage post stroke exactly how quickly at patient receives treatment can have huge implication for subsequent quality of life. Working closely with Dr. Hill, we visualized the variations in timing of the treatment of stroke patients and invented a visualization method, now called HEDA (Heterogeneous Embedded Data Attributes – see Fig 10). One can use the HEDA to manipulate another simple visualization – in this case a bar chart (see Fig 11) – based on data attributes of interest. Dr. Hill has radically reduced the time to treatment of stroke victims – with news stories stating that his stroke time treatment wait-time improvement is the best in the world**.**

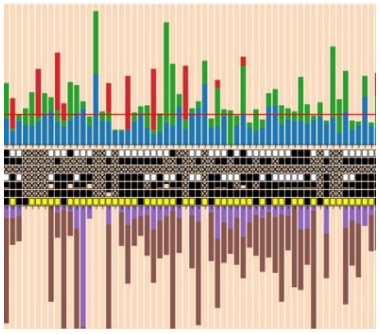

Fig 11: Using the HEDA to understand the process

Understanding Nurses' Information Flow: Through a series of observational studies to acquire a nurse-centered understanding of the processes, practices and mechanisms used to support information transfer during shift change (see Fig 12), to understand the deployment of a mobile wireless information system in the study ward, and to study a mobile hands-free voice communication system that was deployed in the study ward to help improve communication among distributed clinicians. Cumulatively, this has resulted in an integrated design for technology use in the ward.

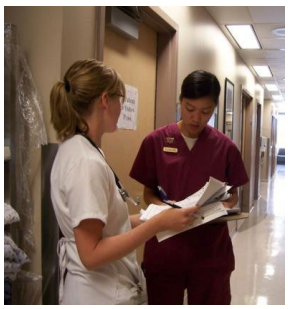

Fig. 12: working nurses to understand information flow

Visualization in Information Search: We are investigating the possibility of conducting information search through the use of information visualizations. We are investigating this opportunity on the web and in libraries. This research continues to impact search in libraries as well as continued research in innovative search on the web (Fig. 13).

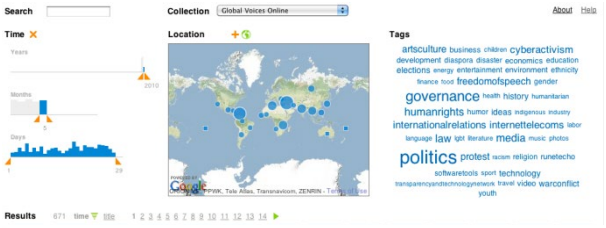

Fig. 13: Using visualizations to refine search

Elastic Presentation Framework (EPF): made a significant contribution to Information Visualization by unifying many previously developed presentation methods allowing the seamless inclusion of more than one presentation method in a single interface. By interpolating between the methods it describes, EPF identifies new presentation variations. The concepts developed in EPF have proven to be extensible to occlusion-reduction techniques that can be applied to 2D and 3D representations (see Fig. 14). EPF has received considerable academic and industrial attention. Presentation variations often in include some type of distortion to present information details within their context. We recently introduced the undistort lens into information presentation possibilities.

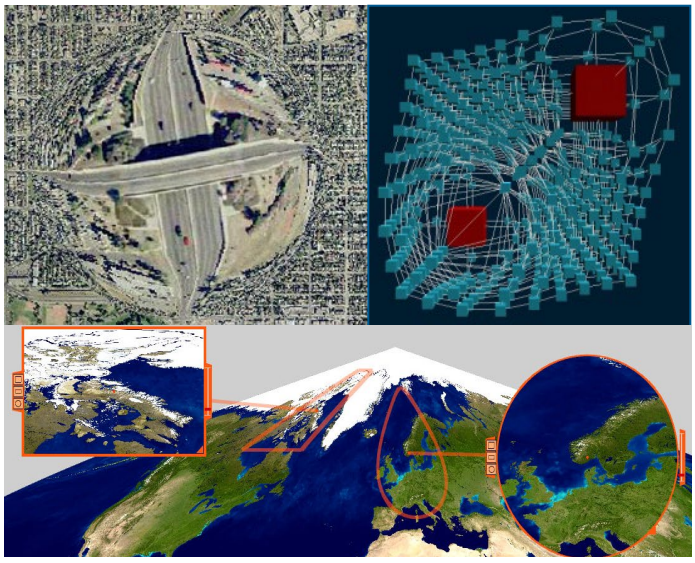

Fig. 14: Elastic Presentation variations: higher magnification in context; applying distortion to open 3D spaces; reversing map projection distortion

Employment and Appointments

Current

Canada Research Chair Tier 1	**Canada Research Chair Tier 1: Information Visualization** School of Computing Science, Simon Fraser University, BC, Canada • 2020 – current
Full Professor	School of Computing Science, Faculty of Applied Science, Simon Fraser University, BC, Canada • 2018 – current: Full Professor
Adjunct Professor	School of Interactive Arts and technologies Simon Fraser University, BC, Canada • 2018 – current:

Previous

Full Professor	Department of Computer Science, Faculty of Science, University of Calgary, Calgary, Canada • 2010 – 2018: Full Professor • 2004 – 2010: Associate Professor • 1999 – 2004: Assistant Professor
Industrial Research Chair	**NSERC/SMART: Industrial Research Chair: Interactive Technologies** School of Computing Science, Faculty of Applied Sciences, Simon Fraser University, BC, Canada, 2019 – 2020:
Industrial Research Chair	**NSERC/AITF/SMART: Industrial Research Chair: Interactive Technologies** Department of Computer Science, Faculty of Science, University of Calgary, Calgary, Canada, 2014 – 2018:
Canada Research Chair Tier 1	**Canada Research Chair Tier 1: Information Visualization** Department of Computer Science, Faculty of Science, University of Calgary, Calgary, Canada 2015 – 2018 (left to take position at SFU)
SICSA Distinguished Visitor	Hosted by University of St. Andrews, UK. Visiting University of Dundee, Napier University and Duncan of Jordanstone College of Art and Design. 2015
INRIA DIGITEO: Visiting Scientist	INRIA DIGITEO: Visiting Scientist: Campus Paris Saclay: 2014.

Industrial Research Chair	Joint **NSERC/AITF/SMART Industrial Research Chair: Interactive Technologies** Department of Computer Science, Faculty of Science, University of Calgary, 2007 – 2014:
Canada Research Chair	**Canada Research Chair Tier II: Information Visualization** Previously: Canada Research Chair Tier II: Information Visualization Department of Computer Science, Faculty of Science, University of Calgary, Calgary, Canada (2004 – 2014)
Consultant	Microsoft Research, Redmond, Wash. USA • 2010 – 2012:
Adjunct Professor	Department of Computer Science University of Toronto, Toronto, Canada • 2007 – 2012:

Computer Science Experience

Research Associate	• FRBC (Forest Renewal British Columbia) SEED (Simulating and Exploring Ecosystem Dynamics) Project School of Computing Science, Simon Fraser University, BC Developing visual access for landscape dynamics data. • 1996 – 1999 • Algorithms Laboratory Visualizing Network Theory, School of Computing Science, Simon Fraser University, BC • 1992 – 1996 (part time)
Computer Consultant	• Interactive Video Disc Project KYAC (Knowledge for Youths About Careers), Surrey, BC With the team from Degrassi Junior High, developed an interactive career choice program for teenagers. • 1991
Software Designer	• MPR Teltech Ltd., Burnaby, BC Created cohesive user interface, ‘Customer Response Kit’, that united three expert systems • 1990
Programmer	• ALI: Advanced Light Imaging Technologies, Burnaby, B.C Created visual diagnostic program used to test hardware • 1989
Research Assistant	• Dr. M. Benston. Simon Fraser University, BC Studied gender issues in math and computer education • 1987 - 1988

Arts and Design Experience

Visualisation Consultant	• BRAUNARTS Project: Antarctic Waves: developed with BRAUNARTS and the British Antarctic Survey • 2002
Instructor: Fine Arts	• Humber College • 1973 – 76 • Harbourfront Arts Center, Toronto, Ont. • 1976 – 79 • Potters Studio: Toronto, Ont. • 1977
Artist in Residence	• GreenHouse Arts Retreat, Christina Lake, BC • 1997 • Harbourfront Arts Centre, Toronto, Ont. • 1976-1979 • Lippincot Couch House Studio, Toronto, Ont. • 1973-1979 • World Crafts Conference, Ontario Science Centre, Toronto, Ont. • 1974
Co-founder Arts Centre	• Co-founder (with 11 others): Toronto Harbourfront public facing arts and crafts centre, which has become Harbourfront Craft and Design artist-in-residency-program and exhibition space 1975-1979
Artist in the Schools	• Ontario Arts Council, Don Mills Junior High, 1977 • Ontario Arts Council, Subway Academy, 1978
Teacher	• Toronto Board of Education, Toronto, Ont. • Grade 13, Studio Art 1977-78 • North York Board of Education, Toronto, Ont. • Fine Arts: Grades 7, 8 and 9: 1975-76

Teaching, Classes and Programs

I regularly taught undergraduate and graduate courses in the Department of Computer Science at University of Calgary. I have frequently had the opportunity to design and/or redesign both undergraduate and graduate courses. Several of these new course designs have been interdisciplinary in nature and have led to the formulation of two new graduate programs of studies – a Masters and a PhD in Computational Media Design. I have received the University of Calgary Excellence in Supervision Award, twice, based on a nomination from my graduate students. I currently supervise 3 Post Doctoral Fellows, 9 PhD students, 2 MSc students, and 1 research associate. I have supervised 10 Postdoctoral Fellows, 14 PhD, and 14 Master's students to successful conclusions. I also regularly supervise research exchange students, undergraduate students and research employees.

The Creation of the Computational Media Design (CMD) Program: My interdisciplinary practices in supervision, instruction and research with the Fine Arts and Design faculties have led to the formulation of an interdisciplinary graduate group and the development of Computational Media Design (CMD) graduate programs of study. It is our goal to create an environment where students will be able to collaborate on research projects that explore the boundaries between art, design, and computer science. Two new graduate programs, one MSc and one PhD, will be created at the intersection of Computer Science and Arts & Design. In June, 2008 provincial (EPE) funds were successfully obtained for these new trans-disciplinary programs. While these were based on the success of my ongoing, Arts/Science collaborations, the new programs are evolving and developing as we proceed. They have been successful in meeting the EPE target enrolment was met for 2008/2009, and 2009/2010. Work developing these new computer science and creative practice interdisciplinary programs that bridge computer science, fine arts and environmental design and is already clearly, fostering innovation and attracting top quality students. The program has been approved by the Faculty of Graduate Studies and University of Calgary Academic Planning Committee and is proceeding for provincial approval. The CDM program continues to operate successfully both at the MSc and PhD level.

Interdisciplinary Art/Computer Science Pilot Courses. I designed and taught cross-disciplinary courses with A. Dunning, Head of Alberta College of Art and Design's Media Arts and Digital Technologies Program. These courses explore the potential for collaborative research between artists and scientists in an interdisciplinary environment. Students share the facilities of both institutions (ACAD and UofC) and develop project goals and understandings in an intensive workshop held at the Banff Centre for the Arts. This course showed a developing commitment at UofC to exploring the research potential of interdisciplinary collaborative space through innovative programming and partnership.

Interaction Design. I worked with S. Greenberg on creating a fourth year course on Human Computer Interaction with a considerably novel focus. This course is being taught on a student inquiry led basis, similar to many design studio courses. The Design Studio concept is an entirely appropriate pedagogy, for this course concerns the development of the student's interface design skills. This represents a considerable shift from conventional computer science teaching practices. While from my fine arts teaching experience I have taught many design studio courses, finding the right blend to teach interaction design as computer science has taken considerable thought and discussion. S. Greenberg and I have combined these discussions around interaction design and design studio teaching with knowledge about computer science instruction to create a new computer studio design course.

Supervision

Current Post-Doctoral Fellows, Graduate Students and other Supervision

Post Docs

- Zezhong Wang: June 2022 –
- Narges Ashtari: May 2024 –

PhD Students

- Ruishan Wu: accepted Sept. 2024
- David Wong (co-supervised with P. Chilana): Sept. 2021 –
- Tatiana Losev: September 2021 –
- Maryam Rezaie: September 2020 –
- Foroozan Daneshzand: September 2019 –

Research Associates and Assistants

- Parnian Taghipour: January 2024 –
- Spoorthy Gunda: June 2024 –
- Nastaran Sedehi: June 2024 –
- Sarah Storteboom: May 2023 –

Completed Post Doctoral Fellows, Graduate Students and other Supervision

Previous Post Docs

- Victor Cheung: January 2020 to April 2020
  NOW: Lecturer, Human Computer Interaction in School of Computing Science at Simon Fraser University
- Søren Knudsen: January 2017 to July 2020
  Marie Curie Scholar: University of Copenhagen/University of Calgary
  NOW: Assistant Professor, Digital Design Department, IT University of Copenhagen
- Jagoda Walny: August 2017 to November 2019
  NOW: Lead Data Visualization Scientist: Project Canada Energy Regulator
- Helen He: February 2019 – August 2019
  NOW: Assistant Professor, Department of Computer Science at University of Calgary
- Sonja Thoma: June 2018 – July 2019 (Linguistic PhD for linguistic visualization)
  NOW: Language Coach with FNESC (First Nations Education Steering Committee), for their Language and Culture Program
- Gonzalo Mendez: April 2018 – April 2019
  NOW: Assistant Professor, Department of Computer Science at ESPOL University, Ecuador
- Miriam Sturdee: April 2018 – January 2019
  NOW: Reader University of St. Andrews
  Lecturer (Assistant Professor) Lancaster University, UK.

- Christian Frisson: December 2017 – November 2018
  NOW: Post-Doctoral Fellow, McGill, Montreal.
- Jo Vermeulen: January 2016 – July 2017
  NOW: Senior Researcher Autodesk Research
  Previously, Assistant Professor, Computer Science at Aarhus University
  PhD AWARD: won the 2015 **FWO-IBM Innovation Award, Best Belgian Computer Science Dissertation** (2015)
- Adam Bradley: October 2016 – January 2017
  NOW: Research Scientist, at Visualization for Information Analysis Lab, Ontario Tech University
- Charles Perin: January 2015 – December 2016
  NOW: Assistant Professor, Computer Science, University of Victoria,
  Previous: Lecturer, Department of Computer Science at City, University of London, and part of the giCentre research group
- Samuel Huron: October 2014 – November 2015
  NOW: Associate Professor of Design and Information Communication Technology at Mines Telecom Paris Tech
  AWARD: IEEE VGTC VPG Doctoral Dissertation Award for his PhD thesis *'Constructive Visualization: A Token-based Paradigm Allowing to Assemble Dynamic Visual Representation for Non-experts'*. IEEE VGTC Doctoral Dissertation Award
  Was: Lead Designer at Institute for Research and Innovation of the Pompidou Center (Paris) http://www.cybunk.com/blog2/
- Javad Sadeghi: August 2013 – December 2014
  NOW: President & CEO of Animation Leader Technology Inc (own start-up)
- Sebastian Boring: November 2011 – October 2012
  NOW: Professor of Media Technology, Aalborg University, Copenhagen
  Was: Associate Professor, HCC Group, University of Copenhagen, Copenhagen, Denmark. http://www.sebastianboring.com/
- John Brosz: April 2011 – May 2012
  NOW: Visualization Research Coordinator, TDFL, Calgary
- Dominikus Baur: January 2012 – September 2012
  NOW: Lead Software Developer Konux, Munich, DE; was Independent Visualization Researcher and Consultant
  http://do.minik.us/blog
- Miguel Nacenta: April 2009 – April 2011
  NOW: Associate Professor, University of Victoria
  Lecturer (Assistant Professor): University of St. Andrews, Scotland
  https://nacenta.com/research/
- Amy Voida: December 2007 – October 2009
  NOW: Assistant Professor, University of Colorado Boulder;
  Previously, Assistant Professor, School of Informatics and Computing, Indiana University. Research Scientist: University of California, Irvine
  http://amy.voida.com/
- Steve Voida: December 2007 – October 2009
  NOW: Assistant Professor, University of Colorado Boulder;

Amy and Steve Voida: Co-Founders: Department of Information Science, College of Media, Communication, and Information, University of Colorado Boulder
Previously, Assistant Professor, School of Informatics and Computing, Indiana University. Research Scientist: University of California, Irvine

- Tobias Isenberg: October 2004 – October 2007
  NOW: Research Director, INRIA
  http://tobias.isenberg.cc/
  Previously: Assistant Professor & Digiteo Chair of Excellence Johann Bernoulli Institute Mathematics & Computer Science

Previous PhD Students

- Paul Lapides: September 2013 – June 2021
- Bon Adriel Aseniero: January 2015 – October 2020
  NOW: Senior Research Scientist, Autodesk Research.
  Award: **Best PhD, Honorable Mention: IEEE VGTC Doctoral Dissertation Competition for his PhD thesis "***An Autobiographical Reflection on Designing Visualizations for Personal Contexts* '.
- Fateme Rajabiyazdi: January 2014 – December 2018
  NOW: Assistant Professor, Carleton University
  Was: Postdoctoral Researcher at McGill University - Department of Experimental Surgery
- Marjan Eggermont. PhD awarded April 2018.
  NOW: Tenured Instructor | Mechanical and Manufacturing Engineering
  Schulich School of Engineering | University of Calgary
  University of Calgary Teaching Scholar
  founded, edits, and designs **Zygote Quarterly (**ZQ), which was a finalist **(2nd to Scientific American)** in the Digital Magazine Awards, Science and Nature category, in 2012, 2013, 2014, and 2015. | zqjournal.org
- Alice Thudt: PhD awarded April 2018.
  Award: **Best PhD, Honorable Mention: IEEE VGTC VPG Doctoral Dissertation Competition for her PhD thesis '*Visualizations for Personal Reflection and Expression***'.
  NOW: Independent Data Visualization Designer
- Lindsay MacDonald: PhD awarded February 2018.
  NOW: Interaction Designer (Freelance)
  Was: Postdoctoral Fellow, Centre for Digital Creativity.
  School of Communication & Culture, Digital Design & Information Studies
  Aarhus University, Denmark
- Mona Hosseinkhani: PhD awarded January 2018.
  NOW: HCI and Infovis Research Scientist, at Huawei Noah's Arc Lab
  Previously: PostDoc at Autodesk
- Aura Pon: PhD awarded January 2018.
  NOW: Freelance Musician, Researcher, Designer
- Tanja Blascheck (Mitberichter) PhD awarded July 2017
  Award: **EuroVis Best PhD Award 2018**

