







Matthew Brehmer

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Research Interests

Dr. Brehmer is a Human-Computer Interaction (HCI) researcher focusing on information visualization: he designs, implements, and evaluates new ways to communicate and collaborate around data.

Current Position

University of Waterloo Waterloo, Ontario, Canada
Assistant Professor, Faculty of Math, David R. Cheriton School of Computer Science Since 2024
– Human-Computer Interaction Lab | Future Cities Institute | Ubietous Information Experiences Group |  ubixgroup.ca

Education

University of British Columbia Vancouver, British Columbia, Canada
PhD in Computer Science 2016
– Dissertation: *“Why Visualization? Task Abstraction for Analysis and Design”*
– Dissertation research supervised by Tamara Munzner and Joanna McGrenere

University of British Columbia Vancouver, British Columbia, Canada
MSc in Computer Science, Sub-Specialization in Human-Computer Interaction 2011
– Thesis: *“Usability and the Effects of Interruption in C-TOC: Self-Administered Cognitive Testing on a Computer”*
– Thesis research supervised by Joanna McGrenere (UBC CS) and Claudia Jacova (UBC Medicine)

Queen’s University Kingston, Ontario, Canada
Bachelor of Computing, Specialization in Cognitive Science with Professional Internship 2009
– Thesis: *“Assessing the Effect of Exercise Intensity on Cognitive Task Performance in an Exercise Video Game”*
– Thesis project supervised by T. C. Nicholas Graham

Employment History

Tableau (acquired by Salesforce) Seattle, Washington, USA
Tableau Research: Research Scientist → Senior Research Staff → Lead Research Staff 2019 – 2024
– Parental leave (Summer 2023)

Microsoft Redmond, Washington, USA
Postdoctoral Researcher, Microsoft Research 2016 – 2019

Microsoft Redmond, Washington, USA
Research Intern, Microsoft Research 2015

Pulse Energy (acquired by EnerNOC, now Enel X) Vancouver, British Columbia, Canada
Research Intern 2013 – 2014

EMC Corporation (later acquired by Dell) Toronto, Ontario, Canada
User Interface Design / Development Intern 2007 – 2008

Killam Properties, Inc. Halifax, Nova Scotia, Canada
Information Technology Staff / Web Developer 2006

Publications

See up-to-date list and links to PDFs at [📄 mattbrehmer.ca](https://mattbrehmer.ca) and Google Scholar; * indicates student / intern supervised.

Conference Papers

- CHI 26a Dion Barja* and **Matthew Brehmer**. “Glass Chirolytics: Reciprocal compositing and shared gestural control for face-to-face collaborative visualization at a distance”. In: *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems*. 2026. doi: 10/q35d.
- CHI 26b **Matthew Brehmer**, Maxime Cordeil, Christophe Hurter, Takayuki Itoh, Wolfgang Büschel, Mahmood Jasim, Arnaud Prouzeau, David Saffo, Lyn Bartram, Sheelagh Carpendale, Zhu-Tian Chen, Aandrew Cunningham, Tim Dwyer, Samuel Huron, Masahiko Itoh, Alark Joshi, Kiyoshi Kiyokawa, Hideaki Kuzuoka, Bongshin Lee, Gabriela Molina León, Harald Reiterer, Bektur Ryskeldiev, Jonathan Schwabish, Brian A. Smith, Yasuyuki Sumi, Ryo Suzuki, Anthony Tang, Yalong Yang, and Jian Zhao. “Challenges in synchronous & remote collaboration around visualization”. In: *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems*. 2026. doi: 10/q35c.
- CUI 25 Mohammad Abolnejadian*, Shakiba Amirshahi, **Matthew Brehmer**, and Anamaria Crisan. “Alnsight: Augmenting expert decision-making with on-the-fly insights grounded in historical data”. In: *Proceedings of the ACM SIGCHI Conference on Conversational User Interfaces*. 2025. doi: 10/g94xf3.
- PacificVis 25 **Matthew Brehmer**, Margaret Drouhard, and Arjun Srinivasan. “RemixTape: Enriching narratives about metrics with semantic alignment and contextual recommendation”. In: *Proceedings of the IEEE Pacific Visualization Conference*. 2025. doi: 10/p9fq.
- VIS 24 Hyeok Kim*, Arjun Srinivasan, and **Matthew Brehmer**. “Bringing data into the conversation: Adapting content from business intelligence dashboards for threaded collaboration platforms”. In: *Proceedings of the IEEE Conference on Visualization and Visual Analytics*. 2024. doi: 10/p9fr.
- UIST 22 Brian D Hall*, Lyn Bartram, and **Matthew Brehmer**. “Augmented chironomia for presenting data to remote audiences”. In: *Proceedings of the ACM SIGCHI Symposium on User Interface Software and Technology*. ★ **Best Paper Honorable Mention**. 2022. doi: 10/g88nb8.
- CJ 19 **Matthew Brehmer**, Bongshin Lee, Nathalie Henry Riche, David Tittsworth, Kate Lytvynets, Darren Edge, and Christopher White. “Timeline Storyteller: The design & deployment of an interactive authoring tool for expressive timeline narratives”. In: *Proceedings of the Computation+ Journalism Symposium*. 2019.
- VIS 19 Hwiyeon Kim, Juyoung Oh, Yunha Han, Sungahn Ko, **Matthew Brehmer**, and Bum Chul Kwon. “Thumbnails for data stories: A survey of current practices”. In: *Proceedings of the IEEE Visualization Conference*. 2019. doi: 10/qqbm.
- CHI 19 Nam Wook Kim, Nathalie Henry Riche, Benjamin Bach, Guanpeng Xu, **Matthew Brehmer**, Ken Hinckley, Michel Pahud, Haijun Xia, Michael J McGuffin, and Hanspeter Pfister. “DataToon: Drawing dynamic network comics with pen+ touch interaction”. In: *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems*. 2019. doi: 10/gjv384.
- ISS 19 Yea-Seul Kim, Nathalie Henry Riche, Bongshin Lee, **Matthew Brehmer**, Michel Pahud, Ken Hinckley, and Jessica Hullman. “Inking your insights: Investigating digital externalization behaviors during data analysis”. In: *Proceedings of the ACM International Conference on Interactive Surfaces and Spaces*. 2019. doi: 10/qqbj.
- CHI 18 Arjun Srinivasan, **Matthew Brehmer**, Bongshin Lee, and Steven M Drucker. “What’s the difference? evaluating variations of multi-series bar charts for visual comparison tasks”. In: *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems*. 2018. doi: 10/gnp9sp.
- PacificVis 17 Donghao Ren, **Matthew Brehmer**, Bongshin Lee, Tobias Höllerer, and Eun Kyoung Choe. “ChartAccent: Annotation for data-driven storytelling”. In: *Proceedings of the IEEE Pacific Visualization Symposium*. 2017. doi: 10/gpgzqx.
- CHI 12 **Matthew Brehmer**, Joanna McGrenere, Charlotte Tang, and Claudia Jacova. “Investigating interruptions in the context of computerised cognitive testing for older adults”. In: *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems*. 2012. doi: 10/gpcs9f.

