

Fateme Rajabiyazdi

McGill University
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Education

PhD in Computer Science, University of Calgary 2014–2018

Thesis: Exploring the Design of Visualizations to Facilitate Patient-Provider Communication, (*GPA: 4.0*)

Supervisors: [Dr. Sheelagh Carpendale](#) and [Dr. Lora Oehlberg](#)

Committee: [Dr. Charles Perin](#) (University of Victoria) and [Dr. Diane Gromala](#) (Simon Fraser University)

Master in Computer Science, Australian National University 2010–2012

Thesis: Design and Development of Interface for Different Tablet Sizes

Supervisors: [Dr. Tom Gedeon](#) and [Dr. Duncan Stevenson](#)

Bachelor in Software Engineering, University of Tehran 2006–2010

Thesis: Finding Social Network Graphs in News Websites

Supervisor: [Dr. Masoud Asadpour](#)

Work Experience

Postdoctoral Fellow - McGill University, Canada 2019–present

Working on 1) designing a visualization platform to represent cancer patient pathway and waiting times and 2) developing a Patient-Reported Outcome questionnaire to measure recovery after abdominal surgeries.

Supervisor: [Dr. Julio Fiore](#) *Project Leader:* [Dr. Liane Feldman](#)

Data Visualization Researcher - Alberta Health Services - W21C, Canada 2015–2018

Worked on an innovative project for designing a care plan for chronic patients, where I conducted literature reviews and field studies to inform the design of data visualizations as part of the care plan.

Project Leader: [Dr. William Ghali](#)

Visitor Researcher - Pain Studies Lab, Simon Fraser University, Canada 2014–2015

Collaborated in several research projects on designing technologies for people who live with chronic pain, their pain specialists, and healthcare professionals.

Supervisor: [Dr. Diane Gromala](#)

Junior Web developer - Lexdata, Australia 2012–2013

Worked as a web developer on designing and developing accessible websites for government organization.

Manager: [Michael Hall](#)

Research Assistance - CSIRO, Australia Summer Internship 2012

Co-designed a controlled user study to evaluate the use of iPads as a controller in a collaborative setting.

Supervisor: [Matt Adcock](#)

Board Membership

Quality Improvement Board - McGill University Health Center, Canada 2020 - present

As the data scientist on the board, I visually analyze data for quality improvement purposes.

Journal Publications

Charbel El-Kefraoui, Ghadeer Olleik, Marc-Aurele Chay, Araz Kouyoumdjian, Philip Nguyen-Powanda, **Fateme Rajabiyazdi**, Uyen Do, Alexa Derksen, Tara Landry, Alexandre Amar-Zifkin, Ramanakumar Agnihotram, Marc Martel, Gabriele Baldini, Liane S Feldman, and Julio F Fiore Jr. Opioid Versus Opioid-free Analgesia after Surgical Discharge: Protocol for a Systematic Review and Meta-analysis. *BMJ Open*, Accepted for Publication on January 2nd 2020.

Charbel El Kefraoui, **Fateme Rajabiyazdi**, Nicole Pecorelli, Franco Carli, Lawrence Lee, Liane S Feldman, and Julio F Fiore Jr. The Duke Activity Status Index (DASI) Predicts Postoperative Complications after Colorectal Surgery. *Surgical endoscopy*, Accepted for Publication on December 6th 2019.

Conference Publications

Fateme Rajabiyazdi, Charles Perin, Lora Oehlberg, and Sheelagh Carpendale. Exploring the Design of Patient-Generated Data Visualizations. Accepted for Publication on January 13th 2020, In *Proceedings of the 46th Graphics Interface Conference, GI'20*, pages (to be announced), 2020. [Link](#)

Fateme Rajabiyazdi, Charles Perin, Jo Vermeulen, Diane Gromala, and Sheelagh Carpendale. Differences That Matter: In-Clinic Communication Challenges. In *Proceedings of the 2017 Pervasive Computing Technologies for Healthcare*, pages 251-260. ACM, 2017. [DOI](#)