NOW: PostDoc INRIA, Saclay, Paris, France

- Kyle Hall: (co-supervisor): PhD awarded May 2017
  Award: **University of Calgary, Faculty of Science's John Kendall Best PhD Thesis Award**
  NOW: Postdoctoral Fellow, Department of Chemistry
  Temple University, Philadelphia, USA.
- Jagoda Walny: PhD awarded Dec. 2016
  Award: **Best PhD, Honorable Mention: IEEE VGTC VPG doctoral dissertation Competition for her PhD thesis '*Thinking with Sketches: Leveraging Everyday Use of Visuals for Information Visualization*'.**
  Award: **Best HCI PhD in Canada awarded (Bill Buxton Award)**
  NOW: Lead Research Designer for the National Energy Board Data Visualization Project.
- Ovo Adagha (co-supervisor): September 2011 – Dec. 2015
  NOW: Senior Research Associate, The Conference Board of Canada, Calgary, Alberta
- Lawrence Fyfe: January 2009 – April 2015,
  NOW: Research Engineer, INRIA, Saclay.
- Katayoon Etemad: January 2010 – April 2015
  NOW: Research Associate: University of Calgary
  Was: Data Visualization Designer: VizWorx, Calgary
- Andrew Butt: PhD awarded, May 2014
  NOW: Research Scientist: Oil Industry
- Uta Hinrichs: PhD awarded, December 2012
  Award: **Best HCI PhD in Canada awarded (Bill Buxton Award)**
  NOW: Lecturer (Assistant Professor): University of St. Andrews, Scotland.
  Previously, PostDoc: University of St. Andrews, Scotland
- Marian Dörk: PhD awarded May 2012
  NOW: Research Professor (Forschungsprofessor), Potsdam University of Applied Sciences (Fachhochschule Potsdam);
  Previously, PostDoc: Culture Lab, NewCastle University
- Mark Hancock: PhD awarded July 2010
  NOW: Associate Professor: University of Waterloo
  Ontario Early Career Research Award
- Christopher Collins: PhD awarded January 2010
  NOW: **Canada Research Chair: Linguistic Information Visualization**
  University of Ontario Institute of Technology;
  Previously Assistant Professor, SHARC Net Research Chair: University of Ontario Institute of Technology
- Petra Isenberg: PhD awarded December 2009
  NOW: Research Scientist (CR1): INRIA, Paris
- Charlotte Tang: PhD awarded August 2009
  NOW: Assistant Professor: University of Michigan-Flint
  Previously, PostDoc: University of British Columbia

- Torre Zuk: PhD awarded December 2008
  NOW: Graphics Research Scientist: CGG Veritas
- Katherine Mason: PhD awarded May 2006
  NOW: Graphics Researcher: Google
- Stacey Scott: PhD awarded March 2005
  Award: Best PhD, Faculty of Science, University of Calgary
  NOW: Associate Professor: University of Guelph
  Previously at Waterloo, and PostDoc MIT

Previous Masters Students

- Parnian Tagnipour: 2022 – 2023: (co-supervised with T. Shermer): graduated August 2023.
- Katherine Currier: September 2017 – April 2020: graduated April 2020
- Tiffany Wun: September 2016 – awarded December 2018
- Sarah Storteboom: September 2016 – awarded October 2017
- Gerry Straathof: September 2012 – awarded April 2015
- Bon Adriel Aseniero: awarded December 2014
- Shahbano Farooq: awarded April 2014
- Sean Lynch: awarded December 2011
- Lindsay MacDonald: awarded April 2011
- Matthew Tobiasz: awarded April 2010
- Katayoon Etemad: awarded December 2009
- Eric Penner: awarded December 2009
- Jeroen Keijser: awarded December 2007
- Annie Tat: awarded April 2007
- Elena Fanea: awarded April 2006
- Nelson Wong: awarded March 2005
- Russell Kruger: awarded July 2004
- Charles (CJ) Baker: awarded April 2004

Previous U-grad Research Students

- Gabi Siu: September 2021 – December 2021
- Issaca Tang: Jan. 2022 – Aug. 2022
- Lien Quach: Nov. 2019 – June 2020
- Peter Buk: Nov. 2019 – April 2020
- Katrina Tabuli: July 2019 – January 2020
- Komal Waseem: May 2018 – Dec. 2018
- Lisa Hynes: May 2018 – Dec. 2018
- Tina Huynh: May 2018 – Aug. 2018
- Katrina Tabuli: July 2017 – Aug. 2017
- Shreya Chopra: June 2017 – Aug. 2017
- Lien Quach: April 2017 – Dec. 2018
- Peter Buk: June 2017 – Dec. 2017
- Terrance Mok: June 2016 – Aug. 2016

- Kevin Ta: May 2016 – Aug. 2016
- Mandy Nilson: July 2016 – Aug. 2016
- Alexander Ivanov: April 2016 – Aug. 2016
- Tiffany Wun: Jan. 2016 – May 2016
- Carrie Mah: September 2015 – May 2016
- Mandy Wong: September 2014 – Dec. 2014
- Riane Vardeleon: September 2012 – Aug 2013
- Carrie Mah: May 2013 – Aug 2013
- Amy Banh: June 2013 – Aug 2013
- Faraz Bhojani: May 2012 – August 2012
- Cody Coljee-Gray: May 2011 – July 2012
- Bon Adriel Aseniero: February 2011 – April 2012
- Stephanie Mikulecky: May 2011 – April 2012
- Kimberly Mikulecky: April 2009 – April 2011
- Andrew Seniuk: May 2007 – Sept. 2007
- Aaron Krootje: Sept – Dec. 2008
- Jessica Stezo: Sept. 2008 – April 2009
- Eric Penner: May – Aug. 2004
- Anand Agrawala: Sept. – April 2004
- Matthew Tobiasz: Sept. – April 2004
- Erin Wallace: Sept. – Dec. 2003
- Annie Tat: Sept. – April 2002
- Russell Kruger: Sept – April 2002
- Rong Xing: Sept. – April 2001

Exchange Students

- Fabricio Layedra (exchange from Ecuador) Jan. 2019 – April 2019
- Mathieu Louvet (MSc): April 2018 – Sept. 2018
- Gonzalo Mendez (PhD): October 2017 – Feb. 2018
- Tanja Blascheck (PhD): June 2016 – Sept. 2016
- Sebastian Lay (Ugrad): April 2016 – Sept. 2016
- Philipp Koytek (MSc): April 2016 – Sept. 2016
- Tamara Flemisch (MSc): June 2015 – April 2016
- Sarah Tausch (PhD): July 2014 – October 2014
- Samuel Huron: (PhD) March 2013 – August 2013
- Michael Mauerer: (Diplom) May 2013 – Nov. 2013
- Søren Knudsen: (PhD) October 2013 – Dec. 2013
- Ulrike Kister: (Diplom) November 2011 – August 2012
- Matthias Graf: (Diplom) November 2011 – August 2012
- Alice Thudt: (Diplom) awarded January 2012
- Florian Perteneder: (MSc) Aug. – Dec. 2011
- Christian Grossauer: (MSc) Aug. – Dec. 2011
- Luc Vlaming: (MSc) awarded November 2010

- Ricardo Langner: (internship) awarded August 2010
- Sebastian Schmidt: (internship) awarded August 2010
- Thomas ten Cate: (MSc) awarded November 2009
- Marian Dörk: (Diplom) awarded May 2008
- Jens Grubert: (Diplom) awarded February 2008
- Martin Schwarz: (internship) awarded April 2007
- André Miede: (MSc) awarded April 2006
- Lothar Schlesier: (Diplom), 2006
- Uta Hinrichs: (Diplom), 2004
- Stefan Habelski: (Diplom), 2004
- Henry Sonnet: (PhD exchange), 2004
- Thomas Heine: (Diplom), 2003
- Andreas Oppermann: (Diplom), 2003
- Petra Neumann: (internship), 2003
- Julie Schliebenow: (internship), 2003

Research Associates and Assistants

- Sarah Storteboom: May 2023 – May 2024
- Navarjun Grewal: March 2021 – Dec. 2022
- Spoorthy Gunda: September 2021 – Dec 2022
- Sarah Storteboom: June 2020 – August 2021
- Caroline Wong: November 2020 – April 2021
- Cindy Wheadon: April 2018 – June 2021
- Parisa Shiri: Sept. 2019 – Oct 2019
- Mahya Sadeghi: Aug. 2019 – Oct 2019
- Claudia Maurer (National Energy Board Data Visualization: Project Manager): March 2017 –
- Cindy Wheadon: (iLab Coordinator): April 2018 –
- Ricky Pusch (Research Associate): November 2012 – Oct 2019
- Katrina Tabuli: May 2019 – January 2020
- Sarah Storteboom: April 2018 – Oct 2019
- Anna Monique (Meike) West: September3 2018 – July 2019
- Doris Kosminsky: Professor, Communication and Visual Design, (Intermittently in connection with the NEB Project) Federal University of Rio de Janeiro: January 2019 – February 2019.

Supervisory and Examination Committees

PhD

- PhD: Committee member
  Student: Laton Vermette, School of Computing Science, SFU
  Senior supervisor with P Chilana; completed May 16, 2022.
- PhD: Committee member
  Student: Rimika Chaudhury, School of Computing Science, SFU
  Thesis topic: Designing visual and interactive interventions to facilitate learning.

Senior Supervisor: P. Chilana

- PhD Examiner, Student: Mahmood Jasim, Manning College of Information and Computer Sciences, University of Massachusetts Amherst, USA, June 28, 2023
  Supervisor: Narges Mahyar.
  Thesis title: *Human-centered Technologies for Inclusive Collection and Analysis of Public-Generated Data*
- PhD Examiner, Student: Linda Hirsch. Faculty of Mathematics, Informatics and Statistics, Ludwig Maximilian's University of Munich, Germany, May 25, 2023
  Supervisor: Andreas Butz
  Thesis title: *Traces in Use Design Concept*
- PhD External Examiner, Student: Andreas Mathisen, Computer Science, Aarhus University, Denmark, August 2019
  Supervisor: Kaj Grønbæk
  Thesis title: *Collaborative Visual Analytics: Leveraging Mixed Expertise in Data Analysis*
- PhD thesis Examiner, July 2019
  Student: Khalil Klouche, Aalto University School of Arts, Design and Architecture, Finland
- Simon Stusak, PhD November 18, 2016. *Exploring Potential of Physical Visualizations*. (External Advisor)
- Ebrahim Tarameshloo, PhD, August 10, 2016. Privacy in Geo-Social Networking Systems (committee member)
- Samuel Huron, September 25, 2014. Constructive Visualization. Universite Paris-Sud XI (Advisor)
- Yvonne Jansen, PhD, March 2014: *Physical and Tangible Information Visualization*., Universite Paris-Sud XI (External Examiner)
- Andrew Butt, PhD, May 2014: Interdisciplinary Student: *Visualization in Ecological Decision Processes*: supervisory committee, candidacy, defense examination committee
- Xing-Dong Yang, PhD, August 2013: *Blurring the Boundary Between Direct and Indirect Mixed Mode Input Environments.* University of Alberta, Computer Science. (External Examiner)
- Dominikus Baur: PhD, December 2011: *The Songs of Our Past: Visualizing Music Listening Histories*. Ludwig-Maximilians-Universität: supervisory committee (External Advisor)
- John Brosz: PhD April 2011, *The Flexible Projection Framework* supervisory committee, candidacy examination committee, defence examination committee
- Brian Corrie, PhD. University of Victoria, Computer Science: PhD Examiner July 2010.
- Otmar Hilliges PhD: *Where is the Interface? Exploring Interaction Styles for Interactive Surface Computing*. Ludwig-Maximilians-Universität , defence examination committee July 2009. (External Advisor)
- Michael McGuffin, PhD. University of Toronto, Computer Science, PhD Examiner, April 2007 (External Examiner)
- Carmen Zannier: supervisory committee, candidacy examination committee, defence examination committee, August 2007

- Pauline Jepp: supervisory committee, candidacy examination committee, defence examination committee, November 2007
- Carman Neustaedter: supervisory committee, candidacy examination committee, defence examination committee, January 2007
- Edward Tse, PhD. Computer Science, supervisory committee, candidacy examination committee, defence examination committee, November 2007
- Callum Galbraith: supervisory committee, candidacy examination committee, defence examination committee, September 2005
- Michael Boyle: supervisory committee, candidacy examination committee, defence examination committee, March 2005

Masters

- Masters Thesis: committee member, 2019-2021
  Student: Anjali Khurana, School of Computing Science, SFU
  Thesis title: ChatrEx: Designing Explainable Chatbot Interface for Enhancing Usefulness, Transparency, and Trust.
- Masters Thesis: Examiner, November 25, 2019
  Student: Rimika Chaudhury, School of Computing Science, SFU
  Thesis title: Design and Evaluation of In-Context Retrieval Exercises for Informational Videos
- Masters Thesis: Examiner, 2021-01-20
  Student: Shohre Masoumi, School of Computing Science, SFU
  Thesis title: SigTools: An exploratory visualization tool for genomic signals
- Masters Thesis: Examiner, June 17, 2019
  Student: Kimia Kiani, School of Computing Science, SFU
  Thesis title: Understanding Help-Seeking Diversity in Modern Feature-Rich Applications
- Julie Stromer: MSc Computer Science, Examiner, Jan. 2007
- Julie Grant: MSc Physics and Astronomy, Examiner, September 2006
- Mikolia Cieslak: MSc Computer Science, Internal Examiner, June 2006
- Lawrence Liu, MSc., Computer Science, Internal Examiner, December 2005
- Shui Chun Charlotte Tang, MSc. Computer Science, Internal Examiner, May 2003
- Carman Neustaedter, MSc. Computer Science, Internal Examiner, May 2003
- Mark Mathews, MSc. Computer Science, Internal Examiner, May 2003
- Kevin Baker, MSc. Computer Science, Internal Examiner, May 2002
- Mai Nur, MSc. Computer Science, Internal Examiner, March 2002
- James Tam, MSc. Computer Science, Internal Examiner, Feb. 2002
- Stewart Morgan: MEDes, committee member, Examiner, June 2002
- Shaun Kaasten, MSc. Computer Science, Internal Examiner, April 2003
- Oliver Kuederle: MSc. Computer Science, SFU, committee member, Examiner, August 2000

Technology Transfer

VizworX. VizworX is a 2012 spin company co-founded with Frank Maurer, Jeff LaFrenz and Simon Grange. VizworX is doing exceptionally well and has won the Calgary Chamber of Commerce Innovation Award for small businesses and it is 2019 the TECTERRA Award winner. https://vizworx.com/

Elastic Presentation Framework. When IDELIX Software Inc decided to create presentation tools based on my Ph.D. research, they grew rapidly from no paid employees in 1999 to approximately twenty paid employees in 2002. Through Idelix, GeoConnections Canada and BOEING Autometric are incorporating EPF-based concepts into their software. A BOEING customer, Atlantic Air Survey Ltd., has announced that they have gained 20% productivity with technology developed from Elastic Presentation. In January 2003, IDELIX won the "Imaging Solution of the Year" from Advanced Imaging Magazine. This award recognized their detail-in-context technology, based on my research, as practical and forward-looking.

Antarctic Waves. I consulted with Braunarts, the British Antarctic Survey, and the London Philharmonic to create Antarctic Waves. This project uses visuals to integrate scientific results with Antarctic sounds to create a tool to inspire musical composition. Antarctic Waves won a British Academy of Film and Television Arts, **BAFTA, Interactive Entertainment Award**, in the Offline Learning category. The criteria for this award is *the most effective use of offline interactive media for education*. (British equivalent in Canada to GENIE Award, in USA to an Emmy (television) or an Oscar (film))

CodeZebra. This science/arts collaboration led by S. Diamond looks at creating an artistic chat environment. It has received considerable interest and support both nationally and internationally. I have contributed to the visualization aspects, taking part in CodeZebra workshops in San Francisco, London, and Rotterdam and was part of a presentation at the San Francisco Museum of Modern Art.

The SEED (Simulating and Exploring Ecosystem Dynamics) Project. The SEED Project is composed of the simulation engine, SELES (Spatially Explicit Landscape Event Simulator), and a visualization environment. The SEED project was funded by FRBC (Forest Renewal British Columbia). Publication and dissemination of results beyond the boundaries of BC was not encouraged. The results were disseminated directly through outreach to government agencies and companies. This included: the BC Ministry of Forests (head office, or forest regions and districts), the BC Ministry of Environment, the Canadian Forest Service and the model forest network, MacMillan Bloedel, and environmental non-governmental organizations including the Vancouver Island Marmot Recovery Team. A SEED colleague, Dr. A. Fall established Gowlland Technologies to continue this research. This collaboration continues.

Patents

Title: ***Visualization of Dynamic Weighted Networks***
Patent Number: 8832582
Number: 20140253556 (MS File No. MS 338060.01)
Filing Date: March 11, 2013**; Publication date:** Sept. 11, 2014
Applicants: Microsoft Corporation
Inventors: Henry-Riche, Lee, Carpendale

Description: The visualization of graphs and networks has been an active research topic in the past two decades. In many cases, the visualization of graphs and networks may be used to identify patterns in graphs or networks that are evolving over time, such as web structures, software call graphs, biological networks, electrical networks, telecommunication networks, social networks, or the like. However, identifying patterns in such graphs or networks may be challenging because many nodes and links can be added or deleted over a short period of time. Further, this task may be even more challenging if the information carried on the links of a graph or network is of interest for the identification of patterns corresponding to the graph or network. For example, the weight of the connections in a functional brain network may be of interest for the identification of patterns between the connections within the brain. The identification of such patterns may allow scientists to improve their understanding of the manner in which the brain functions, as well as allow scientists to learn how to identify potential pathologies, such as Alzheimer or Parkinson's disease, in the early stages of development. Many existing visualization techniques use an animated representation to perform a visual exploration. However, as the human brain can track only a small number of elements (e.g., five elements) at a time, it is very difficult to extract high-level patterns using such animated representations..

Title: ***Interactive Control of the Curvature of Links***
Application Number: 15924818
Patent Number: 8832582
Number: 20140337803 (MS File No. MS 331410.01)
Filing Date: July, 2014
Publication date: July 26, 2018
Applicants: Microsoft Corporation
Inventors: Timothy Dwyer, Nathalie Henry-Riche, Bongshin Lee, Sheelagh Carpendale
Description: A link curvature processing module enables a user with the ability to control the curvature of links in a node-link diagram. As a node-link diagram is displayed to a user, the user may interact with the diagram and adjust the curvature of one or more links in the diagram to improve the readability of the diagram. The user's modification to the curvature of a link alters the shape of the link so that the position of the nodes connected to the link does not change. By providing the user with such control, the user is able to tailor the visual display of the links to the user's preference.

Title: ***Integration of Sketch-based Interaction and Computer Data Analysis***
Patent Number: 8994732
Number: 20120229468 (MS File No. MS 331410.01)
Filing Date: March 7, 2011; **Publication date:** Sept. 13, 2012
Assignee: Microsoft Corporation
Inventors: Lee, Henry-Riche, Carpendale, Sherwood, Browne
US Patent 8,994,732
US Patent 20,120,229,468
Description: Architecture that integrates the benefits of natural user interaction such as freeform sketch with computer-aided charting. The architecture integrates natural user interaction utilizing multiple modalities (e.g., sketch, multi-touch, etc.) with computer supported data analysis that allows users to explore data by drawing charts using simple strokes. Natural user interactions can be utilized to

change chart types by drawing symbols, transform data by applying functions, filter data by drawing strikethrough on legends, etc. Additionally, the architecture makes an inference of visualizations the user intended from user-drawn strokes, such as the axes of a graph, the words of a label, etc. When appropriate, the architecture automatically completes visualizations.