- WHC 11 Inwook Hwang, Karon E MacLean, **Matthew Brehmer**, Jeff Hendy, Andreas Sotirakopoulos, and Seungmoon Choi. "The haptic crayola effect: Exploring the role of naming in learning haptic stimuli". In: *Proceedings of the IEEE World Haptics Conference*. 2011. doi: 10/b6c487.
- FuturePlay 10 **Matthew Brehmer**, TC Nicholas Graham, and Tadeusz Stach. "Activate your GAIM: a toolkit for input in active games". In: *Proceedings of the International Academic Conference on the Future of Game Design and Technology*. 2010. doi: 10/drffk2.
- ACE 09 Tadeusz Stach, TC Nicholas Graham, **Matthew Brehmer**, and Andreas Hollatz. "Classifying input for active games". In: *Proceedings of the International Conference on Advances in Computer Entertainment Technology*. 2009. doi: 10/bzqcc3.

Journal Articles

- PACM 24 Temiloluwa Femi-Gege, **Matthew Brehmer**, and Jian Zhao. "VisConductor: Affect-varying widgets for animated data storytelling in gesture-aware augmented video presentation". In: *Proceedings of the ACM on Human Computer Interaction* 8.ISS (2024). doi: 10/g88nc5.
- TVCG 24 Anna Offenwanger, **Matthew Brehmer**, Fanny Chevalier, and Theophanis Tsandilas. "Timesplines: Sketch-based authoring of flexible and idiosyncratic timelines". In: *IEEE Transactions on Visualization and Computer Graphics* 30.1 (2024). 🏆 **IEEE VIS 2023 Best Paper Award**. doi: 10/p9ft.
- TVCG 22a **Matthew Brehmer** and Robert Kosara. "From jam session to recital: Synchronous communication and collaboration around data in organizations". In: *IEEE Transactions on Visualization and Computer Graphics* 28.1 (2022). doi: 10/gsvfm5.
- TVCG 22b **Matthew Brehmer**, Robert Kosara, and Carmen Hull*. "Generative design inspiration for glyphs with diatoms". In: *IEEE Transactions on Visualization and Computer Graphics* 28.1 (2022). doi: 10/gnh8mm.
- TVCG 21 Mai Elshehaly, Rebecca Randell, **Matthew Brehmer**, Lynn McVey, Natasha Alvarado, Chris P Gale, and Roy A Ruddle. "QualDash: Adaptable generation of visualisation dashboards for healthcare quality improvement". In: *IEEE Transactions on Visualization and Computer Graphics* 27.2 (2021). doi: 10/qp94.
- TVCG 20a **Matthew Brehmer**, Bongshin Lee, Petra Isenberg, and Eun Kyoung Choe. "A comparative evaluation of animation and small multiples for trend visualization on mobile phones". In: *IEEE Transactions on Visualization and Computer Graphics* 26.1 (2020). doi: 10/gh52ss.
- CGF 20 Philipp Eichmann, Darren Edge, Nathan Evans, Bongshin Lee, **Matthew Brehmer**, and Christopher White. "Orchard: Exploring multivariate heterogeneous networks on mobile phones". In: *Computer Graphics Forum* 39.3 (2020). doi: 10/gng5db.
- TVCG 20b Arvind Satyanarayan, Bongshin Lee, Donghao Ren, Jeffrey Heer, John Stasko, John Thompson, **Matthew Brehmer**, and Zhicheng Liu. "Critical reflections on visualization authoring systems". In: *IEEE Transactions on Visualization and Computer Graphics* 26.1 (2020). doi: 10/gk9mqj.
- TVCG 19a **Matthew Brehmer**, Bongshin Lee, Petra Isenberg, and Eun Kyoung Choe. "Visualizing ranges over time on mobile phones: a task-based crowdsourced evaluation". In: *IEEE Transactions on Visualization and Computer Graphics* 25.1 (2019). doi: 10/gh54d3.
- TVCG 19b Donghao Ren, Bongshin Lee, and **Matthew Brehmer**. "Charticulator: Interactive construction of bespoke chart layouts". In: *IEEE Transactions on Visualization and Computer Graphics* 25.1 (2019). ★ **IEEE VIS 2018 Best Paper Honorable Mention Award**. doi: 10/gh52rx.
- TVCG 17 **Matthew Brehmer**, Bongshin Lee, Benjamin Bach, Nathalie Henry Riche, and Tamara Munzner. "Timelines revisited: A design space and considerations for expressive storytelling". In: *IEEE Transactions on Visualization and Computer Graphics* 23.9 (2017). doi: 10/gbtbw5.
- TVCG 16a **Matthew Brehmer**, Jocelyn Ng, Kevin Tate, and Tamara Munzner. "Matches, mismatches, and methods: Multiple-view workflows for energy portfolio analysis". In: *IEEE Transactions on Visualization and Computer Graphics* 22.1 (2016). doi: 10/gghzd5.
- TVCG 16b Johanna Fulda, **Matthew Brehmer**, and Tamara Munzner. "TimeLineCurator: Interactive authoring of visual timelines from unstructured text". In: *IEEE Transactions on Visualization and Computer Graphics* 22 (2016), pp. 300–309. doi: 10/qp98.