Fateme Rajabiyazdi, Charles Perin, Lora Oehlberg, and Sheelagh Carpendale. The Challenges of Individuality to Technology Approaches to Personally Collected Health Data. In *Proceedings of the 2017 Pervasive Computing Technologies for Healthcare*, pages 448-451. ACM, 2017. [DOI](#)

Fateme Rajabiyazdi. Designing and Developing Technologies to Facilitate Clinician-Patient Communication. In *Proceedings of the 2016 International Conference on on Interactive Surfaces and Spaces*, pages 19-24. ACM, 2016. [DOI](#)

Alice Thudt, Jagoda Walny, Charles Perin, **Fateme Rajabiyazdi**, Lindsay MacDonald, Riane Vardeleon, Saul Greenberg, and Sheelagh Carpendale. Assessing the Readability of Stacked Graphs. In *Proceedings of the 42nd Graphics Interface Conference, GI'16*, pages 167–174, 2016. [DOI](#)

Fateme Rajabiyazdi, Jagoda Walny, Carrie Mah, John Brosz, and Sheelagh Carpendale. Understanding Researchers' Use of a Large, High-Resolution Display Across Disciplines. In *Proceedings of the 2015 International Conference on Interactive Tabletops & Surfaces*, pages 107–116. ACM, 2015. [DOI](#)

Fateme Rajabiyazdi and Tom Gedeon. Hand Grip Strength on a Large PDA: Holding While Reading Is Different from a Functional Task. In *Proceedings of the 2012 Sixth International Conference on Complex, Intelligent, and Software Intensive Systems*, pages 475–480, 2012. [DOI](#)

Fateme Rajabiyazdi and Tom Gedeon. Comparing User Performance on an iPad to a 17-inch BackPad. In *Proceedings of the 2012 Sixth International Conference on Complex, Intelligent, and Software Intensive Systems*, pages 469–474, 2012. [DOI](#)

Peer Reviewed Abstracts and Posters

Fateme Rajabiyazdi, Aditya Pal, Roshni Alam, Joel Montanez, Susan Law, Lawrence Lee, Nicolò Pecorelli, Watanabe Yusuke, Chiavegato D Luciana, Massimo Falconi, Hirano Satoshi, Nancy E Mayo, Liane S Feldman, and Julio F Fiore Jr. What Does ‘Recovery’ Mean To Patients Undergoing Abdominal Surgery? An International Qualitative Study. Accepted for poster presentation at the Society of American Gastrointestinal and Endoscopic Surgeons, Cleveland, OH, USA, April 1-4 2020.

Charbel El-Kefraoui, Ghadeer Olleik, Marc-Aurele Chay, Araz Kouyoumdjian, Philip Nguyen-Powanda, **Fateme Rajabiyazdi**, Uyen Do, Alexa Derksen, Tara Landry, Alexandre Amar-Zifkin, Ramanakumar Agnihotram, Marc Martel, Gabriele Baldini, Liane S Feldman, and Julio F Fiore Jr. Opioid Versus Opioid-free Analgesia after Surgical Discharge: a Systematic Review and Meta-analysis. Poster presentation at Experimental Surgery Research Day, Montreal, Canada, 2019. * Best poster award.

Seyedeh Maryam Mozafarinia, **Fateme Rajabiyazdi**, and Nancy Mayo. Measuring quality of health outcome goals using text mining techniques. Poster presentation at International Society for Quality of Life research, 26th annual conference, San Diego, USA, 2019.

Seyedeh Maryam Mozafarinia, **Fateme Rajabiyazdi**, and Nancy Mayo. Text mining application for measuring quality of health outcome goals. Poster presentation at Centre for Outcome Research & Evaluation Research Day, Montreal, Canada, 2019.