Title: ***Method for Manipulating a Graphic Widget in a Three-Dimensional Environment displayed on a Touch Panel of an Interactive Input System***
Patent Number: 8416206
Number: 20110069019;
Filing Date: Dec. 2, 2009; **Publication Date:** March 24, 2011;
Assignee: SMART Technologies ULC
Inventors: Carpendale, Hancock, ten Cate, Isenberg
Description: A method for manipulating a graphic widget in a three-dimensional environment displayed on a touch panel of an interactive input system is provided. The method includes tracking the x-y positions of two touch points associated with the graphic widget; and modifying the z-position of the graphic widget in accordance with changes in the distance between the x-y positions of the touch points. An interactive input system and computer readable medium embodying the method is also provided.

Title: ***Elastic Presentation Space***
Patent Number: 6768497;
Number: 20020044154
Filing Date: Oct 18, 2001; **Publication Date:** Jul 27, 2004
Assignee: Idelix Software Inc.
Inventors: Baar, Carpendale, Cowperthwaite, Tigges, Komar, Bauer
Description: A method for displaying visual information on a display screen of a computer, comprising the steps of scaling the visual information to produce a scaled representation to fit on the display screen the scaled representation containing the entire content of the visual information; selecting a region of interest within the scaled representation; applying a transformation to the scaled representation to improve the visual detail in the region of interest; and, displaying the transformed presentation on the display screen.

RESEARCH GRANTS

Currently held

	Title and Granting Agency	Total	Year(s)
Co-PIs Chris Joslin, Lesley Istead plus co-applicants S. Carpendale and 8 others	*NSERC CREATE: VISION: VIsual effectS and animation InnovatION and simulation* *(just received notification – details being worked out)* *Plus $274,000 from other sources*	$1,650,000	2024-30
Co-PIs Jason Dykes, Stephanie Wilson, Cagatay Turkay, Plus 20 PhD student exchange receipts including S. Carpendale	The EPSRC Centre for Doctoral Training in Diverse Data Visualization (DIVERSE-CDT) City University London, University of Warwick https://www.city.ac.uk/news-and-events/news/2024/march/centre-doctoral-training-diversity-data-visualization-awarded-over-9m-funding-epsrc	£9million	2024-30
S. Carpendale	Data Comics for Climate Change New Frontiers in Research Fund - Exploration	$250,000 ($125,000/yr)	2023-25
S. Carpendale and 5 co-applicants	A Co-Design Exploration of Community Data through Placed-Based Decision-Supporting Tools and Methods: New Frontiers in Research Fund - Special Call	$500,000 ($250,000/yr)	2023-25
S. Carpendale	Data Visualization BCKDF (Knowledge Development Fund)	$150,000	2021-23
S. Carpendale	Data Visualization CFI (Canadian Foundation for Innovation)	$150,000	2020-22
S. Carpendale	CRC Chair in Information Visualization (tier I) At Simon Fraser University Granting Agency: NSERC	$1,400,000	2020-26
S. Carpendale	Interactive Visualization NSERC Discovery Grant	$444,000 ($74,000/yr)	2019-25
M. Murray, Co-investigator: Carpendale and 18 others	The Canadian Consortium for Arctic Data Interoperability CFI	$5,281,812 (my part $296,000)	2019-23
P. Isenberg plus S. Carpendale and 5 others	Associated Team SEVEN: Situated and Embedded Visualization for Data Analysis	$53,760 (my part $7,680)	2018-20

Previously Held

	Title and Granting Agency	Total	Year(s)
S. Carpendale and W. Willett	National Energy Board	$1,974,020	2016-19
S. Carpendale	CRC Chair in Information Visualization (tier I) At University of Calgary to Oct. 2018 Granting Agency: NSERC	$1,400,000 ($600,000 received)	2015-18
S. Carpendale	NSERC/AITF/SMART Industrial Research Chair in Interactive Technologies (NSERC funding)	$300,000 ($60,000/yr)	2014-20
PI: W. Ghali, Co-PIs: T. Stelfox, J. Conly S. Carpendale plus 35 others	W21C: Interdisciplinary Research and Innovation for Health System Quality and Safety Alberta Innovates Health Solutions	$4,679,601	2013-19
S. Greenberg S. Carpendale	AITF/SMART Technologies Industrial Research Chair in Interactive Technologies Granting Agency: AITF	$500,000 (50%)	2011-20
S. Carpendale	SMART Technologies Industrial Research Chair in Interactive Technologies Granting Agency: SMART	$300,000	2013-20
Carpendale	Insight through Data Visualization NSERC Connect Grant	$18,175	2019
S. Carpendale	Interactive Visualization NSERC Discovery Grant	$310,000 ($62,000/yr)	2012-19
S. Carpendale	CRC Chair in Information Visualization (tier I) At University of Calgary to Oct. 2018 Granting Agency: NSERC	$1,400,000 (received $600,000)	2015-18
S. Carpendale	Interactive Visualization NSERC Accelerator	$120,000 ($40,000/yr)	2015-18
PI: K. Booth S. Carpendale plus 48 others	GRAND: Graphics, Animation and New Media Granting Agency: NCE	$23,000,000 (1%)	2010-15
PI: F. Maurer S. Carpendale (theme leader) plus 12 others	NSERC Digital Surface Software Application Network (SurfNet) Granting Agency: NSERC – Strategic Networks	$5,000,000 (8%)	2010-15
S. Carpendale	Information Visualization in Our Everyday Lives NSERC Steacie Fellowship	$250,000 ($125,000/yr)	2012-14
S. Carpendale	CFI Equipment Grant: Innovations in Visualization: Granting Agency: CFI	$187,876	2009-14
S. Carpendale	CRC Chair in Information Visualization (tier II)	$500,000	2009-14

	Granting Agency: NSERC		
S. Carpendale	SEGP Equipment Grant: Innovations in Visualization: Granting Agency: SEGP	$182,000	2009-14
S. Carpendale	Equipment for visualizing personal informatics NSERC Research Tools and Instruments (RTI)	$86,480	2013
PI: S. Scott S. Carpendale + 4	LIEF: EU-Canada exchange programme	$200,000 (15%)	2010-13
S. Carpendale	Interactive Information Visualization NSERC Discovery Grant	$175,000 ($35,000/yr)	2007-12
S. Carpendale S. Greenberg	NSERC/AITF/SMART Technologies Industrial Research Joint Chair in Interactive Technologies Granting Agency: iCORE (matched NSERC)	$500,000 (50%)	2007-12
S. Carpendale S. Greenberg	NSERC/AITF/SMART Technologies Industrial Research Joint Chair in Interactive Technologies Granting Agency: NSERC	$500,000 (50%)	2007-12
S. Greenberg S. Carpendale	iCORE/SMART Technologies Industrial Research Joint Chair in Interactive Technologies Granting Agency: iCORE (matched SMART)	$500,000 (50%)	2006-11
S. Carpendale S. Greenberg	SMART Technologies Industrial Research Joint Chair in Interactive Technologies Granting Agency: SMART	$500,000 (50%)	2006-11
S. Carpendale	CRC Chair in Information Visualization Granting Agency: NSERC	$500,000 ($100,000/yr)	2004-09
S. Carpendale	CFI Equipment Grant: Innovations in Visualization Granting Agency: CFI	$182,020	2004-09
Ron Baeker, PI, S. Carpendale plus 12 others	The Network for Effective Collaboration Technologies through Advanced Research (NECTAR) Granting Agency: NSERC	$5,200,000 (6%)	2004-09
S. Carpendale,	iCORE Conference Grant for ACM Interactive Tabletops and Surfaces Granting Agency: iCORE	$10,000	2009
S. Greenberg S. Carpendale E. Sharlin	NSERC Equipment Grant: Interactive Technologies Granting Agency: NSERC	$90,747	2007
S. Carpendale,	iCORE Conference grant for Computational Aesthetics CAe'07 Granting Agency: iCORE	$5,000	2007
S. Carpendale	Information Visualization Methodologies	$136,000	2003-07

	NSERC Discovery Grant	($34,000/yr)	
S. Carpendale	Collaborative Visualization Laboratory, CFI	$293,000	2002-04
S. Carpendale	University Faculty Award (renewal) NSERC	$80,000 ($40,000/yr)	2003-05
B. Wyvill, PI, S. Carpendale and several others	3D Web Canadian Heritage New Media Research	$700,000/yr (5%)	2003-04
Borwein, PI, plus 52 others	15,000,000 WestGrid CFI/ASRIP/Industry- equipment access only)	$15,000,000 (equipment access only)	2003
S. Carpendale	Investigating Elastic Presentation Intel Corporation	$96,135 $69,178 $71,536	2000-01 2001-02 2002-03
S. Carpendale	Investigating Elastic Presentation Intel Corporation: Equipment Grant	$18,000 $9,920	2000-01 2002-02
S. Carpendale	MAYA – 3D Software Alias Wavefront in kind software donation	$270,000 $60,000 $40,000	2001 2002 2003
S. Carpendale	Large Displays for Visualization Smarter Kids Foundation (purchase large displays)	$141,650	2003
S. Carpendale	Information Visualization Methodologies NSERC Operating Grant	$60,000 ($20,000/yr)	2000-03
S. Carpendale	University Faculty Award NSERC	$120,000 ($40,000/yr)	2000-03
L. Katz, S. Carpendale + 6	Chair Recruitment Grant ICORE	$10,000	2001
S. Carpendale	REE: Start-up Equipment grant University of Calgary	$70,000	1999
F. D. Fracchia, S. Carpendale and 4 others	Simulating and Visualising Forest Ecosystem Dynamics FRBC – Forest Renewal BC	$499,200	1996-99
F. D. Fracchia, S. Carpendale D. Cowperthwaite	Accessing Three-Dimensional Representations Intel Corporation: Equipment and Travel Grant	$40,000	1998
F. D. Fracchia, S. Carpendale D. Cowperthwaite	Equipment Grant Intel Corporation: Equipment and Travel Grant	$20,000	1998

Service

Simon Fraser University (2018 – …)

University level

- Member: Advisory Committee for Distinguished SFU Professor Selection, 2023 –
- Member: Steering Committee, VINCI, 2023 –
  - Deeply involved with the formulation of VINCI as a pan-university computer science and other disciplines research initiative.

Faculty level

- Worked with the Deans council re CERC opportunities 2022

Departmental level

- Member Ebco/Eppich Chair committee 2022-2023
- Member: Research and Awards, School of Computing Science, 2021 – 2022
- Member TPC School of Computing Science, ending in 2022.
- Member Diversity Committee, School of Computing Science, January 2019 – 2023

University of Calgary (1999 – 2018)

University level

- Member: Hiring Committee; Computer Science, 2017 – 2018
- Director: Computational Media Design Graduate Program, 2018 (July and August)
- Member: Computational Media Design Graduate Program, 2012 – 2018
- Director: Interdisciplinary Graduate Group – Computational Media Design, 2008 – 2012
- Member: Steering Committee, Ward of the 21st Century, 2004 –2012
- Member: Hiring Committee; CRC Creative Practice, 2006 – 07
- Member: Hiring Committee; Digital Arts, 2006
- Member: Conjoint Faculties Research Ethics Board, 2001 – 06

Faculty level

- Member: Data Science Task Force: 2017 - 2018
- Invited Lead: new strategic research direction: Imaging and Visualization: 2010 –. 2012
- Faculty of Science Representative to the Faculty of Fine Arts Council, 2002/03
- Member: Dean's Women in Science Advisory Group, 2000

Departmental level

- Member: Hiring Committee; Dept. Computer Science, 2017/2018,
- Member: Hiring Committee; Dept. Computer Science, 2011/2012, 2012/2013
- Member: Hiring Committee; Dept. Computer Science, 2008
- Member: Under-graduate Affairs Committee, 2004 – 2007
- Member: Departmental Annual Assessment Committee, 2003 and 2008
- Graduate Affairs Committee, Department of Computer Science, 2000 – 2002
- TUCFA Department of Computer Science Representative, 2000

Simon Fraser University (1994 – 1999)

- Graduate Program Representative, School of Computing Science, 1998-99
- Graduate Student Harassment Officer, School of Computing Science, 1996–99

- Women's Representative, Computing Science Graduate Student Association, 1993–96
- Graduate Liaison Committee, School of Computing Science, 1994–96
- Treasurer, Computing Science Graduate Student Association, 1995

National

- 2023, 2022, 2021, 2020, 2019, 2018 – Member: Canadian Human-Computer Communications Society (CHCCS/SCDHM) Award Committee (https://graphicsinterface.org/awards/)

International Service

IEEE Visualization

- 2023 – 2018 – Member: IEEE Visualization Ombuds People (One of the Visualization Ombuds people (2018-2023) – this is a small group of 6 people who have made themselves available as approachable and discrete contacts for the international visualization research community so that people who would like to discuss issues such as behavior, EDI issues, issues of perceived privilege, etc. as the VEC gradually moves towards ensuring an EDI friendly conference, journal, and research community in general.)
- 2023 – 2018 – Member: IEEE Visualization Executive Committee (VEC) (This is the top organizing and over-seeing committee for the international Visualization research community. We handle such matters as planning who are the main organizers and locations of the up-coming visualization conferences and events. Oversees the balance between the journal publications (TVCG (Transactions of Visualization and Computer Graphics)) and the conference publications and presentations. Oversees the appointments of roles in the yearly conferences and liaises with the Visualization Steering Committee re-future directions.)
- 2022 – 2019 – Member: IEEE VGTC Visualization Awards Committee (this committee works from nominations to select each year's Visualization Technical Achievement Award and Visualization Career Award.)
- 2021 – 2020 – Member: IEEE Visualization Academy Awards Committee

IEEE Information Visualization (InfoVis)

2018 – 2020 – **Chair:** IEEE InfoVis Steering Committee
2018 – Member: Test of Time Award Committee
2017 – Chair: Test of Time Award Committee
2013 – 2020: Member: IEEE InfoVis Steering Committee
2019, 2018, 2017, 2016, 2015, 2013, 2012, 2011, 2007, 2006, 2005, 2003, 2002, 2001 – IEEE InfoVis Program Committee
2013, 2012, 2011 – Best Paper Committee
2010 – Conference Chair
2009 – Papers Co-Chair
2008 – Papers Co-Chair
2007 – Panels Co-Chair
2005 and 2006 – Posters and Demos Co-Chair
2003 – Publications Chair

ACM Interactive Surfaces and Spaces (ISS), formerly ITS, IEEE Tabletop

2020 – Programming Committee member
2016-18 – **Chair:** ACM ISS Steering Committee
2008 – 2019: Member ISS Steering Committee

2009 – Papers and Program Co-Chair

EUROVIS

2020 – Best Short Paper Committee member

IEEE PacificVis

2013 – Program Chair
2003 – Program Committee

ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)
2012, 2011 – Program Committee

Digital Arts and Culture (DAC09)
2009 – Program Committee

ACM Conference on Computer Supported Cooperative Work (CSCW)
2011 – Program Committee
2006 – Videos Chair

Eurographics/IEEE VGTC Symposium on Visualization, EuroVis (EuroGraphics Workshop Series)
2008 – Program Committee

Computational Aesthetics (CAe) (EuroGraphics Workshop Series)
2006 – present: Steering Committee
2007 – General Co-Chair

ACM Non-Photorealistic Rendering and Animation (NPAR)
2008 – Program Committee

Graphics Interface (GI)
2000 – 2006 Steering Committee
2002 – Student Volunteer Coordinator
2002 – Local Organizer Artificial Intelligence/Graphics Interface/Vision Interface (AI/GI/VI)
2000 - 2006 – Program Committee

Reviewer and Editor

- Member Editorial Board: Foundations and Trends® in Human-Computer Interaction
- Associate Editor: Transactions on Visualization and Computer Graphics (TVCG), 2010 – 2012
- Academic review: regularly review many academic tenure and academic promotion applications, student scholarship applications, student entrance applications, academic ethics applications.
- Funding agencies: Natural Sciences and Engineering Research Council of Canada (NSERC), Alberta Ingenuity (AIF), National Science Foundation (NSF), Canada Research Chairs (CRC)
- Reviewing for journals: the following is a partial list
  IEEE Transactions on Visualization and Computer Graphics (TVCG),
  Journal of Information Visualization, Computer Graphics Forum (CGF), Computers & Graphics, IEEE Computer Graphics and Applications (CG&A), ACM Transactions on Computer Human Interaction, Journal of Computer Supported Cooperative Work, International Journal of Human-Computer Studies, International Journal of Human-Computer Interaction, Transactions on Human Computer Interaction, Information Design Journal, Journal of Database Management
- Reviewing for conferences outside of program committee reviewing: the follow is a partial list: ACM Symposium on User Interface Software and Technology (UIST), IEEE Conference on Visualization, ACM Conference on Designing Interactive Systems (DIS), IEEE Conference on

Information Visualization, ACM Symposium on Non-Photorealistic Animation and Rendering, ACM Conference on Human Computer Interaction, International Symposium on Computational Aesthetics in Graphics, Visualization and Imaging, Eurographics/IEEE VGTC Symposium on Visualization (EuroVis), ACM Conference on Computer Supported Cooperative Work (CSCW), European Conference on Computer Supported Cooperative Work (ECSCW), EuroGraphics, SIGGRAPH, Pacific Graphics, Graphics Interface.