- ADD 15 Claudia Jacova, Joanna McGrenere, Hyunsoo S Lee, William W Wang, Sarah Le Huray, Emily F Corenblith, **Matthew Brehmer**, Charlotte Tang, Sherri Hayden, B Lynn Beattie, et al. "C-TOC (Cognitive Testing on Computer): Investigating the usability and validity of a novel self-administered cognitive assessment tool in aging and early dementia". In: *Alzheimer Disease & Associated Disorders* 29.3 (2015). doi: 10/gjqb3w.
- TVCG 14 **Matthew Brehmer**, Stephen Ingram, Jonathan Stray, and Tamara Munzner. "Overview: The design, adoption, and analysis of a visual document mining tool for investigative journalists". In: *IEEE Transactions on Visualization and Computer Graphics* 20.12 (2014). doi: 10/bwf9.
- TVCG 13 **Matthew Brehmer** and Tamara Munzner. "A multi-level typology of abstract visualization tasks". In: *IEEE Transactions on Visualization and Computer Graphics* 19.12 (2013). 🏆 **IEEE VIS 2023 10-Year Test of Time Award**. doi: 10/f5h3q4.

Peer-Reviewed Workshop Papers, Posters, & Abstracts

- CraftPhys 26 Narges Mahyar, Foroozan Daneshzand, Negar Ghorashi, Sydney K Purdue, and **Matthew Brehmer**. "Community craft and embodied input physicalization at the playground". In: *Proceedings of the ACM CHI Workshop on Craft-Based Data Physicalization: Opportunities and Challenges*. 2026. doi: 10/qvdt.
- altVIS 25 **Matthew Brehmer**. "On data visualization and interior design". In: *Proceedings of the IEEE VIS altVIS Workshop*. 2025.
- BVC 25 **Matthew Brehmer**. "Video-conferencing beyond screen-sharing and thumbnail webcam videos: Gesture-aware augmented reality video for data-rich remote presentations". In: *Proceedings of ACM GROUP Workshop on "Beyond Video-Conferencing": Telepresence Technologies for Extending Expertise Reach and Specialised Skill Sharing*. 2025. doi: 10/qqbt.
- HFIA 25 **Matthew Brehmer**, Ginger Gloystein, Bailiang Zhou, Abby Gray, Sruthi Pillai, Ben Medina, and Vidya Setlur. "Evaluating an immersive analytics application at an enterprise business intelligence customer conference". In: *Proceedings of the IEEE VIS Workshop on Human Factors in Immersive Analytics Workshop*. 2025. doi: 10/qqbq.
- GEN4DS 24 **Matthew Brehmer**, Vidya Setlur, Zoe, and Michael Correll. "The Data-Wink Ratio: Emoji encoder for generating semantically-resonant unit charts". In: *Proceedings of the IEEE VIS Workshop on Data Storytelling in an Era of Generative AI*. 2024. doi: 10/p9fs.
- VSS 24 Ouxun Jiang, Fumeng Yang, **Matthew Brehmer**, and Steven Franconeri. "Viewers rarely notice objects that enter or leave dynamic information displays without salience-boosting tricks". In: *In Abstract Proceedings of the Vision Sciences Society Annual Meeting (Journal of Vision 24(10))*. 2024. doi: 10/qqbv.
- altVIS 23 **Matthew Brehmer**. "Visualizing the weird and the eerie". In: *Proceedings of the IEEE VIS altVIS Workshop*. 2023. doi: 10/qqbr.
- MERCADO 23 Arjun Srinivasan and **Matthew Brehmer**. "Combining voice and gesture for presenting data to remote audiences". In: *Proceedings of IEEE VIS Workshop on Multimodal Experiences for Remote Communication Around Data Online*. 2023.
- BELIV 18 Donghao Ren, Bongshin Lee, **Matthew Brehmer**, and Nathalie Henry Riche. "Reflecting on the evaluation of visualization authoring systems: Position paper". In: *Proceedings of IEEE VIS Workshop on Evaluation and Beyond - Methodological Approaches for Visualization*. 2018. doi: 10/gqgvpw.
- VIS 17 **Matthew Brehmer**, Kyungwon Lee, Ivan Viola, Jinwook Seo, and Bongshin Lee. "Demonstrating the value of visualization: Highlights from the PacificVis 2017 Visual Data Storytelling Contest". In: *Poster Proceedings of the IEEE Visualization Conference*. 2017.
- VIS DC 14 **Matthew Brehmer**. "Visualization Task Abstraction from Multiple Perspectives". In: *IEEE VIS Doctoral Colloquium*. 2014.
- BELIV 14a **Matthew Brehmer**, Sheelagh Carpendale, Bongshin Lee, and Melanie Tory. "Pre-design empiricism for information visualization: Scenarios, methods, and challenges". In: *Proceedings of IEEE VIS Workshop on Beyond Time and Errors: Novel Evaluation Methods for Visualization*. 2014. doi: 10/gncz44.
- BELIV 14b **Matthew Brehmer**, Michael Sedlmair, Stephen Ingram, and Tamara Munzner. "Visualizing dimensionally-reduced data: Interviews with analysts and a characterization of task sequences". In: *Proceedings of IEEE VIS Workshop on Beyond Time and Errors: Novel Evaluation Methods for Visualization*. 2014. doi: 10/gh379m.