Fateme Rajabiyazdi, Charles Perin, Lora Oehlberg, and Sheelagh Carpendale. Personal Patient-Generated Data Visualizations for Diabetes Patients. Poster presentation at the *IEEE Information Visualization Conference*, Berlin, Germany, 2018. [Link](#)

Julie Babione, **Fateme Rajabiyazdi**, Charles Perin, Joseph Tropiano, Megan Cosby, Maria Santana, Jaime Kaufman, Sheelagh Carpendale, William Ghali, and Peter Sargious. Identifying Opportunities for Innovation in Patient-Centred Care Plans Through User-Centred Design Research. Poster presentation at the *Patient Oriented Research Summer Institute Conference*, Canada, Calgary, 2016.

Fateme Rajabiyazdi, Charles Perin, and Sheelagh Carpendale. WEST: Visualizing non-Emergency Surgery Waiting Times. Poster presentation at the *IEEE Information Visualization Conference*, Chicago, USA, 2015. [Link](#)

Peer Reviewed Workshop Papers

Fateme Rajabiyazdi, Charles Perin, Julie Babione, Joseph Tropiano, Maria Santana, Jaime Kaufman, William Ghali, Peter Sargious, and Sheelagh Carpendale. Challenges Involving Patients in their Care Plan from Clinicians’ Perspectives. In *Proceedings of the CHI Workshop on Interactive Systems in Healthcare (WISH’16)*, ACM, 2016. [Link](#)

Xin Tong, Diane Gromala, Lyn Bartram, **Fateme Rajabiyazdi**, and Sheelagh Carpendale. Evaluating the Effectiveness of Three Physical Activity Visualizations - How People Perform vs. Perceive. In *Electronic Proceedings of the IEEE Information Visualization Conference*, 2015.

Tamara Flemisch, **Fateme Rajabiyazdi**, Mona Hosseinkhani, and Sheelagh Carpendale. NeckLan: Language as Jeweller. In *Electronic Proceedings of the IEEE Information Visualization Conference*, 2015. [Link](#)

Thesis

Fateme Rajabiyazdi. Exploring the Design of Visualizations to Facilitate Patient-Provider Communication. *PhD Thesis, University of Calgary, 2018.* [Link](#)

Abstract: Establishing strong patient-provider communication during clinical visits can have positive impacts on patient health outcomes. On the other hand, miscommunication between patients and healthcare providers can cause harm or in extreme cases cause death to patients. Considering the external factors such as limited time, inefficient clinical environments, and inadequate medical information exchange, it is difficult to facilitate a smooth communication. In this thesis, I focus on exploring the design of visualizations to facilitate communication between healthcare providers and patients during in-clinic visits.

Fateme Rajabiyazdi. Design and Development of Interface for Different Tablet Sizes. *Master Thesis, School of Computer Science, Australian National University, 2012.* [Link](#)

Abstract: In this thesis, I designed a new mock-up device with a 17-inch screen and a touchpad at the back of the display to control the device. To evaluate the device, I conducted user studies comparing the performance of the mock-up device with an iPad through both qualitative and quantitative measures.

Fateme Rajabiyazdi. Finding Social Network Graphs in News Websites, *Bachelor Thesis (in Persian), School of Electrical and Computer Engineering, University of Tehran, 2010.*

Grant Collaborations

CIHR Planning and Dissemination Grant 2019, Transforming Post-Fracture Acute Pain Management in Older Men and Women through Mobile Health Application, PI: Dr. Suzanne Morin.

Collaborator - gave input on the process and the required budget to develop the mobile application.

CIHR Project Grant Fall 2019 - Collaborator, Opioid versus opioid-free analgesia after surgical discharge: a systematic review and meta-analysis, PI: Dr. Julio Fiore.

Collaborator - reviewed the grant application, gave feedback and contributed in reviewing the papers as part of systematic review.