Memberships

- Fellow, Royal Society of Canada, 2021 –
- Senior Member, Association for Computing Machinery (life time member), 1995 – …
- Member, IEEE Computer Society, 1999 – …

Workshop and Tutorial Organization

- VIS plus AI 2022 NUVIS Workshop: Exploring Synergies between AI and VIS. July 25, 26, 2022. Enrico Bertini, Sheelagh Carpendale, Jennifer Dy, Usama Fayyad, Amal Said, Melanie Tory.
- Dagstuhl 2022 Workshop: Data Empowerment. June 24 to July 1, 2022. Uta Hinrichs, Samuel Huron, Benjamin Bach, Sheelagh Carpendale.
- VIS and Disciplinary Diversity. 2021 NUVIS Workshop: July 25, 26, 2021. Sheelagh Carpendale, and Melanie Tory.
- VIS 2021 Workshop: Human Data Interaction. Lyn Bartram, Sheelagh Carpendale, Eun Kyoung Choe, Bongshin Lee, Melanie Tory.
- VIS 2021 Workshop: 2nd Workshop on Data Vis Activities to Facilitate Learning, Reflecting, Discussing, and Designing. Samuel Huron, Benjamin Bach, Georgia Panagiotidou, Mandy Keck, Jonathan C. Roberts, Sheelagh Carpendale.
- VIS 2020 Workshop: Vis Futures: Design Fiction Methods for Envisioning Tomorrow's Visualizations. Charles Perin, Wesley Willett, Katherine Currier, Lora Oehlberg, Sheelagh Carpendale.
- SketCHI 3.0: Hands-On Special Interest Group on Sketching Education in HCI. Sturdee, M., Lewis, M., Mendez, G., Phoa, J., Hoang, T. & Carpendale, S., *CHI'20 Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems.* New York: Association for Computing Machinery (ACM) (cancelled due to COVID-19)
- SketCHI 2.0: Hands-On Special Interest Group on Sketching in HCI. Lewis, M., Sturdee, M., Marquardt, N., Walny, J., Foster, J., Hoang, T. & Carpendale, S., 4/05/2019, *CHI EA '19 Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems.* New York: Association for Computing Machinery (ACM), 5 p. SIG12
- IEEE InfoVis Workshop: Toward a Design Language for Data Physicalization. Oct. 2018, Baltimore: T. Hogan, U. Hinrichs, E. Hornecker, J. Alexander, S. Huron, Y. Janson, S. Carpendale. (2018).
- IEEE InfoVis Tutorial: Considering Qualitative Evaluation: Analyzing qualitative data. Oct. 2017, Baltimore: S. Carpendale, M. Tory, U. Hinrichs, T. Hogan, A. Thudt, J. Vermeulen, J. Walny. (2017).
- ACM ISS Tutorial: Considering Qualitative Evaluation: Analyzing qualitative data. Oct. 17, 2017, Baltimore: S. Carpendale, S. Knudsen, A. Thudt, U. Hinrichs. In *Proceedings ACM Interactive Surfaces and Spaces*, pp 477-481.
- IEEE InfoVis Tutorial: Considering Qualitative Evaluation: Gathering qualitative data. Oct. 2016, Baltimore: S. Carpendale, M. Tory, U. Hinrichs, T. Hogan, A. Thudt, J. Vermeulen, J. Walny. (2016).
- Data Driven Stories: Dagstuhl Seminar: Organizers: Henry-Riche, Lee, Carpendale, Hurter. February 7 – 12, 2016, Dagstuhl Seminar 16061. http://www.dagstuhl.de/16061
- Personal Visualization: Exploring Data in Everyday Life. An IEEE VIS 2015 Workshop, Sunday, October 25 2015, 8:30--12:10. http://www.vis4me.com/personalvis15/index.html
- ACM DIS Workshop: A Personal Perspective on Visualization and Visual Analytics, The PVA 2014 Workshop at DIS 2014, Organizers: M. Tory, S. Carpendale. Saturday, June 21st, 2014 in Vancouver, BC, Canada. http://innovis.cpsc.ucalgary.ca/P/Vis
- Death of the Desktop: Just Another Data Physicalization Workshop. Sunday, Nov. 9th 2pm to 6pm, Organizers: Yvonne Jansen, Petra Isenberg, Jason Dykes, Sheelagh Carpendale, Daniel Keefe Co-located with IEEE VIS 2014, Paris 9-14 Nov. 2014. http://dataphys.org/workshops/vis14/organizers/
- InfoVis Tutorial: Data Sketching, *Surfnet Tutorial, Surfnet Summer 2013 Workshop*: S. Carpendale, K. Hall, S. Huron, J. Walny. (2013). *Calgary, Canada*, June 14, 2013.

- Invited Workshop Organization: S. Carpendale, L. Goldsmith, S. Simmons, J. Walny. (2012). Visualization Across Disciplines, *Thinking through Drawing 2012: Drawing in STEAM (Science, Technology, Engineering, Arts & Maths) Symposium, sponsored by International Drawing and Cognition Research, Wimbledon, UK*, invited, planned, moderated, run twice to accommodate attendees, Sept, 2012.
- Personal Visualization and Personal Visual Analytics: Workshop: April 20-22th, 2012. Banff Centre. Organizers: S. Carpendale. T. Tang, M. Tory, K. Hawkey. Partially sponsored by Banff Centre; SMART, SAP, UofC.
- Organizing Committee: Workshop: *Large Displays in Urban Life*. (2011) Organizers: Uta Hinrichs, Nina Valkanova, Kai Kuikkaniemi, Giulio Jacucci, Sheelagh Carpendale, Ernesto Arroyo. *Held at ACM CHI 2011,* Vancouver, Canada. May 7, 2011.
- Workshop Organization: DEXIS: Data Exploration for Interactive Surfaces. P. Isenberg, S. Carpendale, T. Hesselmann, T. Isenberg, B. Lee. *Refereed workshop at ACM Interactive Tabletops and Surfaces (ITS'11)*, 2011.
- Canadian and Global Challenges: Defining Visualization, Imaging, and Visual Analytics Solutions. Banff Visual Analytics Workshop, Sept 24-26 2011. Organizers: David Ebert, Sheelagh Carpendale, Brian Fisher. Banff, Alberta, Canada.
- Invited Workshop Organizer: *Science meets Social Science: Interdisciplinary Approaches*, *New Ways and New Technologies*, University of Calgary, Calgary, invited, planned, moderated, October, 2004.
- Organizing Committee, Bridges II: a workshop on interdisciplinary collaboration at the Banff New Media Institute (BNMI), October 4-6, 2002.
- Organizing Committee Workshop: *Collaboration with Interactive Walls and Tables*. Organizers: Peter Tandler, Carsten Magerkurth, Sheelagh Carpendale, Kori Inkpen. *UBICOMP 2002,* Goteborg, Sweden. September 29 – October 1, 2002.
- Organizing Committee Workshop: *Co-located Tabletop Collaboration: Technologies and directions*. Organisers S. Scott, K. Grant, S. Carpendale, K. Inkpen, R. Mandryk, T. Winograd. *ACM CSCW'02 Conference on Computer Supported Co-operative Work, Conference Companion*, New Orleans, November 2002.
- S. Diamond, lead: CodeZebra workshop: Banff New Media Institute (BNMI), August 6-16, 2002.
- S. Diamond, lead: CodeZebra workshop: Banff New Media Institute (BNMI), V2 Labs. Rotterdam, The Netherlands, July 13-15, 2002.
- S. Diamond, lead: CodeZebra workshop: Banff New Media Institute (BNMI), Sept. 4-8, 2001.
- S. Diamond, lead: CodeZebra workshop: Banff New Media Institute (BNMI) and SMART Labs London UK, April 20-26, 2001.
- S. Diamond, lead: CodeZebra workshop: Banff New Media Institute (BNMI), Arts Alliance and San Francisco Museum of Modern Art (SFMOMA), San Francisco, Nov, 27 –Dec, 4, 2000.

Presentations

Invited Keynotes, Talks and Panels

1. Sheelagh Carpendale. **Keynote Talk.** Oct 17, 2022. VIS Guides, as part of IEEE VIS. **Best Practices Considered Harmful (some of the time)**.
2. **Panel: VisComm: Panel on the Future of Visualization**. October 17, 2022 as part of IEEE VIS 2022. Organizer Jonathan Schwabish (Urban Institute). Panelists: Jessica Hullman (Northwestern University), Mike Bostosk (D3, Observable), Sheelagh Carpendale (Simon Fraser University), Duncan Geere (https://www.duncangeere.com/).
3. Sheelagh Carpendale. **Keynote Talk.** June 22, 2022. ACM Creativity and Cognition. **Our Data Heritage**.
4. Sheelagh Carpendale. **Invited Talk.** January 12, 2022. Digital Democracies Institute, Simon Fraser University. **Our Data Heritage**.
5. Sheelagh Carpendale. **Invited Keynote Talk. Oct. 30, 2021. IEEE IEMCON 2021**. IEEE 12th Annual Information Technology, Electronics and Mobile Communication Conference. **Data Visualization for Empowerment and Inclusion**.
6. October 29 (part of IEEE VIS 2022). **Panel: Navigating Interdisciplinary Careers in Visualization**. Organizer Morgan L. Turner (University of Minnesota). Panelists: Ruth West (University of North Texas), Adrien Segal (California College of the Arts and the University of San Francisco), Sheelagh Carpendale (Simon Fraser University), Daniel Keefe (University of Minnesota).
7. Sheelagh Carpendale. **Invited Keynote Talk.** July 8, 2021. Canadian Research Software Conference. **Data Visualization for Empowerment and Inclusion**.
8. October 30, 2020. Sheelagh Carpendale. **Invited Capstone Talk. IEEE Visualization**. **Data Visualization for Empowerment and Inclusion.** This talk will happen on-line. https://www.youtube.com/watch?v=XQhBHnPIsRk&feature=youtu.be
9. September 15-18. Sheelagh Carpendale. **Invited Keynote Talk. Graph Drawing 2020**. An Alternate Look at Aesthetics. This talk will happen on-line. https://gd2020.cs.ubc.ca/
10. May 25-27, 2020. Sheelagh Carpendale. **Invited Keynote: Canadian Research Software Conference. Canceled due to COVID-19**.
11. April 14-17, 2020. Sheelagh Carpendale. **Invited Keynote: Pacific Vis**, in Tianjin, China. Declined due to COVID-19
12. March 4, 2020. Sheelagh Carpendale. ***Appreciating Our Data Heritage***. Invited Talk. viz@UBC workshop "Critical Visualization for Humanities Research: Designing for People, Context and Politics". https://dfp.ubc.ca/news-and-events/events/critical-visualization-humanities-research
13. February 18-21, 2020. Sheelagh Carpendale attended the invitation only event: Third Canadian Polar Data Workshop (CPDW3), at the Banff Centre for the Arts.
14. February 12th 2020. Sheelagh Carpendale. ***Data Sketching***. SIAT Research Colloquium, 12:30 pm, Room 5380, SFU Surrey Campus.
15. Invited workshop: ***Sketching Data***. University of Massachusetts. Friday January 24, 2020, 9am to 12noon. Amherst, Massachusetts.

16. **Invited Speaker in University of Massachusetts, Computer Science, Distinguished Speaker Series**. Empowerment through Data Visualization. January 23rd, 2020.
17. **Invited Speaker Telecom-Paris-Tech**. Empowerment through Data Visualization. January 20, 2020.
18. **Invited Speaker, Introduction to Data Visualization**. 9:00am to 10:30am and 3:30pm to 5:00pm. BIGDAT, Ancona, Italy, January 17, 2020.
19. January 13, 14th: Sheelagh Carpendale attended the invitation only event, Microsoft Research's Inclusive Data Visualization Workshop, at MSR in Redmond.
20. **Panel member Sheelagh Carpendale: Doctoral Colloquium**, IEEE VIS, Oct. 19, 2019, Vancouver, BC, Canada.
21. **Invited Panel Presentation:** Sheelagh Carpendale. *Collaboration in Visualization Process*. Visualization for Digital Humanities (VIS4DH), IEEE Visualization, Vancouver, BC.
22. Invited Talk: **Interactive Information Visualization. May 13, 2019.** City University London, UK.
23. Invited Talk: **Interactive Information Visualization. May 1, 2019.** Lancaster University, UK.
24. **NCI-SPONSORED INVITED SPEAKERS: NCI-Accelerating Cancer Research through User-Centered Software Design.** NIH Main Campus, Natcher Auditorium, Bldg. 45, 9000 Rockville Pike, Bethesda, MD 20892, January 7-8, 2019
25. **Presenting Status of ACM ISS at ACM CSCC** (Council of Steering Committee Chairs) in Boston, USA, November 8, 9, 2018.
26. **Panel: Succeeding by Failing: The Iceberg in VIS Careers**. Panel Organizers: Luana Micallef, Tatiana von Landesberger; Panel members: Carla Schubert, Sheelagh Carpendale, John Stasko, Niklas Elmqvist, Elizabeth Marai, Helwig Hauser, Daniel Archambault. At *IEEE VIS*. 2018.
    This panel opens discussion on how the academic competitive environment and its 'acceptance & rejection' culture leads to high pressure and stress for researchers at all career stages. The requirement of constant high output production may lead to very long working hours and burnout.
27. **POD CAST: Researching the Boundaries of InfoVis with Sheelagh Carpendale.** A podcast on data visualization with Enrico Bertini and Moritz Stefaner. https://datastori.es/125-researching-the-boundaries-of-infovis-with-sheelagh-carpendale/ 08/08/2018
28. **Invited Keynote Talk**: *My Perspective on Immersive Analytics*. 4th International Symposium on Big Data Visual and Immersive Analytics (BDVA), University of Konstanz, October 17, 2018, Germany.
29. **Invited Talk:** *Interactive Visualization*. Visual and Automated Disease Analytics (VADA) Summer School, University of Manitoba, Winnipeg, Manitoba. May 24, 2018
30. **Invited Keynote Talk**: The Changing Nature of Collaboration in Visualization. BioVis: Biological Data Visualization at International Society for Computational Biology (ISMB), Chicago, USA. July 9, 2018.
31. **Invited Talk:** *The Power of Alternate Representations*. Telecom-Paris Tech. Paris, France, May 24, 2018
32. **Invited Talk TEDx**: Theme New Horizons: *Data Visualization*. [https://www.ted.com/tedx/events/30013] May 10. 2018.
33. **Panel: Extending Conversations about Gender and HCI**. Panel Organizer: Sheelagh Carpendale; Panel members: Sharon Bardzell, Margaret Burnett, Neha Kumar, Madeline Balaam, Alex Ahmed, Gopinaath Kannabiran. In *the Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems. pages 1-6,* 2018, ACM Press.
    This panel aims to create a space for participants at CHI 2018 to see how far we have come as a community in raising and addressing issues of gender, and how far we have yet to go. Our intent is for open discussion to support the community's intentions to move towards greater equity, inclusivity, and diversity.

34. **Invited Talk:** *Data Visualization for an Informed Society*. Information Science, University of Boulder Colorado, April 2, 2018
35. **Invited Panel Presentation:** *Research and Design: Art / Design Computer Science Interdisciplinary Research*. Faculty of Environmental Design, University of Calgary. Mar 22, 2018
36. **Invited Talk Distinguished Lecture Series**: *Data Visualization for an Informed Society*, University of Utah, Faculty of Computer Science, Scientific Visualization Center, Feb. 2, 2018
37. **Invited Distinguished Speaker Series BIG DATA**: *Data Visualization for an Informed Society*. Simon Fraser University Big Data Series, January 24, 2018
38. **Invited Keynote**: *The Power of Alternate Representations*. CREATE Program in Data Analytics & Visualization. Department of Computer Science, York University, Toronto. November 17, 2017.
39. **Interview: TEDx**: *On Data and Visualization*. Calgary. [https://www.ted.com/tedx/events/21800] November 4, 2017
40. **Invited talk**: *New innovations in data visualization*. Innovate Now Canada! Organized by CityAge Media Inc. Vancouver, October 30, 2017
41. **Invited talk**. *The Power of Alternate Representations*. Department of Computer Science, University of Stuttgart. July 20, 2017.
42. **Invited Keynote Talk**: Stories from experience: teaching via physicalization over many years. *At Let's Get Physical: Promoting Data Physicalization in Workshop Formats, Conference on Designing Interactive Systems DIS 2017*, Jun 2017, Edinburgh, Scotland, 2017 June 11
43. **Closing Plenary**: Leveraging Patient-Generated Data. *At Pervasive Health Workshop on Leveraging Patient-Generated Data for Collaborative Decision Making in Healthcare 2017. 11th International Conference on Pervasive Computing Technologies for Healthcare*, Barcelona, Spain, 2017 May
44. **Invited talk:** New innovations in data visualization. The Data Effect. Ottawa, 13 April, 2017
45. **Invited talk:** Data Visualization, 2017 February
46. **Invited talk:** Visualization and Movement Futures, 2017 January, Talk. At planning meeting for studying how to better enable movement
47. **Distinguished Lecture**: Interacting with Information through Visualization. University of Illinois, Chicago, 2017 January
48. **TUX: Steven Saunders Distinguished Speaker Series**: The power of alternate representations. MARS Center, Toronto, January 10, 2017. http://www.tux-hci.org/speaker/sanders-series-invited-speaker/
49. **Invited talk:** The power of alternate representations. Tableau, San Jose, 2016, December
50. **Invited talk:** Data Visualization, Sheelagh Carpendale, Fields Institute, Toronto, 2016 November
51. **IEEE VIS 2016 Panel:** Application Papers: What are they and how should they be evaluated?, Gunther Weber, Sheelagh Carpendale, David Ebert, Brian Fisher, Hans Hagen, Ben Shneiderman, and Anders Ynnerman, Baltimore, USA, Gunther Weber for IEEE VIS,
52. **Invited Keynote Talk**: The power of alternate representations, at BioVis, IEEE Vis 2016, Baltimore, Maryland, USA, 2016 October
53. **Invited Speaker.** Information Visualization and Visual Analysis. At Computational Biology, Toronto. May 16th, 2016. https://www.iscb.org/glbioccbc2016-program/glbioccbc2016-full-agenda
54. **Invited talk:** Interacting with Information through Visualization, Sheelagh Carpendale, New York University (NYU), New York, New York, 2016 January 28
55. *Manipulating Space to Create Thinking Tools.* **Invited Keynote Talk: Spatial Visual Analytics, at GI Science**, Montreal, Canada. Sept. 27, 2016.
56. *Designing Systems to Enhance our Intelligence, Products and related Services in a Societal Context.* **Invited Talk: Eindhoven Technical University,** Sept. 2, 2016.