- GRAND 11 **Matthew Brehmer**, Charlotte Tang, Joanna McGrenere, and Claudia Jacova. "A Tale of Two Studies: Investigating the Impact of Interruptions on Task Performance in Older Adults". In: *Work-in-Progress Proceedings of the the GRAND NCE AGM*. 2011.

Book Chapters

- MobileVis 21a **Matthew Brehmer**, Bongshin Lee, John Stasko, and Christian Tominski. "Interacting with Visualization on Mobile Devices". In: *Mobile Data Visualization*. Ed. by Bongshin Lee, Raimund Dachsel, Petra Isenberg, and Eun Kyoung Choe. CRC Press, 2021.
- MobileVis 21b Tom Horak, Wolfgang Aigner, **Matthew Brehmer**, Alark Joshi, and Christian Tominski. "Responsive visualization design for mobile devices". In: *Mobile Data Visualization*. Ed. by Bongshin Lee, Raimund Dachsel, Petra Isenberg, and Eun Kyoung Choe. CRC Press, 2021.
- DDS 18 Fereshteh Amini (=), **Matthew Brehmer** (=), Gordon Bolduan, Christina Elmer, and Benjamin Wiederkehr. "Evaluating data-driven stories & storytelling tools". In: *Data-Driven Storytelling*. Ed. by Nathalie Henry Riche, Christophe Hurter, Nicholas Diakopoulos, and Sheelagh Carpendale. (=) indicates equal contribution. CRC Press, 2018.

Accepted Workshop Proposals

- VIS EA 25 Wolfgang Büschel, Gabriela Molina León, Arnaud Prouzeau, Mahmood Jasim, Christophe Hurter, Maxime Cordeil, and **Matthew Brehmer**. *The 2nd MERCADO Workshop at IEEE VIS 2025: Multimodal Experiences for Remote Communication Around Data Online*. VIS EA 25. 2025. doi: 10/qqb4.
- VIS EA 23 **Matthew Brehmer**, Maxime Cordeil, Christophe Hurter, and Takayuki Itoh. *The MERCADO Workshop at IEEE VIS 2023: Multimodal Experiences for Remote Communication Around Data Online*. VIS EA 23. 2023. doi: 10/g88ncc.
- CHI EA 18 Bongshin Lee, **Matthew Brehmer**, Petra Isenberg, Eun Kyoung Choe, Ricardo Langner, and Raimund Dachsel. *Data Visualization on Mobile Devices*. CHI EA 18. 2018. doi: 10/gtdkmg.

Patents

- 12353675 **Matthew Brehmer**, Rodion Degtyar, Harveen Kathuria, Bryan Feddern, Lauren Jackson, and Vladimir Kondrashov. *Data analysis platform with animation for rendering graphical representations of data*. Granted (USA) 2025-07-08. 2025.
- 12229856 **Matthew Brehmer** and Arjun Srinivasan. *Semantic alignment of text and visual cards to present time series metrics*. Granted (USA) 2025-02-18. 2025.
- 12430828B2 **Matthew Brehmer** and Arjun Srinivasan. *User interface for presenting time series metrics*. Granted (USA) 2025-09-30. 2025.
- 12444104B2 **Matthew Brehmer** and Arjun Srinivasan. *Using contextual recommendations to present time-series metrics*. Granted (USA) 2025-10-14. 2025.
- 12462454B2 **Matthew Brehmer** and Arjun Srinivasan. *Using semantic alignment and contextual recommendations to present time series metrics*. Granted (USA) 2025-11-14. 2025.
- 12327303 **Matthew Brehmer** and Arjun Srinivasan. *Using semantic alignment to present time series metrics*. Granted (USA) 2025-06-10. 2025.
- 12260478 **Matthew Brehmer** and Arjun Srinivasan. *Visualization recommendations for time-series metrics presentations*. Granted (USA) 2025-03-25. 2025.
- 12474826B2 Hyeok Kim* and **Matthew Brehmer**. *Infrastructure for retargeting dashboard content as interactive data snapshots*. Granted (USA) 2025-11-18. 2025.
- 12411865B2 Vidya Setlur, Scott Sherman, and **Matthew Brehmer**. *Applying a visual analytics intent language to generate data visualizations*. Granted (USA) 2025-09-09. 2025.
- 12120451 **Matthew Brehmer**, Brian D Hall*, and Lyn Bartram. *Augmenting video with interactive visualizations*. Granted (USA) 2024-10-15. 2024.

