

Sabrina Lakhdhir

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Research Interests

Wearables, Customization, Digital Fabrication, Creativity Support Tools, Accessibility, Human Computer Interaction.

Education

Doctor of Philosophy in Computer Science

May 2022 – Present

University of Victoria

Expected Graduation: September 2025

Thesis: Designing Tools to Support the Customization of Technology-Embedded Wearables

Supervisory Committee: Dr. Sowmya Somanath, Dr. Charles Perin, Dr. Fraser Anderson

Master of Science in Computer Science

September 2021 – April 2022

University of Victoria

Transferred to PhD

Bachelor of Science, Honours, Computer Science

September 2015 – April 2021

University of Calgary

Concentration: Human Computer Interaction. *Minor:* Visual Art & Art History.

Honours Thesis: Designing *Pedestrian-Wearables* for Interactions with Autonomous Vehicles

Supervisors: Dr. Ehud Sharlin, Dr. Sowmya Somanath

Academic Teaching Experience

Teaching Assistant, University of Victoria

Course: CSC 485C/578C – Computing for Cognitive Augmentation

Fall 2022

Course: CSC 106 – The Practice of Computer Science

Spring 2022

Course: SENG 310 – Human Computer Interaction

Fall 2021, Summer 2022

Guest Lectures

Hour of Code, University of Victoria, CSC 106

November 2022

Creativity and Cognition, University of Victoria, CSC 485C/578C

November 2022

Customization of Personal Wearables, University of Victoria, SENG 310

July 2022

The Intersection of Art and Technology, University of Victoria, CSC 106

March 2022

Mentorship

Undergraduate MITACS Intern, University of Victoria

July 2022 – October 2022

Undergraduate Honours Student, University of Victoria

January 2022 – April 2022

Research Projects and Experience

Research Associate, VIXI Lab, University of Victoria

September 2021 – Present

Projects: Information Communication Via Clothing (PO.2), Collaborative Customization of Glucose Monitors (PP.1, PO.1)

Supervisor: Dr. Sowmya Somanath

Collaborators: Dr. Charles Perin, Dr. Fraser Anderson, Dr. Helene Fournier, Dr. Irina Kondratova, Dr. Liisa Holsti

- Led research projects to understand how technology can support the customization of personalized devices.
- Performed qualitative analysis to understand users and iterative prototyping to develop supporting systems.

Research Associate, iLab, University of Calgary

September 2020 – August 2021

Project: Designing Wearable Technologies for AV-Pedestrian Interactions (SP.1)

Supervisors: Dr. Ehud Sharlin, Dr. Sowmya Somanath

- Led a project to study possible design of wearables to assist in autonomous vehicle-pedestrian interactions.

Research Associate, Multilingual Families Lab, University of Alberta

October 2020 – September 2021

Project: LinGrow (R.1)

Supervisor: Dr. Andrea MacLeod

- Collaborated with an interdisciplinary team to iteratively develop an application (HTML, JS, CSS) to support communication amongst families, therapists, and educators who face challenges due to language barriers.

Research Intern, Calgary Pediatric Stroke Program, Alberta Children's Hospital

Summer Internship 2019

Project: Transcranial Magnetic Stimulation (TMS) Trainer

Supervisors: Dr. Ephrem Zewdie, Dr. Adam Kirton

- o Co-led the development (C#, Unity) of a training system to simulate a physical treatment approach.

Publications

Short Papers

SP.1. Lakhdhir, S., Somanath, S., & Sharlin, E. *Wearing Awareness: Designing Pedestrian-Wearables for Autonomous Vehicle-Pedestrian Interactions*. Extended Abstract at CHI Conference on Human Factors in Computing Systems (CHI EA '23).

Position Papers

PP.1. Lakhdhir, S., Holsti, L., Fournier, H., Kondratova, I., Anderson, F., Perin, C., & Somanath, S. *Engaging Diverse Individuals in Remote Co-Design to Collaboratively Design Personalized Glucose Monitors*. A Workshop on Disability Inclusive Remote Co-Design at ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '22).