57. *Interacting with Information through Visualization.* **Invited Keynote Talk: SMART GEOMETRY**, Gothenburg, Sweden. April 9, 2016.
58. *Interacting with Information through Visualization.* **Invited Keynote Talk: President's Dream Colloquium on Engaging Big Data Simon Fraser University (SFU)**, Vancouver, BC. February 23, 2016.
59. *An Interdisciplinary Approach to Information Visualization Innovation*. **Invited Talk: Centre for Digital Media (CDM)**, Vancouver, BC. February 24, 2016.
60. *Interacting with Information through Visualization.* **Invited Talk: New York University (NYU)**, New York, New York. January 28, 2016.
61. *Towards fluid interaction with information on large displays.* **Invited Talk: IBM Watson**, New York, New York. January 26, 2016.
62. *Interacting with Information through Visualization.* **Invited Talk: Chemnitz University**. Chemnitz, Germany. December 1, 2015
63. *Sketching Visualization: organized and ran a hands on workshop.* **Chemnitz University**, Chemnitz, Germany, November 30, 2015
64. *InfoVis on Large Displays.* **Invited Keynote Talk: DEXIS Workshop**. Madeira, Portugal, November 15, 2015
65. **Panel member: Doctoral Colloquium**, IEEE Vis, Baltimore, Maryland, USA.
66. *Up Close and Beautiful: The Importance of Data Visualizations.* **Invited Keynote Talk: Cyber Summit: Generation D: Data Scientists of Tomorrow**. Banff, AB. September 29, 2015.
67. ***Panel member:*** *Bridging Interaction, Analytics, Design, and Visualization, Sheelagh Carpendale (U of Calgary), Martha Ladly (OCAD U) and Ann K Emery (Independent Consultant), York University, Toronto, Canada, Canadian Visual Analytics School, CANVAS 2015*
68. *Thinking about Interacting with Information in our Everyday Lives.* **Invited Talk: St. Andrews University**. St. Andrews, Scotland, May 18, 2015
69. *Thinking about Interacting with Information in our Everyday Lives.* **Invited Talk: Napier University**. Edinburgh, Scotland, May 15, 2015
70. *Interdisciplinarity, tricky authorship questions and endlessly fascinating interaction.* **Invited Talk: Duncan of Jordanstone College of Art and Design (DJCAD)**, Dundee, Scotland, May 14, 2015
71. *Data Sketching: an Approach to Information Visualization Innovation.* **Invited Talk: Dundee University**. Dundee, Scotland, May 13, 2015
72. *Sketching and Constructing Visualization: organized and ran a hands on workshop.* **St. Andrews University**, St. Andrews, Scotland, May 8, 2015
73. *Information Visualization: Exploring New Options.* **Invited Talk: Fields Institute**. Toronto, ON. February 25, 2015
74. *Information Visualization: Making Data Accessible.* **Invited Talk: Fields Institute**. Toronto, ON. January 19, 2015
75. *Constructive Visualization.* **Invited Talk: SMART Technologies**. Calgary AB. January 13, 2015
76. *Thinking about Interacting with Information in our Everyday Lives*. **Invited Speaker: In Situ lab, Inria LRI, Université Paris-Sud, France**. Nov 25, 2014
77. *Thinking about Interacting with Information in our Everyday Lives*. **Invited Speaker: University of Dresden**. Nov 20, 2014
78. Data Visualization Technologies – New Approaches to Data Visualization. **Invited Speaker GRAND Digital Wave Event**, GRAND Ocean Maritime Visualization Workshop, Vancouver August 20, 2014
79. *The interplay between representation and interaction*. **Invited Speaker: Visual Analytics Summer School (CANVAS) July 29, 2014.** Vancouver BC (2) **CANVAC Challenge Panel I: Re–Thinking Visual Analytics in a World of Big Data, Information Visualization and Data**

Analytics. Moderator *Fred Popowich (SFU): Speakers* Brian Fisher (SFU), John Stasco (Georgia Tech), Sheelagh Carpendale (UCalgary), Nathalie Riche (Microsoft Research), Christopher Collins (UOIT): CANVAC: **Visual Analytics Summer School (CANVAS)** http://canvas2014.ca/ July 28, 2014, Vancouver BC.

80. *Interactive Visualization.* **Invited Speaker: Sketching and Education Workshop**. Evanston, Illinois USA. May 9, 2014 *(2) In the science world with an arts background.* **Invited Speaker: Conversations on Art and Science lecture series. Department of Art and Technology Studies, The School of the Art Institute of Chicago**. May 7, 2014 *(3) Interactive Visualization.* **Invited Speaker: Northwestern Segal Design**. May 6, 2014
81. *Usability & Computer Interfaces*. **Keynote:** Visualizing Biological Data, VIZBI 2014
82. *Thoughts on interactive technologies and data visualization for libraries and cultural institutions today and into the future*. **Invited Talk: LIBERACT 2014: Interactive Technologies in Libraries**. TFDL, University of Calgary
83. *Interactive Visualization.* **Distinguished Lecturer in the Department of Computer Science Seminar Series, University of Manitoba.** February 13, 2014.
84. *Interactive Visualization.* **Keynote: Waterloo Institute for Complexity and Innovation**. Nov 2013
85. **Exxon Mobile, Keynote**: Calgary, Alberta: *Trends in Computing and Visualization*, Nov. 1, 2013.
86. **Interaction with Information for Visual Reasoning workshop,** Dagstuhl, Germany: *Fluid Interaction for Visual Analytics,* August 27, 2013
87. **GI (Geographic Information) Centre, City University London**, England: *Information Visualization: Exploring New Options*, July 15, 2013
88. **Summer School on Big Data Information Visualization**, St. Andrews, Scotland: Sketching *Information Visualization,* July 9, 2013
89. **Summer School on Big Data Information Visualization**, St. Andrews, Scotland: *Information Visualization: Exploring New Options,* July 8, 2013
90. **SurfNet AGM**, Calgary, Alberta: *Everyday Visualization*, June13, 2013
91. **CHCCS Achievement Award Acceptance Speech:** Graphics Interface: *Information Visualization: Exploring New Options.* May 30, 2013.
92. **Helsinki Institute for Information Technology HIIT,** Department of Computer Science, University of Helsinki: **Human Centered Big Data Visualization**: *Designing Visualizations.* April 25, 2013.
93. **Aalto University: School of Arts, Design and Architecture**: Dept of Design and Dept of Media: *My Approach to Interdisciplinary Research: Integrating Art, Design and Computer Science*. April 24, 2013
94. **Keynote Speaker: Ward of the 21st Century Forum**. Creating a Common Ground: Apps, Analytics and Visualization for better health and health care in the 21st century. *Information visualization in health care.* April 12, 2013.
95. **Keynote Speaker: 12th International Symposium on Web and Wireless Geographical Information Systems (W2GIS 2013).** *Is GIS Part of InfoVis or InfoVis Part of GIS?* April 4, 2013.
96. **School of Interactive Arts and Technology (SIAT), Simon Fraser University,** Surrey, BC: New *Challenges in Interactive Information Visualization*, March 15, 2013.
97. **Pacific VAST in conjunction with IEEE PacificVis,** Sydney, Australia: *Towards Personal Visual Analytics*, February 26, 2013
98. **Monash University,** Melbourne, Australia**:** *Towards Personal Visual Analytics*, February 25, 2013
99. **OCADU, Euphoria and Distopia:** panel**:** New Perspectives on *Big Data*, Abby Goodrum, Christopher Salter, Sheelagh Carpendale, Feb. 1, 2013
100. **Eyes High Research Speakers Series, University of Calgary:** *Towards Personal Visual Analytics*, January 18, 2013

101. **SIAT Colloquium, School of Interactive Arts and Technology, Simon Fraser University, Surrey, BC:** *Data Sketching: An Approach to Information Visualization Innovation,* January 16, 2013
102. **CRC Seminars at the IRMACS Center, Coast to Coast Seminar Series:** *Towards Personal Visual Analytics*, January 15, 2013. **VIVA Vancouver Institute of Visual Analytics, Simon Fraser University,** Vancouver, BC: *Towards Personal Visual Analytics*, January 15, 2013
103. **University of Minnesota Distinguished Speakers Series**: *Interactive Information Visualizations for Everyday Practices*, Oct. 8. 2012.
104. **Thinking Through Diagrams**: *Visualization Across Disciplines*, Thinking through Drawing 2012: Drawing in STEAM (Science, Technology, Engineering, Arts & Maths) Symposium, sponsored by International Drawing and Cognition Research, Wimbledon, London England, Sept. 14, 2012.
105. **Invited Panel: Drawing broadly: thinking, imagining and visualising.** A. Kantrowitz (chair): panel members G. Anderson, D. Buck, S. Carpendale, T. Coates, A. Corti, H. Edwards, K. Garner. *Thinking through Drawing 2012: Drawing in STEAM (Science, Technology, Engineering, Arts & Maths) Symposium, sponsored by International Drawing and Cognition Research, Wimbledon, UK.* 2012.
106. **CASCON: Visualization for Smart Analytics:** *Aesthetics and Visualization*, Nov. 7, 2012.
107. **AVI: Workshop on Asynchronous Collaboration in Visual Analytics.** *Collaborative Visualization*. May 20, 2012.
108. **University of Victoria Distinguished Speakers Series**: *Interactive Information Visualizations for Everyday Practices*, April 20, 2012.
109. **Microsoft Research, Redmond**: *Interactive Information Visualization: where I have been and where I am heading*. July 12, 2011
110. **ITS 2010: Invited Tutorial**: Saarbrücken, Germany: *Qualitative Evaluation as an Interaction Design Approach*, November 7, 2010.
111. **University of Munich**, Munich, Germany: *Working towards supporting Information Visualization on Tabletops*, November 11, 2010.
112. **Otto-von-Guericke-University of Magdeburg**, Madgedeburg, Germany. *Working towards supporting Information Visualization on Tabletops*, November 5, 2010.
113. **SurfNet Industry Day**, University of Calgary, Calgary, Alberta. *SurfNet Theme 1: Humanizing the Digital Interface: Overview*, October 14-16, 2010
114. **AITF 2010 Research and Commercialization Summit**, Banff Centre, Banff, Alberta, *Selected Projects in Interaction Design*, (with S. Greenberg) August 19-21, 2010.
115. **Upper Austria University of Applied Sciences** in Linz, Austria, *Working Towards Supporting Information Work on Tabletops*, May 25, 2010.
116. **Microsoft Research**, Cambridge, UK, *Recent Research Activities in the Innovis Group*, May 27, 2010.
117. **SIGCHI Paris:** Human Computer Interaction and Information Visualization Talk Series, *Integrating art with information visualization to create interactive tabletop applications*, May 31, 2010.
118. **European Summer School in Logic**, Language and Information (ESSLLI'09), Bordeaux, France, *Language and Computation Advanced Course: Linguistic Information* Visualization, July 2009
119. **University of Toronto, Knowledge and Media Design Institute: Visual Thinking Series**, *Visual Thinking: Generating Visual Representations*, June 2009
120. **Keynote Speaker: Computational Aesthetics**, Victoria, BC, *Using Arts Methodology to Create Visualizations*, May 2009

121. **Microsoft Research**, Redmond, Washington, USA, *Integrating Art with Information Visualization to Create Interactive Tabletop Applications*, April 2009
122. **Keynote Speaker: Saskatchewan Interactive**, Saskatoon, Saskatchewan, *Innovations in Information Visualization*, March 2009
123. **IEEE Visualization Panel**: *Building a Research Group in Visualization*, H. Carr, S. Carpendale, T. Ertl, H. Hauser, C. Johnson, M. Chen, S. North, October 23, 2008.
124. **Keynote Speaker:** Banff Summer Arts Festival 75th Anniversary Celebration, Banff New Media Institute, Banff Centre for the Arts, Banff, Alberta, Revisionist Interaction, July 2008
125. Presentation: Evaluation and Information Visualization, Dagsthul, Germany, May 2008
126. **Invited Talk:** Evaluation to Inform Design. Virginia Polytechnic Institute and State University, Virginia, USA, May 2008
127. **Invited Talk:** Innovations in Information Visualization, INRIA (French National Institute for Research in Computer Science), Orsay, France, May 2008
128. Presentation: Issues with Complexity and Evaluation in Information Visualization, Dagsthul, Germany, May 2007
129. **Invited Talk:** An Overview of Information Visualization at Interactions Lab, INRIA (French National Institute for Research in Computer Science), Orsay, France, May 2007
130. **Invited Talk:** Visualizing Digital Communication, University of Southern California Information Sciences Institute, Machine Translation Group, LA, USA, May 2007
131. Invited Talk: Interaction and Visualization @ iLab, iCORE Summit, Banff Centre, Alberta, with S. Greenberg, August 2007
132. Invited Talk: Interactive Visualization at iLab, Western Canadian Graphics, University of Victoria, Canada, February 9 2007.
133. Dagstuhl, Germany: Computational Aesthetics, Aesthetic Interactions, May 31, 2006.
134. Keynote Speaker: Explore-IT: Introducing Teenage Girls to High-Tech Career Options. Southern Alberta Institute for Technology (SAIT) and University of Calgary, Information Visualization and Collaborative Interfaces, May 10, 2006.
135. Keynote Speaker: The CWC/Corus New Media Career Accelerator Program. Information Visualization and Tabletop Interaction. (Thurs, March 2, 2006) February 24 – March 3.
136. Keynote Speaker: Humans and Technology Symposium, Massachusetts Institute of Technology (MIT). Collaborative Tabletop Interfaces: Design through Observation. January, 2006.
137. Keynote Speaker: Clinical Telehealth in the Future. eHealth+Industry, Calgary Health Region. Sharing Visual Information. Wider Horizons, January 24, 2006.
138. **Keynote Speaker**: International Conference on TELEHEALTH. Banff Centre, Banff, Alberta, Canada, Innovations in Visualization, July, 19 – 21, 2005.
139. **Keynote Speaker: Image Research Initiative Workshop.** University of Concordia, Montreal, Canada. *Interactive Visualization and Images*, May 2-3, 2005
140. **Keynote Speaker: The CWC/Corus New Media Career Accelerator Program**. *Information Visualization and Applications to e-Health*, March, 2005
141. **IDELIX Software Inc.,** Vancouver, British Columbia. *Several Presentations on Information Visualisation, Elastic Presentation and Human-Computer Interaction*. 1999 through 2005
142. **Visual and Interactive Computing.** At Industry Day, Computer Science, University of Calgary, November 21, 2005
143. **Panel Moderator: Visualizing Complex Data**. Panelists: Amber Frid-Jimenez, Tom Donaldson. At The Banff Centre Research Summit: Bodies in Play: Shaping and Mapping Mobile Applications, Banff New Media Institute, May 19 – 22, 2005.
144. **Invited Talk.** *Expressive Texts and Interaction Models*. At The Banff Centre Research Summit: Bodies in Play: Shaping and Mapping Mobile Applications, May 19 – 22, 2005.

145. **Panel Moderator: Visualizing Communication – Language, System, Expression**. Panelists: Christopher Collins, Andrew Salway, Andrew Klobucar. At The Banff Centre Research Summit: Bodies in Play: Shaping and Mapping Mobile Applications, May 19 – 22, 2005
146. **Invited Talk**. *Focus on Visualizing Human Communication*. At The Banff Centre Research Summit: Bodies in Play: Shaping and Mapping Mobile Applications, May 19 – 22, 2005
147. **The Ward of the 21st Century Retreat**, University of Calgary. *Applying Information Visualization to Health Issues*, May 5, 2005
148. **Keynote Speaker: New Ways and New Technologies**, Calgary. *New Technologies Meeting the Innovation Imperative*, October 14, 2004
149. **Invited Talk**. *Collocated Collaboration Tools.* Banff Centre Research Summit: Participate/Collaborate: Reciprocity, Design and Social Networks. Sept. 30 – Oct. 3, 2004
150. **Simulation and Other Re-enactments: Modeling the Unseen**: Research Summit, Banff Centre. *From Scientific to Artistic simulation and visualization*. April 29 – May 2, 2004
151. **The Ward of the 21st Century Retreat**. Sheraton, Calgary, *Human Technology Interface*. October 4, 2004
152. **The CWC/Corus New Media Career Accelerator Program**. *Research and New Media*, February 28 to March 5, 2004.
153. **Dutch Electronic Arts Festival, DEAF03**. Rotterdam. *Applying Elastic Presentation Space to 2D and 3D Data Layouts*, February, 2003.
154. **Bell University Labs Conference**, Toronto, Ontario. *Elastic Presentation*. November, 2003.
155. **Department of Visualistics, University of Otto-von Guericke**, Magdeburg, Germany. *Advances in Elastic Presentation*, February, 2003.
156. **SIGGRAPH'03 Course; Theory and Practice of Non-Photorealistic Graphics: Algorithms, Methods, and Production Systems Presentation**. *Viewing Transformations: Perspective, Distortion and Deformation*. Organizer Mario Costa-Sousa. Other instructors, Brett Achorn and Daniel Teece Walt Disney Feature Animation, David S. Ebert Purdue University, Bruce Gooch University of Utah, Victoria Interrante University of Minnesota, Lisa Streit University of British Columbia, Oleg Veryovka Electronic Arts at SIGGRAPH August, 2003.
157. **The Beauty of Collaboration: Methods, Manners and Aesthetics. Banff Centre Research Summit**: S. Carpendale, S. Diamond, Co-moderators: Panel: *Collaboration and Visualization Tools*. Location: Rice Studio The Jeanne and Peter Lougheed Building (JPL), May 22-25, 2003
158. **The Beauty of Collaboration: Methods, Manners and Aesthetics. Banff Centre Research Summit**: S. Carpendale, A. Dunning, combined talk, *Visualization between Disciplines - Constructing a Research Scenario*, May 22-25, 2003.
159. **Skinning Our Tools: Designing for Context and Culture. Banff Centre Research Summit**: S. Carpendale. *Collaborative Tools: Visualization, Collaboration and Participant Design*. Oct. 5, 2003.
160. **MERL Mitsubishi Electric Research Laboratories**, Boston, USA. *Elastic Presentation Framework*. October, 2002.
161. **NewMIC**. Vancouver, British Columbia. *Elastic Presentation*, June, 2002.
162. **Banff New Media Institute (BNMI) Conference on Quintessence: The Clumpy Matter of Art, Math and Science Visualization**. S. Carpendale. *Presentation Spaces and Display Real Estate*. Speaker in a Panel on *Research and Models* with Sara Diamond, Marc Rioux, Kelly Booth, Pierre Boulanger. Theme: Advanced Visualization, September 12-15, 2002.
163. **Banff New Media Institute (BNMI) Conference on Quintessence: The Clumpy Matter of Art, Math and Science Visualization** S. Carpendale: Moderator - Panel: *Data Visualization—Information Architectures and Visualization-Methods and Metaphors*. Panelists: Luigi Benedecenti, Brad Paley, Sara Diamond, Richard Lachman, Kevin Liang. Sept. 12-15, 2002.