- 18240322 Hyeok Kim* and **Matthew Brehmer**. *Retargeting dashboard content as interactive data snapshots for collaboration platforms*. Pending (USA) 2024-03-07. 2024.
- 18240342 Hyeok Kim* and **Matthew Brehmer**. *User interface for managing retargeting of dashboard content*. Pending (USA) 2024-03-07. 2024.
- 11567967 Vidya Setlur, Scott Sherman, and **Matthew Brehmer**. *Applying a visual analytics intent language to infer ambiguous or underspecified intent*. Granted (USA) 2023-01-31. 2023.
- 11561998 Vidya Setlur, Scott Sherman, and **Matthew Brehmer**. *Implementing a visual analytics intent language across multiple devices*. Granted (USA) 2023-01-24. 2023.
- 11210825 **Matthew Brehmer**, Carmen Hull*, and Robert Kosara. *Glyph scaffolds for generating unique glyphs to use as data marks in data visualizations*. Granted (USA) 2021-12-28. 2021.
- 11080914B2 Bongshin Lee, **Matthew Brehmer**, and Donghao Ren. *Interactive layout-aware construction of bespoke charts*. Granted (USA) 2020-08-03. 2020.

Other Publications

- Shonan 24 **Matthew Brehmer**, Maxime Cordeil, Christophe Hurter, and Takayuki Itoh. *Augmented Multimodal Interaction for Synchronous Presentation, Collaboration, and Education with Remote Audiences*. Shonan 24. NII Shonan Report #213. shonan.nii.ac.jp/docs/No.213.pdf. 2024.
- DVS 22 **Matthew Brehmer**. *Inspiration at the Roll of the Dice: An Exercise in Aleatoric Visualization Design*. DVS 22. *Nightingale, the Journal of the The Data Visualization Society Issue #2: "Inspiration"*. 2022.
- UBC 12 Michael Sedlmair, **Matthew Brehmer**, Stephen Ingram, and Tamara Munzner. *Dimensionality reduction in the wild: Gaps and guidance*. UBC 12. University of British Columbia Technical Report TR-2012-03. 2012.

Speaking

See list of up-to-date talks with slide / recording links at [📄 mattbrehmer.ca](https://mattbrehmer.ca) and at [📺 youtube.com/mattbrehmer](https://youtube.com/mattbrehmer).

Invited Talks

- 2025-10-28 *New Modalities for Storytelling with Data: Synchronous Augmented Reality Video and Asynchronous Immersive Dashboards*. Université Paris-Saclay / Inria (Saclay, France). 2025.
- 2025-07-14 *Data Storytelling in Augmented Reality Video & Spatial Computing*. Gordon Research Conference (GRC) on Visualization in Science and Education (Lewiston, Maine, USA). 2025.
- 2024-12-06 *Data Storytelling in Augmented Reality Video & Spatial Computing*. Autodesk Research (Toronto, Ontario, Canada) | [📺 youtu.be/P6PfQLwwt64](https://youtu.be/P6PfQLwwt64). 2024.
- 2024-04-15 *Nouvelles Expériences Multimodales pour Visualiser et Comprendre les Données*. Université de Montréal IFT 2905: Interfaces personne-machine (virtual / Montréal, Quebec, Canada). 2024.
- 2023-01-16 *Let's Talk About Data: New Experiences for Communication and Collaboration*. University of Waterloo (Waterloo, Ontario, Canada). 2023.
- 2022-10-05 *New Multimodal Experiences for Communicating with an Audience about Data*. University of Utah Scientific Computing and Imaging Institute (SCII) Visualization Seminar (virtual / Salt Lake City, Utah, USA). 2022.
- 2022-10-03 *New Experiences for Communicating with an Audience about Data*. Maryland Institute College of Art (MICA) Data Analytics and Visualization MPS Program (virtual / Baltimore, Maryland, USA). 2022.
- 2022-03-03 *New Experiences for Communicating with Data*. University of Toronto (virtual / Toronto, Ontario, Canada). 2022.
- 2021-10-08 *New Perspectives on Communicating with Visualization: From Design Inspiration to Performative Presentation*. University of Waterloo (Waterloo, Ontario, Canada). 2021.