Scholarship and Awards

Computer Science Department Research Award , University of Calgary, 2018	\$11,000
Computer Science Department Research Award , University of Calgary, 2018	\$11,000
W21C Health Services Research Scholarship , Alberta Health Services, 2016-2017	\$30,000
W21C Health Services Research Scholarship , Alberta Health Services, 2015-2016	\$30,000
Computer Science Department Research Award , University of Calgary, 2016-2017	\$8,000
Faculty of Graduate Studies Travel Award , University of Calgary, 2015	\$1,000
Computer Science Department Research Award , University of Calgary, 2015-2016	\$2,000
Computer Science Department Research Award , University of Calgary, 2014-2015	\$8,000

Teaching Experience

Guest Lecturer - *Introduction to Information Visualization* - University of Calgary Fall 2017

I was invited to present guest lectures on the principles of designing visualization. To give students a first-hand experience, I ran activities asking students to critique sample visualization designs and sketch new visualization designs in a group.

Teaching Assistant - *Introduction to Information Visualization* - University of Calgary Fall 2017

Instructor: Dr. Sheelagh Carpendale. Course level: Third and fourth year undergrad CS major students. I taught the most used visualization concepts and algorithms for designing visualizations, such as force-directed graph and reingold-tilford tree algorithms. In addition, I taught students how to program with JavaScript and D3 to make visualizations for their assignments and course projects.

Course Developer & Teaching Assistant - *Thinking with Data* - University of Calgary Summer 2017

Instructor: Dr. Nelson Wong - Course level: Non-computer science major undergrad students. The goal of this course was to familiarize students with the process of data collection, data cleaning, and data presentation. I outlined all the course assignments and helped the instructor in designing the course projects. I designed and delivered materials and activities for two 3-hour tutorial sessions each week. During the tutorials, I mentored students with their course projects and gave them feedback.

Guest Lecturer - *Visualization and Visual Analytics* - University of Calgary Fall 2016

I was invited to present guest lectures on how to use Python to run statistical analysis. I provided students with parts of the source code and asked them to simultaneously complete it as I was instructing them.

Teaching Assistant - *Visualization and Visual Analytics* - University of Calgary Fall 2016

Instructor: Dr. Wesley Willett - Course level: Third and fourth year undergrad CS major students. I ran the tutorial sessions for this course, marked students' projects, and assisted the instructor with outlining the assignments. I taught students how to use visualization software such as Tableau and Wrangler and delivered materials on using Python and R for statistical analysis.

Teaching Assistant - *Human-Computer Interaction* - University of Calgary Winter 2015

Instructor: Dr. Ehud Sharlin - Course level: Third and fourth year undergrad CS major students. I taught students how to conduct interviews with stakeholders of their project, identify the requirements and the system tasks, as well as programming with C# and WPF languages.

Teaching Assistant - *Introduction to CS Application Software* - University of Calgary Winter 2014

Instructor: Dr. James Tam - Course level: First and second year non-computer science major undergrad students. I ran weekly tutorials, each week introducing an introductory computer science software such as Microsoft Excel and Microsoft Access and conducting hands-on activities with the software.

Teaching Assistant - *eCommerce* - Australian National University Winter 2012

Instructor: Dr. Chris Johnson - Course level: Second year undergrad CS major students. I ran weekly tutorials engaging students in discussing how technology is changing global commerce. I taught web programming, helped students with troubleshooting their projects, and marked students assignments.

Teaching Assistant - *Microprocessors* - University of Tehran Winter 2009

Instructor: Dr. Omid Fatemi - Course level: Second year undergrad software engineering major students. I mentored students' group projects that involved tasks such as scoping the project, implementing the hardware, and evaluating the system. Each week, I provided students with feedback on their projects and helped them with troubleshooting.