164. **Banff New Media Institute (BNMI) Conference on Quintessence: The Clumpy Matter of Art, Math and Science Visualization**. S. Carpendale. (2002). *Data Visualization Strategies, Visual Language and Interpretation, Concepts and Case Studies*. Theme: Advanced Visualization, September 12-15, 2002.
165. **BRIDGES Consortium Two**. At the Banff New Media Institute (BNMI). S. Carpendale and S. Diamond, Co-moderated: Panel: *Perspectives from the Sciences: Towards Interdisciplinary Collaboration*. Theme: Cross-Disciplinary Research, October 4-6, 2002.
166. **Conference on Artificial Stupidity/Artificial Intelligence,** At the Banff New Media Institute (BNMI)**.** S. Carpendale. (2002). *Artificial Stupidity and Visualising Chat*. Theme: What are the Creative Possibilities and Limits of AI, August 1-4, 2002.
167. **IEEE Information Visualization** London England. Panel: S. Diamond, S. Carpendale, V. Interrante, J. Portway S. Xin-Wei. *Visualization, Semantics and Aesthetics*. July: 2002.
168. **CWC/Corus New Media Career Accelerator**. In collaboration with Corus Entertainment and Canadian Women in Communications (CWC). S. Carpendale. *Close to the Machine: Women Inventing Technologies, Women Teaching Women Scientists*. At the Banff New Media Institute (BNMI), March 2-8, 2002.
169. **Human Computer Interaction Series. Stanford University**, Faculty of Computer Science, San Francisco, USA. S. Carpendale. *Elastic Presentation*. December, 2001.
170. **Intel Corporation**, Research Council, Jones Farm, Portland, USA. S. Carpendale. *Elastic Presentation Framework*, November, 2001.
171. **Emotional Architectures: Designing for Immersion and Interaction**, Banff Centre. S. Carpendale. *Presentation Spaces, Process Spaces – Design, Virtual and Public Spaces, Visualisation*, September 19-24, 2001.
172. **Human Generosity Conference**, Banff Centre. *Information Visualisation: sharing digital tools*, August, 2001.
173. **SIGGRAPH 2001.** Panel: S. Diamond, S. Carpendale, V. Interrante, J. Portway S. Xin-Wei. *Visualization, Semantics and Aesthetics. SIGGRAPH 2001. Los Angeles, USA, August, 2001*
174. **Bridges**, UCLA Annenburg Centre, Los Angeles. *Information Visualisation*. May 29 - Jun 2, 2001.
175. **Faculty for Information Technologies, Institute for Simulation and Graphics Otto-von-Guericke University**, Magdeburg, Germany. *The Tardis: an Environment for Visualising Landscape Dynamics*. June, 2000.
176. **Otto von Guericke University**, Faculty of Informatics, Institute of Simulation and Graphics, Magdeburg, Germany. *Elastic Presentation*. June, 2000.
177. **San Francisco Museum of Modern Art (SF MOMA)**. Panel: S. Diamond, J. Lewis, J. Portway, S. Carpendale, A. Grbavec, W. Sack, M. Walter. CodeZebra: Visualizing Human Discourse., December 2, 2000.
178. **Living Architectures: Designing for Immersion and Interaction**, Banff Centre. *3D Visualisation for Data Navigation*. September 22-24, 2000.
179. **Conference on Emotional Computing: Performing Arts, Fiction and Interactive Experience**, Banff Centre. *3D Imaging, Designing with Artists from the Software Perspective*. May 11-13, 2000.
180. **Vision Plus 6; a UNESCO conference**. IIID International Institute for Information Design Conference. *Elastic Presentation Space*. July, 1999.
181. **Electronic Arts**, Burnaby, British Columbia, Invited Research Presentation: *Elastic Presentation Space*. September, 1999.
182. **Derby, Centre for Design Research**. Derby, England. *A Theory of Elastic Presentation Space*. September, 1998.

183. **Intel Corporation**, Research Council, Jones Farm, Portland, USA. *A Distortion Viewing Paradigm*. May, 1997.
184. **Dagstuhl Seminar 9608**: Informatics and Semiotics. Dagstuhl, Germany. *Pliable Surfaces: A Local Magnification Interface for Exploring Visual Information*. February, 1996.

PUBLICATIONS

Books

1. N. Henry Riche, C. Hurter, N. Diakopoulos, S. Carpendale. (2018) *Data Driven Stories.* Taylor and Francis. 2018/3/28, CRC Press.

   This book presents an accessible introduction to data-driven storytelling. Resulting from unique discussions between data visualization researchers and data journalists, it offers an integrated definition of the topic, presents vivid examples and patterns for data storytelling, and calls out key challenges and new opportunities for researchers and practitioners.

2. S. Greenberg, S. Carpendale, N. Marquardt, B. Buxton. (2012) *Sketching User Experiences: The Workbook*, Morgan-Kaufmann, Elsevier Science & Technology. ISBN: 978-0-12-381959-8, pp. I-VIII, 1-262, January 2012

   This book provides information about the step-by-step process of the different sketching techniques. It offers methods called design thinking, as a way to think as a user, and sketching, a way to think as a designer. User-experience designers are designers who sketch based on their actions, interactions, and experiences.

Refereed Journal Papers

1. Maryam Rezaie, Melane Tory, Sheelagh Carpendale. (2024) Struggles and Strategies in Understanding Information Visualizations. *IEEE Transactions on Visualization and Computer Graphics (IEEE PacificVis)*. IEEE Computer Society Press.
2. Benjamin Bach, Mandy Keck, Fateme Rajabiyazdi , Tatiana Losev , Isabel Meirelles , Jason Dykes, Robert S. Laramee, Mashael AlKadi, Christina Stoiber, Samuel Huron, Charles Perin, Luiz Morais, Wolfgang Aigner, Doris Kosminsky, Magdalena Boucher, Søren Knudsen, Areti Manataki, Jan Aerts, Uta Hinrichs, Jonathan C. Roberts, Sheelagh Carpendale. (2023) Challenges and Opportunities in Data Visualization Education: A Call to Action. *IEEE Transactions on Visualization and Computer Graphics (IEEE VIS)*. IEEE Computer Society Press.
3. Helen He, Jagoda Walny, Sonja Thoma, Sheelagh Carpendale, Wesley Willett. (2023). Enthusiastic and Grounded, Avoidant and Cautious: Understanding Public Receptivity to Data and Visualizations. *IEEE Transactions on Visualization and Computer Graphics (IEEE VIS)*. **BEST PAPER HONORABLE MENTION.** IEEE Computer Society Press.
4. Ghazwan Altabbaa, Sheelagh Carpendale, Ward Flemons, Brenda Hemmelgarn, Kevin McLaughlin, Torre Zuk, William A Ghali. (2023). Computerised clinical decision support system for the diagnosis of pulmonary thromboembolism: a preclinical pilot study BMJ Open Quality 12 (1), e001984,2023/3/1 British Medical Journal Publishing Group

5. Kaida A, Anderson J, Barnard C, Bartram L, Bert D, Carpendale S, Dean C, Estep D, Etowa J, Gislason M, Greening G, Hariri M, Hoogeveen D, Israel D, Johal A, Kennedy A, McKenzie K, Mendenhall R, Mourad N, Nicholson V, Nolan K, Osborne Z, Popowich F, Reedman A, Simpson J, Smith J, & Smith M. Realizing the Promise of Disaggregated Data and Analytics for Social Justice Through Community Engagement and Intersectoral Research Partnerships. *Engaged Scholar Journal: Community-Engaged Research, Teaching, and Learning*; 2023; *8*(4), 57-71. https://doi.org/10.15402/esj.v8i4.70792
6. Foroozan Daneshzand, Charles Perin, Sheelagh Carpendale. (2023). KiriPhys: Exploring New Data Physicalization Opportunities. *IEEE Transactions on Visualization and Computer Graphics (IEEE VIS)*, 29(1), 225-235. IEEE Computer Society Press.
7. Tatiana Losev, Justin Raynor, Sheelagh Carpendale, Melanie Tory. (2022). Embracing Disciplinary Diversity in Visualization. *IEEE Computer Graphics and Applications.* 42(6) 64-71. IEEE Computer Society Press.
8. Miriam Sturdee, Søren Knudsen, Sheelagh Carpendale. (2022). Data-Painting: Expressive Free-from Visualization. *Proceedings of Design Research Society*. DRS2022: Bilbao. 2022/6, Vol 25
9. Wesley Willett, Bon Adriel Aseniero, Sheelagh Carpendale, Pierre Dravgicevic, Yvonne Jansen, Lora Oehlberg, Petra Isenberg. (2021). Perception! Immersion! Empowerment!: Superpowers as Inspiration for Visualization. *IEEE Transactions on Visualization and Computer Graphics (IEEE VIS)*, **BEST PAPER**, IEEE Computer Society Press.
10. Benjamin Bach, Samuel Huron, Uta Hinrichs, Jonathan Roberts, Sheelagh Carpendale. (2021). Introduction to special issue on visualization teaching and literacy. *IEEE Computer Graphics and Applications* 41(06):13-14, IEEE Computer Society Press.
11. Fateme Rajabiyazdi, Charles Perin, Lora Oehlberg, Sheelagh Carpendale. (2021). Communicating Patient Health Data: A Wicked Problem. *IEEE Computer Graphics and Applications* 41(6):179-186. IEEE Computer Society Press.
12. Julie N. Babion, Wrechelle Ocampo, Sydney Haubrich, Connie Yang, Torre Zuk, Jaime Kaufman, Sheelagh Carpendale, William Ghali, and Ghazwan Altabbaa. (2020). Human-centred design processes for clinical decision support: a pulmonary embolism case study. *International Journal of Medical Informatics* (2020): vol 142,104196.
13. Jagoda Walny, Sarah Storteboom, Richard Pusch, Steven Munsu Hwang, Søren Knudsen, Sheelagh Carpendale, Wesley Willett. (2020). PixelClipper: Supporting Public Engagement and Conversation about Visualizations. *IEEE Computer Graphics and Applications: Special Issue Visualization in Public Spaces* 40(2):57-70. IEEE Computer Society Press
14. Doris Kosminsky, Jagoda Walny, Jo Vermeulen, Søren Knudsen, Wesley Willett, Sheelagh Carpendale. (2020). Belief at first sight: Data visualization and the rationalization of seeing. *Information Design Journal. 25(1): Information + Special Issue*: Information Visualization, Dörk, Marian and Isabel Meirelles (eds.) IDJ 25:1:43-55, John Benjamin's Publishing.
15. Jagoda Walny, Christian Frisson, Mieka West, Doris Kosminsky, Søren Knudsen, Sheelagh Carpendale, Wesley Willett. (2020). Data Changes Everything: Challenges and Opportunities in Data Visualization Design Handoff. *IEEE Transactions on Visualization and Computer Graphics. 26(1):12-22, (InfoVis track of IEEE VIS)* **BEST PAPER**, IEEE Computer Society Press
16. Kyle Wm Hall, Adam J Bradley, Uta Hinrichs, Samuel Huron, Jo Wood, Christopher Collins, Sheelagh Carpendale. (2020). Design by immersion: A transdisciplinary approach to problem-driven visualizations. *IEEE Transactions on Visualization and Computer Graphics. 26(1): 109-118, (InfoVis track of IEEE VIS)*, IEEE Computer Society Press.
17. AJ Bradley, V Sawal, S Carpendale, C Collins. (2019) Textension: Digitally Augmenting Document Spaces in Analog Texts. In *DHQ: Digital Humanities Quarterly 13 (3)* (pub date 2019/7/1)

18. Bongshin Lee, Kate Isaacs, Danielle Albers Szafir, GE Marai, Cagatay Turkay, Melanie Tory, Sheelagh Carpendale, Alex Endert. (2019). Broadening Intellectual Diversity in Visualization Research Papers. *IEEE computer graphics and applications*. 39(4):78-85, IEEE Press.
19. Tanja Blascheck, Lindsay MacDonald Vermeulen, Jo Vermeulen, Charles Perin, Wesley Willett, Thomas Ertl, Sheelagh Carpendale. (2019). Exploration Strategies for Discovery of Interactivity in Visualizations. *IEEE Transactions on Visualization and Computer Graphics*. February 2018. IEEE Computer Society Press.
20. Kyle Wm Hall, Zhengcai Zhang, Christian J Burnham, Guang-Jun Guo, Sheelagh Carpendale, Niall J English, Peter G Kusalik. (2018). Does local structure bias how a crystal nucleus evolves? The journal of physical chemistry letters. 9(24):6991-6998. American Chemical Society
21. Allan C. A. Rocha, Julio D. Silva, Usman R. Alim, Sheelagh Carpendale, Mario Costa Sousa (2018) Decal-Lenses: Interactive Lenses on Surfaces for Multivariate Visualization. *IEEE Transactions on Visualization and Computer Graphics*. Accepted 2018/6/26. IEEE CS Press.
22. Charles Perin, R Vuillemot, C Stolper, John Stasko, Jo Wood, S Carpendale (2018) State of the Art of Sports Data Visualization 2018/5/6. *Computer Graphics Forum*. 37(3), 663-686. Wiley
23. Mona Hosseinkhani Loorak, Melanie Tory and Sheelagh Carpendale. (2018). ChangeCatcher: Increasing Inter-author Awareness for Visualization Development. *Computer Graphics Forum.* 37(3): 51-62. Wiley.
24. Jagoda Walny, Samuel Huron, Charles Perin, Tiffany Wun, Richard Pusch, Sheelagh Carpendale. 2018. Active Reading of Visualizations. *IEEE Transactions on Visualization and Computer Graphics*. 24(1): 770-780, January 2018. IEEE Computer Society press.
25. Philipp Koytek, Charles Perin, Jo Vermeulen, Elisabeth André, Sheelagh Carpendale. 2018. MyBrush: Brushing and Linking with Personal Agency. *IEEE Transactions on Visualization and Computer Graphics*. 24(1): 605-615, January 2018. IEEE Computer Society press.
26. Charles Perin, Tiffany Wun, Richard Pusch, Sheelagh Carpendale. 2018. Assessing the Graphical Perception of Time and Speed on 2D+ Time Trajectories. *IEEE Transactions on Visualization and Computer Graphics*. 24(1): 698-708, January 2018. IEEE Computer Society press.
27. Benjamin Bach, Pierre Dragicevic, Daniel Archambault, Christophe Hurter, Sheelagh Carpendale. 2017. A Descriptive Framework for Temporal Data Visualizations Based on Generalized Space-Time Cubes. *Computer Graphics Forum*. 36(6):36-61
28. Ovo Adagha, Richard M Levy, Sheelagh Carpendale. 2017. Towards a product design assessment of visual analytics in decision support applications: a systematic review. *Journal of Intelligent Manufacturing*. 28(7): 1623-1633, Springer US.
29. Gunther H Weber, Sheelagh Carpendale, David Ebert, Brian Fisher, Hans Hagen, Ben Shneiderman, Anders Ynnerman. 2017. Apply or Die: On the Role and Assessment of Application Papers in Visualization. *IEEE Computer Graphics and Applications*. 38(3): 96-104, IEEE Press
30. Benjamin Bach, Nathalie Henry Riche, Sheelagh Carpendale, Hanspeter Pfister. 2017. The Emerging Genre of Data Comics. *IEEE Computer Graphics and Applications*. 38(3): 96-104, IEEE Press
31. Alice Thudt, Bongshin Lee, Eun Kyoung Choe, Sheelagh Carpendale. 2017. Expanding research methods for a realistic understanding of personal visualization. *IEEE Computer Graphics and Applications*. 37(2):12-18 IEEE Press
32. Alice Thudt, Charles Perin, Wesley Willett, Sheelagh Carpendale. 2017. Subjectivity in personal storytelling with visualization. *Information Design Journal*. 23(1): 48-64. Publisher John Benjamins Publishing Company

33. Ovo Adagha, Richard M. Levy, Sheelagh Carpendale, Cormack Gates, and Mark Lindquist. (2017) Evaluation of a visual analytics decision support tool for wind farm placement planning in Alberta: Findings from a focus group study. *Technological Forecasting and Social Change*: 117, pp 70-83, April 30, 2017.
34. Mona Hosseinkhani Loorak, Charles Perin, Christopher Collins and Sheelagh Carpendale. (2017) Exploring the Possibilities of Embedding Heterogeneous Data Attributes in Familiar Visualizations. *IEEE Transactions on Visualization and Computer Graphics*, 23(1):581-590, January 23, 2017
35. Kyle Wm. Hall, Sheelagh Carpendale and Peter G. Kusalik. Evidence from mixed hydrate nucleation for a funnel model of crystallization. *Proceedings of the National Academy of Sciences (PNAS)*, 113(43):12041-12046, Oct 6, 2016.
36. Adam James Bradley, Travis Kirton, Sheelagh Carpendale, and Mark Hancock. (2016) "Language DNA: Visualizing a Language Decomposition", *Digital Humanities Quarterly: 10(4), Oct 1, 2016. http://www.digitalhumanities.org/dhq/vol/10/4/000259/000259.html*
37. K. Wm. Hall, C. Perin, P. G. Kusalik, C. Gutwin, and S. Carpendale. 2016. Formalizing Emphasis in Information Visualization. STAR – State of the Art Report. *Computer Graphics Forum*. 35(3).
38. E. Tarameshloo, M. Hosseinkhani Loorak, P. Wong, S. Carpendale. (2016). Using Visualization to Explore Original and Anonymized LBSN Data. *Computer Graphics Forum*. 35(3):291-300
39. T. Wun, J. Payne, S. Huron, S. Carpendale. (2016). Comparing Bar Chart Authoring with Microsoft Excel and Tangible Tiles. *Computer Graphics Forum*. 35(3)
40. A. Thudt, D. Baur, S. Huron, S. Carpendale. (2016). Visual Mementos: Reflecting Memories with Personal Data. *IEEE Transactions on Visualization and Computer Graphics,* 22(1):369-378.
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42. M. Nacenta, M. Hancock, C. Gutwin, S. Carpendale. (2015). The effects of changing projection geometry on perception of 3D objects on and around tabletops. *ACM Transactions on Computer-Human Interaction*., 10.1145/2845081
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44. J. Walny, S. Huron, S. Carpendale. (2015). An Exploratory Study of Data Sketching for Visual Representation. **BEST PAPER: Honorable Mention**, *Computer Graphics Forum*. 34(3):231-240
45. D. Huang, M. Tory, B. Adriel Aseniero, L. Bartram, S. Bateman, S. Carpendale, A. Tang, R. Woodbury (2015). Personal Visualization and Personal Visual Analytics, *IEEE Transactions on Visualization and Computer Graphics.* 21(3): 420-433.
46. O. Adagha, S. Carpendale, R. Levy. (2015). Decision support requirements for wind farm placement planning in Alberta. *Journal of Decision Systems (JDS) Special Issue on Integrated Decision Support Systems.* 24(2):178-205.
47. Edelsys Codorniu-Hernández, Kyle Wm Hall, A Daniel Boese, Daniel Ziemianowicz, Sheelagh Carpendale, Peter G Kusalik. (2015). Mechanism of O (3P) Formation from a Hydroxyl Radical Pair in Aqueous Solution. In *Journal of chemical theory and computation* 11(10):4740-4748
48. O. Adagha, R.M. Levy, S. Carpendale. (2015). Towards a product design assessment of visual analytics in decision support applications: a systematic review. In *Journal of Intelligent Manufacturing*, pages 1-11, Springer.
49. Bouts, Quirijn W., Tim Dwyer, Jason Dykes, Bettina Speckmann, Sarah Goodwin, Nathalie Henry Riche, Sheelagh Carpendale, Ariel Liebman. (2015). Visual encoding of dissimilarity data via

topology-preserving map deformation. *IEEE transactions on visualization and computer graphics* 22(9): 2200-2213.

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51. S. Huron, Y. Jansen, S. Carpendale. (2014). Constructing Visual Representations: Investigating the Use of Tangible Tokens. In *IEEE Transactions on Visualization and Computer Graphics (InfoVis'14),* 20(12): 2102-2111.
52. K. Etemad, D. Baur, J. Brosz, S. Carpendale, F. Samavati. (2014). PaisleyTrees: A Size-Invariant Tree Visualization. In *Transactions on Creative Technologies (EAI Endorsed)*. 14(1): ICST, 10.
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54. S. Carpendale, M. Chen, D. Evanko, N. Gehlenborg, C. Gorg, L. Hunter, F. Rowland, M.-A. Storey, H. Strobelt. (2014). Ontologies in Biological Data Visualization. *IEEE Journal of Computer Graphics and Applications*, 34(2):8-14, IEEE Society.
55. J. Walny, S. Carpendale. (2014). Towards Supporting Interactive Sketch-Based Visualizations. *TRACEY Drawing and Visualization Research Journal, Thinking Through Drawing Edition*
56. M. Hosseinkhani, P. Wong, S. Carpendale. (2014). Papilio: Visualizing Android Application Permissions. *Computer Graphics Forum*, 33(3):391 – 400.
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Refereed Conference Papers

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Some of these reports have been published in a revised form above. They are included below for completeness.