- 2021-02-10 *Interactive Tools for Visualizing Data: Perspectives from Research Practice*. University of Victoria (virtual / Victoria, Canada). 2021.
- 2020-06-30 *Interactive Tools for Visualizing Data: Perspectives from Research Practice*. University of Edinburgh's Online Course for DataVis Professionals (virtual / Edinburgh, UK) | vimeo.com/435792724. 2020.
- 2019-04-25 *Visualizing Quantities & Events Over Time: From Analysis to Communication, For Displays Both Large & Small*. Chatham Labs (Toronto, Ontario, Canada). 2019.
- 2019-04-09 *Constraints and Opportunities for Expressive Information Design*. Tableau (Seattle, Washington, USA). 2019.
- 2019-03-13 *Visualizing Information on Mobile Phones: Recent Experiments, Novel Interactions, & Prospects for the Future*. Microsoft Research (Redmond, Washington, USA). 2019.
- 2019-03-01 *Constraints and Opportunities for Expressive Information Design*. Uncharted Software (Toronto, Ontario, Canada). 2019.
- 2019-02-27 *Considerations for Interactive & Expressive Information Design Tools*. University of Ontario Institute of Technology (Oshawa, Ontario, Canada). 2019.
- 2019-02-26 *Considerations for Interactive & Expressive Information Design Tools*. Autodesk Research (Toronto, Ontario, Canada). 2019.
- 2019-01-28 *Constraints and Opportunities for Expressive Information Design*. Simon Fraser University School of Interactive Arts & Technology (Surrey, British Columbia, Canada). 2019.
- 2018-08-01 *Tools for Expressive Information Visualization Design*. Microsoft Vancouver Data Visualization Symposium (Vancouver, British Columbia, Canada). 2018.
- 2018-06-18 *Timeline Storyteller, from Visualization Design Space to Deployment*. The University of Calgary Data Empowerment Speaker Series (Calgary, Alberta, Canada). 2018.
- 2017-10-24 *Introducing Timeline Storyteller and ChartAccent for Power BI*. UBC School of Journalism Course on Special Topics in Contemporary Journalism: Data Viz (JRNL 520H) (Vancouver, British Columbia, Canada). 2017.
- 2017-08-31 *Expressive Storytelling With Timelines*. Uber Visualization Night: A Journey Through Space and Time (Seattle, Washington, USA). 2017.
- 2017-07-11 *Timelines Revisited: Considerations for Expressive Storytelling*. King's College London Department of Informatics (London, UK). 2017.
- 2017-07-10 *Timelines Revisited: Considerations for Expressive Storytelling*. City University London giCentre (London, UK). 2017.
- 2017-06-13 *The Timeline Storyteller Custom Visual for Power BI*. Microsoft Data Insights Summit BI Power Hour (Seattle, Washington, USA) | youtu.be/mmdqzXm0n. 2017.
- 2017-04-28 *Timelines Revisited: Considerations for Expressive Storytelling*. Northeastern University NUVIS Visualization Consortium (Boston, Massachusetts, USA). 2017.
- 2017-04-27 *Timelines Revisited: Considerations for Expressive Storytelling*. Bentley University RealViz talk series (Waltham, Massachusetts, USA). 2017.
- 2016-12-08 *Timelines Revisited: Considerations for Expressive Storytelling*. Radcliffe Institute at Harvard University (Cambridge, Massachusetts, USA). 2016.
- 2016-02-01 *Why Visualization? Task Abstraction for Analysis and Design*. Microsoft Research (Redmond, Washington, USA) | youtu.be/Gg9UGHu4Qao. 2016.
- 2015-05-19 *The Future of Data and Design ... In Visualization Research*. Vancouver Data Visualization Meetup (Vancouver, British Columbia, Canada). 2015.

Contributed / Juried Talks

- 2024-04-30 *Data Storytelling in Augmented Reality and Spatial Computing*. Tableau Conference (San Diego, California, USA) | <https://youtu.be/kHQSPnOSpWI>. 2024.
- 2023-05-04 *Stand Behind Your Data!* Outlier Conference (virtual / Porto, Portugal) | youtu.be/MIHRQwGINLs. 2023.

- 2021-10-26 *New Perspectives on Communicating with Visualization: From Design Inspiration to Performative Presentation.* Lightning Talk for the IEEE VIS Seattle Satellite Event at the University of Washington (Seattle, Washington, USA). 2021.
- 2021-09-30 *The Information in Our Hands.* Information+ Conference 2021 (virtual) | vimeo.com/592591860. 2021.
- 2019-11-13 *See and Understand Networks.* Tableau Conference (Las Vegas, Nevada, USA), with Scott Sherman | youtu.be/Ro8Ogcpib8w. 2019.
- 2017-04-24 *What Story Does Your Timeline Tell?* OpenVisConf (Boston, Massachusetts, USA) | https://youtu.be/gQKUI_1ryo4. 2017.

Panels

- 2024-10-16 *VIS Conference Futures: Community Opinions on Recent Experiences, Challenges, and Opportunities for Hybrid Event Formats.* IEEE VIS Conference (virtual, co-moderator with Narges Mahyar), featuring panelists Tim Dwyer, John Alexis Guerra Gomez, Petra Isenberg, Takayuki Itoh, Elsie Lee-Robbins, and Andrew McNutt | youtu.be/MbAEOHYzS9I. 2024.
- 2022-01-24 *Visualization in Context.* Data Visualization Society Fireside Chat (virtual), with Keke Wu and Frank Elavsky, moderated by Amanda Makulec | youtu.be/rYVtNEH4e4o. 2022.
- 2021-10-25 *Writing About Visualization.* VisInPractice @ IEEE VIS 2021 (virtual, moderator), featuring panelists Mary Aviles, Tiziana Alocci, Piero Zagami, Christian Miles, and Danielle Szafr | youtu.be/7xCMtrCYKjU. 2021.
- 2020-10-26 *Visualization Consulting & Freelancing.* VisInPractice @ IEEE VIS 2020 (virtual, moderator), featuring panelists Jane Zhang, Kristin Henry, and Curran Kelleher | youtu.be/ir1TMscZXHY. 2020.