Supervision and Mentoring

Co-Supervisor

Makena Pook. Master of Experimental Surgery McGill University 2020 - present

Mentorship and Supervision

Charbel El-Kefraoui. Master of Experimental Surgery McGill University 2019 - present

Uyen Do. Master of Experimental Surgery McGill University 2019 - present

Aditya Pal. Medical Student McGill University Summer 2019

Tharaniya Vallipuram. Medical Student McGill University Fall 2019

Andrew Miller. Medical Student McGill University Fall 2019

Student Course Project Leader

Thinking with Data. University of Calgary Summer 2017

Human-Computer Interaction. University of Calgary Winter 2015

Microprocessors. University of Tehran Winter 2009

Community and Volunteer Teaching

Workshop Tutor - Computer Science for Young Women - University of Calgary Summer 2014

Coordinator: Dr. Ben Stephenson - This event brought 36 high school girls to the department of computer science at the University of Calgary from across Canada for a week-long introduction to computer science. I co-conducted the digital hardware sessions and provided one-on-one help to students as they built circuits.

Workshop Tutor - Let's Talk Science (LTS) - University of Calgary Winter 2015

LTS is a free program connecting educators and youth with volunteers to deliver science, technology, engineering and mathematics (STEM) topics in school and community settings. As part of this program, I conducted hands-on tutorials for primary education students in a (rural) school outside Calgary.

Knowledge and Technology Transfer

MyCareCompass - under development [Link](#) 2018 - present

MyCareCompass is the first platform designed for patients with chronic conditions in Alberta to manage their care. This platform provides opportunities for patients to track their health data, to understand their data represented in visual forms, and to communicate their care journey with the healthcare providers. In my Ph.D., I conducted field studies with physicians and patients to understand their perspectives. The results of these reserach studies and my visualization designs informed the development of this platform.

Software Development and Design

WEST: Visualizing Surgery Waiting Time [Link](#) - [Video](#) 2015

WEST is a visualization for surgery waiting times applied to the province of British Columbia (BC) in Canada. This project is motivated by the long waiting time for surgeries in BC. WEST can help patients select a hospital and a physician, and to explore their options to get their surgery as soon as possible.

Leitner System App [Link](#) 2014

Leitner app is designed to help people memorize flashcards bearing information as words or numbers. This app employs the Leitner system, a simple implementation of the principle of spaced repetition, where cards are reviewed at the increasing interval.

Invited Talks

Minimally Invasive Surgery Research Day, McGill University Health Center October 2019
Title: What does 'recovery' mean to patients undergoing abdominal surgery?

Human Factors Interest Group, University of Toronto April 2018
Title: Designing and Developing Tools to Enhance Patient-Physician Communication - [Link](#)

Ward of 21st Century Symposium, Alberta Health Services October 2015
Title: WEST: Visualizing non-Emergency Surgery Waiting Times

International collaborations

Research Collaborator, Oxford Brookes University, United Kingdom 2019 - 2020
Collaboration with Centre for Movement, Occupational and Rehabilitation Science (MORES) with Dr. Mansoubi and Dr. Shelly Coe.

Research Collaborator, Indiana University, United States 2015 - 2017
Collaboration with Dr. Haley Macleod.

Academic Services

Program Committee 2015 - present
McGill University Health Center Injury, Repair, Recovery Annual Research Day 2020 - Posters
IEEE Information Visualization (InfoVis) Conference 2020 - Short Papers
McGill University Experimental Surgery Research Day 2019 - Best Poster Award
ACM Intelligent User Interfaces (IUI) Conference 2019 - 2020 - Short and Long Paper
ACM Intelligent User Interfaces (IUI) Conference 2015 - Best Poster Award

Conference Chair 2016 and 2019
ACM Interactive Surfaces and Spaces (ISS) Conference 2019 - Video Preview Chair
ACM Interactive Surfaces and Spaces (ISS) Conference 2016 - Mobile App Chair

Conference Student Volunteer 2011 - 2018
CHI 2018, CHI 2016, ITS 2015, OZCHI 2011

Journal Paper Reviewer 2019
Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) Journal (2 articles)
Value in Health Journal (1 article)

Conference Paper Reviewer 2015 - present
AMIA 2017 - 2019, DIS 2018 - 2019, CHI 2016 - 2020, TEI 2017, IUI 2016, CSCW 2016, ISS 2015

Languages

English: Professional, French: Pre-Intermediate, Farsi/Persian: Native