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20. U. Hinrichs, H. Schmidt, T. Isenberg, M.S. Hancock, S. Carpendale. (2008). BubbleType: Enabling Text Entry within a Walk-Up Tabletop Installation. *Technical Report 2008-893-06, Department of Computer Science, University of Calgary, Calgary*. (10 pages).
21. C. Collins, S. Carpendale. (2007). VisLink: Revealing Relationships Amongst Visualizations. *Technical Report 2007-866-18, Department of Computer Science, University of Calgary*, Calgary.
22. T. Isenberg, S. Nix, M. Schwarz, A. Miede, S.D. Scott, S. Carpendale. (2007). Mobile Spatial Tools for Fluid Interaction. *Technical Report 2007-872-24, Department of Computer Science, University of Calgary*, Calgary.
23. P. Neumann, A. Tang, S. Carpendale. (2007). A Framework for Visual Information Analysis. *Technical Report 2007-871-23, Department of Computer Science, University of Calgary*, Calgary. (8 pages).
24. J. Grubert, S. Carpendale, T. Isenberg. (2007). Interactive Stroke-Based NPR using Hand Postures on Large Displays. *Technical Report 2007-883-35, Department of Computer Science, University of Calgary*, Calgary.
25. J. Grubert, M. Hanckock, S. Carpendale, E. Tse, T. Isenberg. (2007). Interacting with Stroke-Based Rendering on a Wall Display. *Technical Report 2007-882-34, Department of Computer Science, University of Calgary*. (10 pages).
26. T. Isenberg, S. Nix, M. Schwarz, A. Miede, S.D. Scott, S. Carpendale. (2007). Mobile Spatial Tools for Fluid Interaction. *Technical Report 2007-872-24, Department of Computer Science, University of Calgary*. (4 pages).
27. M. Schwarz, T. Isenberg, K. Mason, S. Carpendale. (2007). Modeling with Rendering Primitives: An Interactive Non-Photorealistic Canvas. *Technical Report 2007-851-03, Department of Computer Science, University of Calgary*. (8 pages)

28. M. Nunes, S. Greenberg, S. Carpendale, C. Gutwin. (2007). What Did I Miss? Visualizing the Past through Video Traces. *Report 2007-855-07, Dept. Computer Science, University of Calgary*, Calgary, Alberta, Canada. March. 21 pages.
29. S.D. Scott, S. Carpendale. (2006). Investigating Tabletop Territoriality in Digital Tabletop Workspaces. *Technical Report. TR-2006-836-29, Department of Computer Science, University of Calgary*.
30. M.S. Hancock, S. Carpendale. (2006). The Complexities of Computer-Supported Collaboration. University of Calgary *Technical Report. TR-2006-812-05 Department of Computer Science, University of Calgary*.
31. M. Nunes, S. Greenberg, S. Carpendale, C. Gutwin. (2006). Video traces. University of Calgary *Technical Report. TR-2006-809-02, Department of Computer Science, University of Calgary*.
32. T. Isenberg, P. Neumann, S. Carpendale, M. Costa Sousa, J. A. Jorge. (2005). Non-Photorealistic Rendering in Context: An Observational Study. *Technical Report 2005-805-36, Department of Computer Science, University of Calgary*. (10 pages)
33. T. Isenberg, A. Brennecke, M. Costa Sousa, S. Carpendale. (2005). Beyond Pixels: Illustration with Vector Graphics. *Technical Report 2005-804-35, Department of Computer Science, University of Calgary. (3 pages)*
34. R. Diaz-Marino, S. Carpendale, S. Greenberg. (2005). Lyric Text. *Video Report, Interactions Laboratory, Department of Computer Science, University of Calgary, Calgary. Duration 3:42.*
35. N. Wong, S. Carpendale. (2005). Supporting Interactive Graph Exploration with Edge Plucking. *Technical Report 2005-795-26, Department of Computer Science, University of Calgary*, Calgary.
36. K. Elliot, S. Carpendale. (2005). Awareness and Coordination: A Calendar for Families. *Technical Report 2005-791-22, Department of Computer Science, University of Calgary*, Calgary.
37. E. Fanea, S. Carpendale, T. Isenberg. (2005). An Interactive 3D Integration of Parallel Coordinates and Star Glyphs. *Technical Report 2005-782-13, Department of Computer Science, University of Calgary*, Calgary. (8 pages).
38. E. Fanea, S. Carpendale. A Linguistic Formalism for Specifying Visual Representations. *Technical Report 2005-781-12, Department of Computer Science, University of Calgary*, Calgary.
39. U. Hinrichs, S. Carpendale, S.D. Scott. (2005). Interface Currents: Supporting Co-Located Collaborative Work on Tabletop Displays. *Technical Report (2005-773-04) Department of Computer Science, University of Calgary*, Calgary.
40. P. Neumann, T. Isenberg, S. Carpendale, T. Strothotte. (2005). Expressive Distortion of Strokes and 3D Meshes. *Technical Report 2005-776-07, Department of Computer Science, University of Calgary*. (7 pages).
41. S.D. Scott, S. Carpendale, S. Habelski. (2004). Storage Bins: Mobile Storage for Collaborative Tabletop Displays. *Technical Report 2004-767-32, Department of Computer Science, University of Calgary*, Calgary.
42. R. Schmidt, S. Carpendale, E. Penner. (2004). MAD Boxes: A Plug-And-Play Tiled Display Wall. *Technical Report 2004-768-33, Department of Computer Science, University of Calgary*, Calgary.
43. R. Kruger, S. Carpendale, A. Tang, S.D. Scott. (2004). Fluid Orientation on a Tabletop Display: Integrating Rotation and Translation. *Technical Report 2004-747-12, Department of Computer Science, University of Calgary*, Calgary.

44. S.D. Scott, S. Carpendale, K. Inkpen. (2004). Territoriality in Collaborative Tabletop Workspaces. *Technical Report 2004-743-08, Department of Computer Science, University of Calgary*, Calgary.
45. S.D. Scott, S. Carpendale, K. Inkpen. (2004) Exploring Casual Tabletop Interactions. *Technical Report 2004-742-07, Department of Computer Science, University of Calgary*, Calgary.
46. P. Neumann, S. Carpendale. (2003). Taxonomy for Discrete Lenses. *Technical Report 2003-734-37, Department of Computer Science, University of Calgary*, Calgary. (57 pages).
47. A. Tang, D. Kraft, S. Carpendale, A. Dunning. (2003). Sensing and Visualizing Physiological Arousal. *Technical Report 2003-727-30, Department of Computer Science, University of Calgary*, Calgary.
48. K. Mason, S. Carpendale, B. Wyvill. (2003). Perspective in Context. *Proc. of the Western Computer Graphics Symposium*, p. 40-50.
49. B. Wyvill, K. van Overveld, S. Carpendale. (2003). The Batik Trick. *Proc. of the Western Computer Graphics Symposium*, p. 59-66.
50. R. Kruger, S. Carpendale. (2003). Exploring Orientation on a Table Display. *Technical Report 2003-726-29, Department of Computer Science, University of Calgary*, Calgary.
51. B. Wyvill, K. van Overveld, S. Carpendale. (2003). Visualizing Batik. *Technical Report No. 2002-701-04, Department of Computer Science, University of Calgary*. Calgary.
52. S. Carpendale. (2003). Considering Visual Variables as a Basis for Information Visualization. *Technical Report 2001-693-16, Department of Computer science, University of Calgary*.
53. R. Kruger, S. Carpendale. (2002). The e-Table: Exploring collaborative interaction on a horizontal display. Technical Report 2002-714-17, *Department of Computer Science, University of Calgary, Calgary, Alberta, Canada*, December.
54. A. Duta, S. Carpendale. (2002). VICO: A Tool for Supporting Visual Comparisons of Different Pine-Beetle Management Approaches. *In the Proceedings of the Western Computer Graphics Symposium, British Columbia, Canada*.
55. C.A.H. Baker, S. Carpendale, M.G. Surette. (2001). Simulation and Visualisation of Genetic Regulatory Networks. Technical Report 2001-696-19, *Department of Computer Science, University of Calgary, Calgary, Alberta, Canada,* December 20.
56. K. Mason, S. Carpendale, P. MacMurchy, B. Wyvill. (2001). Eastern Perspectives and the Question of Personal Expression. Technical Report 2001-696-19, *Department of Computer Science, University of Calgary, Calgary, Alberta, Canada*, December 20.
57. K. Mason, S. Carpendale. (2001). Expanding the Expressive Palette*. In the Proceedings of the Western Computer Graphics Symposium, Kamloops, British Columbia, Canada*.
58. A. Zanella, M. Rounding, S. Carpendale. (2000). On the effects of visual cues in comprehending distortions. Technical Report 2000-668-20, *Department of Computer Science, University of Calgary, Calgary, Alberta, Canada*, October 12.
59. M. Rounding, S. Greenberg, S. Carpendale. (2000). Awareness Projected: Moving Awareness to a Public Space. *In Proceedings of the Western Computer Graphics Symposium,* March 26-29.
60. M. Boyle, S. Kaasten, M. Rounding, J. Tam, A. Zanella, S. Greenberg, S. Carpendale, F. Maurer. (2000). Grouplab at Skigraph. Report 2000-652-04, *Department of Computer Science, University of Calgary, Calgary, Alberta, Canada*. March.

61. D.J. Cowperthwaite, S. Carpendale, F.D. Fracchia. (1999). Editing in Elastic Presentation Spaces. Technical Report: U-SFraser-CMPT-TR: 1999-11, *School of Computing Science, Simon Fraser University, British Columbia, Canada,* October.
62. S. Carpendale. (1999). Ph.D. Thesis, "A Framework for Elastic Presentation Space", Topic: Information Visualization, *School of Computing Science, Simon Fraser University, British Columbia, Canada*, Committee: David Fracchia (Co-Senior Supervisor), Tom Shermer (Co-Senior Supervisor), Art Liestman, (Supervisor), SFU Examiner: John Dill, External Examiner: Thomas Strothotte, March.
63. M. Tigges, S. Carpendale, B. Wyvill. (1999). Generalized Distance Metrics for Implicit Surface Modeling. *Proceedings of the Tenth Western Computer Graphics Symposium*, pages 14-18, March.
64. S. Carpendale, D. Cowperthwaite, A. Fall. (1999). SEED: Simulating & Exploring Ecosystem Dynamics, 1998, *Poster Presentation, BC Advanced Systems Institute (ASI) Exchange*, *Vancouver, British Columbia, Canada*, March **(CSS Excellent Student Poster Award)**.
65. M. Lantin, S. Carpendale. (1998). Supporting Detail-in-Context for the DNA Representation, H-Curves. Technical Report CMPT1998-09, *School of Computing Science, Simon Fraser University, British Columbia, Canada*, April.
66. S. Carpendale, D. Cowperthwaite, A. Fall. (1998). SEED: Simulating & Exploring Ecosystem Dynamics, 1998, *Poster Presentation, BC Advanced Systems Institute (ASI) Exchange*, *Vancouver, British Columbia*. March **(ASI Best Student Paper Award and CSS Best Student Poster Award)**.
67. S. Carpendale, D. Cowperthwaite M.A.D. Storey, F. D. Fracchia. (1997). Exploring Distinct Aspects of the Distortion Viewing Paradigm. Technical Report CMPT1997-08, *School of Computing Science, Simon Fraser University, British Columbia, Canada*, March.
68. D. Cowperthwaite, A. Fall. S. Carpendale. (1997). SEED: Simulating & Exploring Ecosystem Dynamics, 1998, *Poster Presentation, BC Advanced Systems Institute (ASI) Exchange*, *Vancouver, British Columbia,* March **(ASI Best Student Paper Award, CSS Best Student Poster Award)**.
69. D. Cowperthwaite, S. Carpendale, F.D. Fracchia. (1995). Distortion Viewing Techniques for 3-Dimensional Data. Technical Report CMPT1995-06, *School of Computing Science, Simon Fraser University, British Columbia, Canada*, November.
70. M.-A.D. Storey, F.D. Fracchia, S. Carpendale. (1994). A Top-down Approach to Algorithm Animation. Technical Report CMPT1994-05, *School of Computing Science, Simon Fraser University, British Columbia, Canada*, September.
71. S. Carpendale. (1993). MBG: A Storyboard Approach for Visualising Minimum Broadcast Graph Research. *Poster Presentation, BC Advanced Systems Institute (ASI) Exchange*. March.

Supervised Theses

Ph.D. Theses

1. Paul (June 30, 2021) *Information Visualization for Exploration and Self-Reflection in Social Media*. PhD Thesis, Computer Science. University of Calgary.
   Supervisor: S. Carpendale;
   Committee Member: Wesley Willett: Tier2 Canada Research Chair in Visual Analytics
   Committee Member: Petra Isenberg, Senior Research Scientist INRIA, Paris, France
   External Examiner: Pierre Boulanger, Professor, University of Alberta
   Internal Examiner: Larry Katz, Professor, Kinesiology, University of Calgary

2. Bon Adriel Aseniero (September 18, 2020). *An Autobiographical Reflection on Designing Visualizations for Personal Contexts*. PhD Thesis, Computer Science. University of Calgary.
   Best Dissertation: Honourable Mention (2nd in the world) in the 2022 IEEE VGTC Doctoral Dissertation Competition
   Supervisor: S. Carpendale; co-supervisor Tony Tang;
   External Examiner: Andrew Vande Moore, University of Leuven;
   Internal Examiner: Steve Liang, Geography, University of Calgary;
   Committee: Wesley Willett, Carman Neustaedter (SFU).

3. Fatemeh Rajabiyazdi (November 19, 2018). *Exploring the Design of Visualizations to Facilitate Patient-Provider Communication*. PhD Thesis, Computer Science. University of Calgary. PDF
   Supervisor: S. Carpendale; co-supervisor Lora Oehlberg;
   External Examiner: Anastasia Bezerianos, Universite de Paris;
   Internal Examiner: Larry Katz, Kinesiology, University of Calgary;
   Committee: Diane Gromala, Charles Perin.

4. Marjan Eggermont. (April 13, 2018). *Bio-inspired design and Information visualization*. PhD Thesis, Computational Media Design. University of Calgary.
   Supervisor: S. Carpendale, Co-supervisor G. Hushlak;
   External Examiner: Ali Mazalek;
   Internal Examiner: Morley Hollenberg
   Committee: Lora Oehlberg, Branko Kolarevic.

5. Alice Thudt. (April 6, 2018). *Visualizations for Personal Reflection and Expression*. PhD Thesis, Computational Media Design. University of Calgary.
   Best Dissertation: Honourable Mention (2nd in the world) in the 2018 IEEE VGTC Doctoral Dissertation Competition
   Supervisor: S. Carpendale, Co-supervisor Barry Wylant;
   External Examiner: David Flatla;
   Internal Examiner: Stefania Forlini:
   Committee: Uta Hinrichs, Wesley Willett.

6. Lindsay MacDonald. (February 14, 2018). *Neither here nor there: Installations in liminal spaces*. PhD Thesis, Computational Media Design. University of Calgary.
   Supervisor: S. Carpendale, Co-supervisor JR Leblanc;
   External Examiner: Ann Morrison;
   Internal Examiner: Alexander Bruton;
   Committee: Susan Cahill, Wesley Willett.

7. Aura Pon. (January 22, 2018). *Designing for the Mindbody in Technology-Mediated Music-Making*. PhD Thesis, Computational Media Design. University of Calgary.
   Supervisor: S. Carpendale, Co-supervisor L. Radford;
   External Examiner: Andrew McPherson;
   Internal Examiner: Larry Katz
   Committee: Friedemann Sallis, Anthony Tang.

8. Mona Hosseinkhani Loorak. (January 8, 2018). *View-Flattening: Revealing Heterogeneous Multi-Dimensional Data Attributes within a Single View*. PhD Thesis, Department of Computer Science, University of Calgary.
   Supervisor: S. Carpendale;

External Examiner: Michael McGuffin;
Internal Examiner: Steve Liang;
Committee: Christopher Collins, Ehud Sharlin.

9. Tanja Blascheck. (July 20, 2017). Understanding Interactive Visualizations: Leveraging Eye Movements and Visual Analytics. Faculty of Computer Science, Electrical Engineering and Information Technology, University of Stuttgart.
Hauptberichter: Prof. Dr. Thomas Ertl
Mitberichter: Prof. Dr. Sheelagh Carpendale
Received the EuroVis 2018 Best PhD Award

10. Kyle Hall. (May 18, 2017). *Interweaving Computational Chemistry and Visualization: Explorations into Molecular Processes, Simulation Analysis, and Visualization Design*. PhD Thesis, Chemistry and Computer Science. University of Calgary. (Vanier, NSERC, AITF Scholarship student)
Supervisors: P. Kusaluk, S. Carpendale;
External Examiner: Gren Patey (UBC); Internal-External Examiner: D. Ebert (Purdue)
Committee: Viola Briss (UofC); Valeria Molinero (Utah)
Received the Faculty of Science, University of Calgary 2018 Best PhD Award

11. Jagoda Walny. (October 20, 2016). *Thinking with Sketches: Leveraging Everyday Use of Visuals for Information Visualization*. PhD Thesis, Computer Science. University of Calgary. (Was an NSERC Scholarship student. Won the Best HCI PhD in Canada Award; Won 2nd place in IEEE)
Supervisor: S. Carpendale;
External Examiner: Jo Wood; Internal Examiner: Dan Jacobson
Committee: A. Tang, N. Henry Riche
Best Dissertation: Honourable Mention (2nd in the world) in the 2017 IEEE VGTC Doctoral Dissertation Competition
2017 Bill Buxton Best Canadian HCI Dissertation Award.

12. Ovo Adagha. (December 10, 2015). *A Socio-Technical Approach to Designing a Visual Analytics Decision Support Tool for Wind Farm Placement Planning in Alberta*. PhD Thesis, Computational Media Design. University of Calgary.
Supervisors: R. Levy, S. Carpendale;
External Examiner: P. Boulanger; Internal Examiner: T. Keenan
Committee: C. Gates, M. Lindquist

13. Lawrence Fyfe. (April 27, 2015). *JunctionBox: A Multi-touch Interaction Mapping Toolkit for Creating Musical Interfaces*. PhD Thesis, Computational Media Design. University of Calgary.
Supervisor: S. Carpendale, Co-supervisor D. Eagle;
External Examiner: L. Wyse; Internal Examiner: C. Bok
Committee: J. Boyd, C. Chafe

14. Katayoon Etemad. (April 17, 2015). *Graph Visualizations Inspired by Alternative Aesthetics*. PhD Thesis, Department of Computer Science; Specialization Computational Media Design. University of Calgary.
Supervisor: S. Carpendale, Co-supervisor R. Levy;
External Examiner: P. Boulanger; Internal Examiner: L. Katz
Committee: A. Tang, J. Rockne.