Research Dissemination in Industry

- **Tableau for visionOS**
 - Tableau Gartner BI Bakeoff | youtu.be/yUdvTq5JV4Y 2024
 - Tableau Blog | tableau.com/blog/exploring-spatial-computing-and-immersive-analytics-vision-pro 2024
- **Tableau Gestures**
 - Tableau Conference keynote ("Devs On Stage") | youtu.be/SnupMmuOXOE 2023
 - Tableau Blog #2 | tableau.com/blog/adding-speech-interaction-tableau-gestures 2023
 - Tableau Blog #1 | tableau.com/blog/using-augmented-reality-touchless-interaction-visualizations 2022
- **Tilt & Pose-Based Gestural Interaction for Visualization on Mobile Devices**
 - Microsoft TechFest demo | vimeo.com/354105638 2019
 - github.com/microsoft/TiltInteractionForMobileVisualization
- **Microsoft Charticulator: Kantar Information is Beautiful Awards shortlist**
 - informationisbeautifulawards.com/showcase/3334-charticulator-interactive-construction-of-bespoke-chart-layouts 2018
 - github.com/microsoft/charticulator
- **Microsoft Timeline Storyteller custom visual for Power BI**
 - Power BI YouTube channel | youtu.be/bwiMfwBVsq 2017
 - Microsoft Data Insights Summit keynote | youtu.be/zaVGt-lbuhU 2017
 - github.com/microsoft/timelinestoryteller

Teaching

- University of Waterloo Winter 2026
Topics in Human Computer Interaction: Information Visualization (CS 889)
- University of Waterloo Winter 2026

Computational Planning for Future Cities (ENVS 474, capstone), with Leia Minaker & Charles Clarke

- University of Waterloo
User Interfaces (CS 349)

Winter 2025, Spring 2025

Student Supervision

Graduate Students

- Anchit Mishra Since Fall 2024
PhD, University of Waterloo Computer Science, co-supervised with Oliver Schneider
- Kentaro Takahira Winter 2026
*PhD, Hong Kong University of Science & Technology Computer Science & Engineering
(visiting PhD student, supervised at HKUST by Huamin Qu)*
- Mohammad Abolnejadian Since Winter 2025
MMath, University of Waterloo Computer Science
- Zahra Ahmed Since Winter 2026
MMath, University of Waterloo Computer Science

Undergraduate Students

- Marisol Rocha Winter 2026
*BSc, Dalhousie University Applied Computer Science
University of Waterloo Undergraduate Research Fellow, co-supervised with Sujaya Maiyya*
- Len Dizdar (Data Science), Samuel Partington (Mathematics), & Weixi Zhou (Data Science) Winter 2026
*University of Waterloo Future Cities Institute Developer Co-op Interns,
co-supervised with David del Rey Fernandez and Leia Minaker*
- Isabelle Kwan Fall 2025
*BSc, Simon Fraser University Computer Science
University of Waterloo Undergraduate Research Fellow*
- Sarah Cloughly (Computer Science), Kaarthick Rameshkumar (Biostatistics), & Paige Stone (Statistics) Fall 2025
*University of Waterloo Future Cities Institute Developer Co-op Interns,
co-supervised with David del Rey Fernandez and Leia Minaker*
- Dion Barja Winter 2025 – Summer 2025
*BSc, University of Manitoba Computer Science
NSERC Undergraduate Student Research Award,
University of Waterloo Undergraduate Research Fellow*
- Jessica Chen Winter 2025 – Summer 2025
*BMATH, University of Waterloo Computer Science
University of Waterloo Undergraduate Research Assistant*
- Skylar Ji Summer 2025
*BMATH, University of Waterloo Computer Science
University of Waterloo Undergraduate Research Assistant*
- Jenny Zhang Winter 2025
*BMATH, University of Waterloo Computer Science
University of Waterloo Undergraduate Research Assistant*

Tableau Research Interns

- Hyeok Kim Summer 2022
*PhD, Northwestern University Computer Science
(now Postdoctoral Fellow at the University of Washington)*
- Brian D Hall Fall 2021 – Winter 2022
*PhD, University of Michigan School of Information
(now Data Engineer at Sentry)*
- Carmen Hull Summer 2020

PhD, University of Calgary Computational Media Design
(now Assistant Professor of IDDV and Architecture at Northeastern University)

Thesis Committees

- Hamin (Tim) Jo Since 2025
MSc, University of Waterloo School of Public Health Sciences, supervised by Plinio Morita
- Linda Zeng 2025
MMath, University of Waterloo Computer Science (examining committee), supervised by Jian Zhao
- Xizi (Lucy) Wang Since 2024
PhD, University of Waterloo Computer Science, supervised by Jian Zhao
- Ludwig Wilhelm Wall 2024
PhD, University of Waterloo Computer Science (examining committee), supervised by Dan Vogel & Oliver Schneider
- Prakash Shukla Since 2024
PhD, Purdue University Human Computer Interaction (Design Cognition), supervised by Paul Parsons
(now Assistant Professor, Interaction Design, University of Kansas)