15. Uta Hinrichs. (December 2012). *Open-Ended Explorations in Exhibition Spaces: A Case for Information Visualization and Large Direct-Touch Displays*. PhD Thesis, Department of Computer Science, University of Calgary.
    Supervisor: S. Carpendale; External Examiner: G. Jacucci.
    2012 Bill Buxton Best Canadian HCI Dissertation Award.

16. Marian Doerk. (May 2012). *Visualization for Search: Exploring Complex and Dynamic Information Spaces*. PhD Thesis, Department of Computer Science, University of Calgary.
    Supervisor: S. Carpendale, Co-supervisor C. Williamson; External Examiner: J. Dykes.

17. Mark Hancock. (July 2010). *3D Tabletop Display Interaction*. PhD Thesis, Department of Computer Science, University of Calgary.
    Supervisor: S. Carpendale; External Examiner: G. Kurtenbach.

18. Christopher Collins. (December 2009). *Interactive Visualizations of Language*. PhD Thesis, Department of Computer Science, University of Toronto.
    Supervisors: G. Penn, S. Carpendale; Examiners: R. Beaker, S. Card.

19. Petra Isenberg. (November 2009). *Collaborative Information Visualization in Co-located Environments*. PhD Thesis, Department of Computer Science, University of Calgary.
    Supervisor: S. Carpendale; Examiners: P. Feng, C. Ware.

20. Charlotte Tang. (August 2009) *Studying Nurses' Information Flow to Inform Technology Design*. PhD Thesis, Department of Computer Science, University of Calgary.
    Supervisor: *S.* Carpendale; Examiners: B. Baylis, G. FitzPatrick.

21. Torre Zuk. (November 2007). *Visualizing Uncertainty*. PhD Thesis, Department of Computer Science, University of Calgary,
    Supervisor: *S.* Carpendale, Examiners: D. Jacobs, A. MacEachern.

22. Katherine Mason. (May 2006). *A Framework for Element-Based Computer Graphics*. Ph.D. Dissertation, Department of Computer Science, University of Calgary.
    Supervisor: *S.* Carpendale; Examiners: B. Rusted, S. Fels

23. Stacey Scott. (March 2005). *Territoriality in Collaborative Tabletop Workspaces*. Ph.D. Dissertation, Department of Computer Science, University of Calgary.
    Supervisors: S. Carpendale, K. Inkpen; Examiners: M. Chiasson, T. Rodden.
    Received the Faculty of Science, University of Calgary 2018 Best PhD Award

Master's Theses

1. Parnian Taghipour. August 18, 2023. Exploratory Visualization for the Women's Print History Project. Masters School of Computing Science, Simon Fraser University
   Supervisor: Sheelagh Carpendale; Co-supervisor: Thomas Shermer
   Committee Members: Michelle Levy, Xingdong Yang
   Examiner: Lawrence Kim
2. Katherine Currier. April 17, 2020. In-Home Data and Data Visualization. Masters in Computer Science.
   Supervisor: Sheelagh Carpendale; Co-supervisor: Tony Tang
   Examiners: External Stefania Forlini; Internal Mea Wang

3. Tiffany Wun. December 14, 2018. *Authoring Data Visualizations with Physical Template Tools*. Masters in Computer Science.
   Supervisor: S. Carpendale, Co-supervisor: L. Oehlberg;
   Examiners: Internal: Nelson Wong, External: Joel Reardon.
4. Sarah Stortebroom. Oct. 13, 2017. *Objective Meaning: Exploring Mediated Discourse with Anonymous Public Interaction and Visual Techniques*.
   Masters in Computational Media Design.
   Supervisors: S. Carpendale, J-R Leblanc; Examiners: Stefania Forlini, Christine Sowiak.
5. Gerry Straathof (Jan. 2015). *Where is every body: Locating people directly in front of large screens using multiple kinects*. Masters in Computational Media Design, University of Calgary.
   Supervisors: S. Carpendale, R. Levy; Examiners: Internal: Vera Parlac, External: April Viczko
6. Bon Adriel Aseniero (Dec. 2014). *The Design of Visualization to Support Decision-making in Software Release Planning*. Masters in Computer Science, Department of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, A. Tang; Examiners: Larry Katz, Robert Kremer
7. Shahbano Farooq (April 2014). *Design and Discussion of Visualizations in Pairs*. Masters in Computer Science, Department of Computer Science, University of Calgary.
   Supervisors: F. Maurer, S. Carpendale; Examiners: Laleh Behjat (ENEL), Mario Costa-Sousa
8. Sean Lynch: (December 2011). *Tabletop Interfaces for Music.* Master's Thesis (MSc), Specialization, Computational Media Design, Dept of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, A. Dunning; Examiners: A. Tang, M. Hollenberg
9. Lindsay MacDonald. (April 2011). *"A Delicate Agreement": Exploring Subtle Gaze-Triggered Interaction in Art.* Master's Thesis (MFA), Specialization, Computational Media Design, Department of Art, University of Calgary.
   Supervisors: J-R. Leblanc, S. Carpendale; Examiners: E. Sharlin, M. Hollenberg
10. Matthew Tobiasz. (April 2010). *Lark: Using Meta-visualizations for Coordinating Collaboration*. Master's Thesis, Specialization, Computational Media Design, Department of Computer Science, University of Calgary.
    Supervisor: S. Carpendale; Examiner: M. Surette.
11. Katayoon Etemad. (December 2009) *Node Focused Visualization of Large Trees*. Master's Thesis, Department of Computer Science, University of Calgary.
    Supervisor S. Carpendale: Examiners: E. Huang, R. Levy.
12. Eric Penner. (December 2009). *Three-Dimensional Medical Image Visualization Techniques on Modern Graphics Processors*. Master's Thesis, Dept of Computer Science, University of Calgary.
    Supervisors: S. Carpendale, R. Mitchell; Examiners: J. Rokne: M. Hollenberg.
13. Jeroen Keijser. (November 2007). *Alternate 3D Control-Display Mappings*. Master's Thesis, Department of Computer Science, University of Calgary,
    Supervisors: S. Carpendale, K. Barker; Examiners: J. Boyd, G. Hushlak.
14. Annie Tat. (April 2007). *Visualizing Human Dialog*. Interdisciplinary Master's Thesis in Computer Science and Fine Arts, Department of Computer Science, University of Calgary.
    Supervisors: S. Carpendale, P. Woodrow; Examiners: E. Sharlin, J. Eiserman, R. Levy.
15. Elena Fanea. (April 2006) *Establishing Graphical and Formal Relationships between Visualizations of Multi-Dimensional Data*. MSc Thesis, Department of Computer Science, University of Calgary.
    Supervisor: *S.* Carpendale; Examiners: R. Kremer, E. Braverman.

16. Nelson Wong. (March 2005). *EdgeLens: An Interactive Technique for Mitigating Edge Congestion in Graphs*. MSc Thesis, Department of Computer Science, University of Calgary.
    Supervisor: S. Carpendale; Examiners: E. Sharlin, L. Katz.
17. Russell Kruger. (July 2004). *Fluid Orientation on Tabletop Displays: Supporting Co-located Collaboration*. MSc Thesis, Department of Computer Science, University of Calgary.
    Supervisor: S. Carpendale; Examiners: F. Maurer, R. Wardell.
18. C.J. Baker. *GeneVis: Simulating and Visualizing Genetic Regulatory Networks*. MSc Thesis, Department of Computer Science, University of Calgary.
    Supervisor: S. Carpendale; Examiners: P. Prusinkiewicz, J. Dill.

Exchange Student Theses and Diplomas

1. Markus Tessman. (October 17, 2017). Exploring the Relationship between Comprehension and Visualization. Master's Thesis. Ludwig-Maximilians-Universitat Munchen Department: Institute for Informatics. Media Informatics.
   Advisor: Dr. Sheelagh Carpendale & Prof. Dr. Andreas Butz
   Professor: Prof. Dr. Andreas Butz.
2. Philipp Koytek. (June 29, 2017). Exploring Brushing and Linking with Personal Agency for Coordinated Multiple Views in Information Visualization. Masters Thesis. Institute of Software & Systems Engineering. University of Augsburg. Prof. Dr. Elisabeth Andre, University of Augsburg, Prof. Dr. Bernhard Bauer, University of Augsburg.
   Advisor: Prof. Dr. Sheelagh Carpendale, University of Calgary
3. A. Thudt. (2011). *The Bohemian Bookshelf: Design and Implementation of a Visualization Prototype for Serendipitous Browsing*. Projektarbeit/Bachelors thesis, Dept Institut fur Informatik, Ludwig-Maximilians-Universitat Munchen, Munich, Germany. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, U. Hinrichs. Dr.-Prof. Andreas Butz: Professor in charge
4. R. Langner. (2010). *PhysicsBox: Playful Educational Tabletop Games*. Internship thesis. Dept of Simulation and Graphics, Faculty of Computer Science, Otto-von-Guericke-Universität Magdeburg, Magdeburg, Germany. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, J. Brosz. Dr.-Prof. Raimund Dachselt: Professor in charge
5. S. Schmidt. (2010) *Graph Exploration Techniques for Multitouch Tabletops*. Internship thesis. Dept of Simulation and Graphics, Faculty of Computer Science, Otto-von-Guericke-Universität Magdeburg, Magdeburg, Germany. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, M. Nacenta. Dr.-Prof. Raimund Dachselt: Professor in charge
6. L. Vlaming. (November 2010). *Integrating 2D Mouse Emulation with 3D Manipulation for Visualizations on a Multi-Touch Table*. Masters thesis. Johann Bernoulli Institute for Mathematics and Computer Science (FWN-JBI-SVCG) University of Groningen, Groningen, The Netherlands. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, M. Nacenta. Dr. Tobias Isenberg: Professor in charge
7. Thomas ten Cate. (August 2009). *A Virtual Sandtray on a Tabletop Computer*. Master's thesis. Johann Bernoulli Institute for Mathematics and Computer Science (FWN-JBI-SVCG) University of Groningen, Groningen, The Netherlands. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, M. Hancock. Dr. Tobias Isenberg: Professor in charge

8. M. Dörk. (June 2008). *Towards a Better VIEW: Visual Information Exploration on the Web*. Diplom Thesis, School of Computer Science, Otto-von-Guericke-University of Magdeburg, Germany. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, C. Williamson. Dr. -Ing. Maic Masuch: Professor in charge.
9. J. Grubert. (February 2008). *Interacting with Stroke-Based Non-Photorealistic Rendering on Large Displays*. Internship Thesis, School of Computer Science, Otto-von-Guericke-University of Magdeburg, Germany. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
   Supervisors: S. Carpendale, T. Isenberg. Dr. -Ing. Maic Masuch: Professor in charge
10. M. Schwarz. (May 2007). *An Interactive Non-Photorealistic Canvas*. Internship Thesis, School of Computer Science, Otto-von-Guericke-University of Magdeburg, Germany. . Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
    Supervisors: S. Carpendale, T. Isenberg. Dr. -Ing. Stefan Schlechtag: Professor in charge
11. L. Schlesier. (September 2006). *Creating an Interactive Visualization of Mountain Pine Beetle Simulation Data*. Diplom Thesis, School of Computer Science, Otto-von-Guericke-University of Magdeburg, Germany. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary, and Pacific Forestry Centre, Victoria, British Columbia.
    Supervisors: S. Carpendale; Dr. -Ing. Stefan Schlechtag: Professor in charge
12. A. Miede. (June 2006). *Realizing Responsive Interaction for Tabletop Interaction Metaphors*. MSc. Thesis, School of Computer Science, Otto-von-Guericke-University of Magdeburg, Germany. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
    Supervisors: S. Carpendale, T. Isenberg. Dr. -Ing. Maic Masuch: Professor in charge
13. U. Hinrichs. (September 2005). *Interface Currents: Evaluating a Fluid Interface for Tabletop Collaboration*. Diplom Thesis, Otto-von-Guericke University of Magdeburg, Magdeburg, Germany. Research Location: Interactions Laboratory, Department of Computer Science, University of Calgary.
    Supervisors: S. Carpendale, M. Gotze. Dr. Prof. T. Strothotte: Professor in charge

Exhibits

1. **Data Reflections**: An Exhibition by the InnoVis group from the Interactive Experiences Lab (ixLab) at Simon Fraser University. July 5th – Sept. 3rd 2022. The Dorothy Francis Gallery, The Old School House (TOSH) Art Centre.

   CO2 emission. Foroozan Daneshzand, Sheelagh Carpendale.

   HeatDome Impact. Foroozan Daneshzand, Sheelagh Carpendale.

   Wound Up During a Pandemic. Tatiana Losev, Sheelagh Carpendale

   Data Motion Pictures: encoding data into animated aesthetics. Issaca Tsang, Zezhong Wang, Sheelagh Carpendale.

   Data Buffet. Sarah Storteboom, Navarjun Grewal, Zezhong Wang, Spoorthy Gunda, Gabi Siu, Louisa Jensen, Caroline Wong, Sheelagh Carpendale
2. Carpendale and co-PI Willett worked closely with Canada's Energy Regulator (CER) and VizworX to design and develop these energy data visualizations (https://www.cer-rec.gc.ca/en/data-visualization/index.html).
3. Mieka West, Sheelagh Carpendale. (2018). **Anthropocene Footprints**. VIS Arts Program (VISAP), 2018.

4. Benjamin Bach, Natalie Kerracher, Kyle Wm. Hall, Sheelagh Carpendale, Jessie Kennedy, Nathalie Henry Riche. (2018). ***Telling Stories and Dynamic Networks with Graph Comics***. In Art of Networks III. International Village, Northeastern University, 1155-1175 Tremont St., Boston, MA 02116, USA. Exhibition open January 13, 2018 to March 12, 2018, Organizing Committee: Chair Isabel Meirelles (OCAD University, Toronto, Canada), members Matthew Brehmer (Microsoft Research, Redmond, WA), Marian Dörk (University of Applied Sciences Potsdam, Germany), Ronaldo Menezes (Florida Institute of Technology, Melbourne, FL), and Nicole Samay (Northeastern University, Boston, MA). Co-located with Complenet 2018
5. Sebastian Lay, Jo Vermeulen, Charles Perin, Eric Donovan, Raimund Dachselt, Sheelagh Carpendale. Slicing the Aurora: A Proxemics-Aware Visualization. In BeakerHead 2016, Calgary.
6. Sebastian Lay, Jo Vermeulen, Charles Perin, Eric Donovan, Raimund Dachselt, and Sheelagh Carpendale. (2016). Slicing the Aurora. In VISAP 2016
7. Sebastian Lay, Jo Vermeulen, Charles Perin, Eric Donovan, Raimund Dachselt, Sheelagh Carpendale. Slicing the Aurora: A Proxemics-Aware Visualization. In TELUS Spark Science Centre, Calgary, 2016.
8. Bon Adriel Aseniero, Charles Perin, Marjan Eggermont, and Sheelagh Carpendale. (2016). Fireflies. in VISAP 2016
9. M. Doerk, C. Williamson, S. Carpendale. The Art of Networks II. New York Hall of Science, 47-01 111th St Queens, NY, NY, USA. 2015
10. Sheelagh Carpendale, Alice Thudt, Samuel Huron, Paul Lapides, Richard Pusch. Interactive Installation: Exploring the contents of the National Museum of Science and Technology through interactive visualization designed to combine serendipity and meta-data. Interactive exhibit, National Museum of Science and Technology, Ottawa, March 2014 – Oct 2014.
11. L. MacDonald, S. Carpendale. (2012) “Conditional Balance”. Les HTMlles 10: *Affaires à risques / Risky Business*. Studio XX, Montréal, Quebec. November 10 – 23, 2012.
12. L. MacDonald, M. Nacenta, J. Brosz, S. Carpendale. (2012). “A Delicate Agreement”, *The New Alberta Contemporaries* • Esker Foundation, Calgary, June 15 – August 25, 2012
13. Carpendale’s Computational Media Design student L. MacDonald, “A Delicate Agreement”, MFA Thesis Exhibition, Taylor Family Digital Library, University of Calgary, March 25 to April 22, 2011. **(Digital Alberta Award)**
14. S. Carpendale. (2008). Revisionist Interaction. Invited Installation. Banff Summer Arts Festival 75th Anniversary Celebration, Banff New Media Institute, Banff Centre, Banff for the Arts, July.
15. Carpendale’s Art/Science partnership students J. Brosz and H. Wang, Perspectives, ACAD Grad Show, April 24 to May 9, 2008.
16. Carpendale’s Art/Science partnership students N. Dempsey, G. Baumgartner and J. Wong, Digital Doodle, ACAD Grad Show, April 24 to May 9, 2008.
17. Carpendale’s Art/Science partnership students L. Rogers and K. Etemad, Transition, Sculpture Gallery, University of Calgary, April 18 to 20, 2008.
18. Carpendale’s Art/Science partnership students S. Lynch and S. Kyoung Choi, Moirae, ACAD Grad Show, April 24 to May 9, 2008.
19. Carpendale’s Art/Science partnership students T. Au Yeung and S. Esopenko, Video Reaction Booth, ACAD Grad Show, April 24 to May 9, 2008. (**Governor General’s Award**)

20. Carpendale's Art/Science partnership students U. Hinrichs and H. Schmidt, EMDialog, Invited Installation. Emily Exhibit, GlenBow Museum, Calgary, Alberta. Nov 2007 to January 2008. (**finalist in Canadian New Media Awards**)
21. Carpendale's Art/Science partnership students U. Hinrichs and H. Schmidt's piece, Memory (En)code, was accepted for a juried art show as part of Computational Aesthetics (CAe'07) held at the Banff Centre for the Arts, June 19 to June 23, 2007. (**best in show award**)
22. Carpendale's Art/Science partnership students U. Hinrichs and H. Schmidt, Memory (En)code, at the University of Calgary, Little Gallery, May 14 to May 18, 2007.
23. Carpendale's Art/Science partnership students A. Inkster and S. Jenkins, Cycle of Perceptions, Nickel Museum, University of Calgary, Fine Arts Grad Show, April 27 to May 15, 2007.
24. Carpendale's Art/Science partnership students A. Seniuk and D. Baumgart, COSMOSIS, ACAD Grad Show, April 26 to May 5, 2007.
25. Carpendale's Art/Science partnership students H. He and D. Osborn, Explorer, ACAD Grad Show, April 26 to May 5, 2007.
26. Carpendale's Art/Science partnership students M. Tobiasz and A. Henderson: performance piece, BookRDX, April 22 to April 25, and installation piece, BookRDX, ACAD Grad Show, April 26 to May 5, 2007.
27. Antarctic Waves. Software distributed to all high schools in the UK, designed to inspire students to compose music based on science. **Won a BAFTA**. In collaboration with Braunarts (https://braunarts.com/), British Antarctic Survey (https://www.bas.ac.uk/), and the London Philharmonic (https://lpo.org.uk/)