Service: Advisory Committees

- **IEEE VIS Steering Committee (VSC)** (the VSC and VEC merged in 2026) 2026 – 2027
- **IEEE VIS Executive Committee (VEC)** 2022 – 2026
- **Maryland Institute College of Art Data Analytics & Visualization MPS Advisory Panel** 2023 – 2026
- **IEEE Computer Society Visualization & Graphics Technical Community (VGTC) Executive Committee Publications Chair** 2022 – 2025
- **Data Visualization Society Board of Directors Nomination Committee** 2020 – 2021
- **IEEE VIS Committee to Attract & Retain Practitioners to VIS** 2018 – 2019
- **The Timeline Consortium** (timelineconsortium.org) 2016 – 2018

Service: Organizing Committees

- **MERCADO: IEEE VIS Workshop on Multimodal Experiences for Remote Communication Around Data Online** 2023, 2025
- **ISVC: International Symposium on Visual Computing (visualization chair)** 2025
- **NII Shonan Meeting 213: Augmented Multimodal Interaction for Synchronous Collaboration** 2024
- **VisInPractice Associated Event at IEEE VIS (co-chair)** 2018 – 2021
- **MobileVis: Data Visualization on Mobile Devices Workshop at ACM CHI 2018** 2018
- **Visual Data Storytelling Contest at the IEEE Pacific Visualization Symposium (co-chair)** 2017 – 2018

Service: Program Committees & Editorial Boards

- **IEEE CG&A: Associate Editor for Computer Graphics & Applications** 2026 – 2028
- **ACM CHI Conference on Human Factors in Computing Systems, Visualization Subcommittee** 2024 – 2026
- **Graphics Interface (GI)** 2026
- **EuroVis Eurographics Conference on Visualization (Short Papers)** 2025 – 2026
- **PACM Editorial Board for the Special Issue on Interactive Surfaces and Spaces (ISS)** 2025
- **IEEE VIS Conference on Visualization & Visual Analytics** 2021, 2022, 2023, 2025
- **Information+ Conference** 2018, 2021, 2023, 2025
- **BELIV: evaluation and BEyond / methodoLogical approaches for Visualization** 2018, 2022, 2024
- **Computation + Journalism Symposium** 2019, 2021, 2022
- **IEEE VIS Conference on Information Visualization (InfoVis)** 2017, 2018, 2019

- **VISAP:** The IEEE VIS Arts Program 2018
- **ACM FAT*** Conference on Fairness, Accountability, Transparency (HCI / Visualization Track) 2018
- **IEEE PacificVis** Pacific Visualization Symposium 2017
- **The Art of Networks III** 2017
- **EuroVis** Eurographics Conference on Visualization (State of the Art Reports) 2017

Service: Journal Reviewing

- **IEEE TVCG:** Transactions on Visualization & Computer Graphics 2016 – 2026
- **JOVI:** Journal of Visualization and Interaction 2025
- **IEEE CG&A:** Computer Graphics & Applications 2023 – 2024
- **IDJ:** Information Design Journal (John Benjamins Publishing Company) 2024
- **TBIT:** Behaviour & Information Technology 2023
- **CGF:** Computer Graphics Forum 2020
- **Information Visualization** Journal (Sage) 2016, 2021

Service: Miscellaneous

- **Panelist,** IEEE VIS Doctoral Colloquium 2021

University Service

- **Member,** University of Waterloo Future Cities Institute since 2025
- **Graduate Recruitment Committee,** University of Waterloo Cheriton School of Computer Science 2025 – 2026
- **Commons Committee,** University of Waterloo Cheriton School of Computer Science 2024 – 2025
- **Graduate Admissions Committee,** University of British Columbia Department of Computer Science 2014 – 2016
 - Student Service Award 2016
 - Volunteering Award 2015
- **Computer Science Graduate Students' Association,** UBC Department of Computer Science
 - Co-Chair, Un-Distinguished Lecture Series 2010 – 2013
 - Vice President, Social Affairs 2010 – 2011
- **Computing Students' Association,** Queen's University School of Computing
 - Orientation Leader 2005
 - First Year Representative 2004 – 2005

Professional Associations

- The Data Visualization Society
- ACM SIGCHI (Special Interest Group on Computer-Human Interaction)
- IEEE Computer Society

Research Funding

- National Science and Engineering Research Council (NSERC) of Canada Discovery Grant (\$205,000 CDN) 2025 – 2030
- Google Cloud Platform (GCP) Research Credits (\$6,900 CDN in credits) 2025 – 2026
- NSERC Discovery Launch Supplement (\$12,500 CDN) 2025
- French Embassy in Canada Mourou-Strickland Mobility Program (YYZ to CDG travel expenses) 2025
- University of Waterloo School of Computer Science Starting Grant (\$150,000 CDN) 2024 – 2029
- University of British Columbia Four-Year Doctoral Fellowship (tuition waiver) 2011 – 2015
- NSF IEEE VIS Doctoral Colloquium Travel Award (travel expenses) 2014
- Mitacs Accelerate Fellowship (\$15,000 CDN) 2013 – 2014
- NSERC Postgraduate Scholarship (\$63,000 CDN) 2011 – 2014
- University of British Columbia Department of Computer Science Merit Scholarship 2009 – 2011

Recognitions

- 🏆 IEEE VIS Test of Time Award [TVCG 2013] 2023
- 🏆 IEEE VIS Best Paper Award [TVCG 2024] 2023
- ★ ACM UIST Best Paper Honorable Mention [UIST 2022] 2022
- ★ IEEE VIS Best Paper Honorable Mention [TVCG 2019b] 2018
- ★ Kantar Information is Beautiful Awards Shortlist [Charticator] 2018