Juried Posters

PO.1. Lakhdhir, S., Fournier, H., Kondratova, I., Anderson, F., & Somanath, S. *Tools for Collaboratively Designing and Evaluating Personalized Assistive Technologies*. Poster presented at: Celebrating the Success of Women in STEM Symposium: Pushing the frontiers of research through collaboration. 2022 Feb 10-11; virtual.

PO.2. Lakhdhir, S. & Somanath, S. *Envisioning a Toolkit for Storytelling with Garments*. Toolkits & Wearables Workshop at CHI Conference on Human Factors in Computing Systems (CHI '22).

Technical Reports

R.1. Demers, C., Lakhdhir, S., Kaushik, S., Gimeno, Z., Munjal, D., Yang, L., Tormon, R., Ebose, W., & MacLeod, A.A.N. (2021, February). *linGrow: Development of a multilingual app to support home-school communication of multilingual families*. Multilingual Families Lab, University of Alberta. <https://doi.org/10.7939/r3-5w7w-a035>

Papers Under Review

P.1. Lakhdhir, S., Perin, C., & Somanath, S. *Expressive Clothing: Understanding Hobbyist-Sewers' Self-Expression Through Clothing*. Under review at CHI Conference on Human Factors in Computing Systems (CHI '24).

P.2. Lakhdhir, S., Nayar, C., Anderson, F., Fournier, H., Holsti, L., Kondratova, I., Perin, C., & Somanath, S. *GlucoseMaker: Enabling Collaborative Customization of Glucose Monitors*. Under review at CHI Conference on Human Factors in Computing Systems (CHI '24).

Invited Talks

Designing Tools to Support the Customization of Wearables, Autodesk Research, MaRS Toronto

February 2023

Academic Service

Student Volunteer Co-Chair, Graphics Interface (GI) 2023

October 2022 – June 2023

Accessibility Co-Chair, Designing Interactive Systems (DIS) 2022

November 2021 – June 2022

Program Committee: GI '23

Reviewer: CHI '22 (1 special recognition), TEI WIP '23, CHI '23, CHI LBW '23, C&C Pictorial '23, DIS '23, INTERACT Short Papers '23, GI '23, UIST '23, TEI Pictorial '24

Student Volunteer: CHI '23

Scholarships, Honours, and Awards

University of Victoria Graduate Award (\$1402.58)

July 2023

President's Research Scholarship (\$5,000)

May 2023

NSERC Post Graduate Scholarship – Doctoral (\$63,000 over 3 years)

May 2023

University of Victoria Graduate Award (\$500)

April 2023

CUPE 4163 Conference Award Fund (\$450, to attend CHI '23 to present SP.1)

April 2023

Faculty of Graduate Studies International Travel Grant (\$600, to attend CHI '23 to present SP.1)

April 2023

Stantec Equity, Diversity, & Inclusion Scholarship (\$2,500)	December 2022
Faculty of Graduate Studies International Travel Grant (\$600, <i>to attend ASSETS '22 to present PP.1</i>)	October 2022
British Columbia Graduate Scholarship (\$15,000)	September 2022
Gary Marsden Travel Award (<i>to attend CHI '22 to present PO.1</i>)	May 2022
University of Victoria Graduate Award (\$1,500)	April 2022
University of Victoria Graduate Fellowship Award (\$13,500)	September 2021

Skills

Programming Languages: Python, Java, C, C# (Unity), HTML, CSS, JavaScript (including libraries such as JSCAD), Swift, Arduino.

Tools: Visual Studio Code, Processing, Tableau, Git.

Design: graphic design (Adobe Photoshop, Adobe Illustrator), UI/UX prototyping (InVision, Adobe XD).

Digital Fabrication: 3D modelling (Tinkercad, Fusion360), graphic development (Adobe Illustrator, Lightburn), 3D printing, laser cutting, e-textiles (Arduino, Adafruit, Lilypad).

Empirical Research: qualitative analysis (e.g. thematic analysis and grounded theory).

Professional Memberships

ACM SIGCHI Member	April 2022 – Present
Association of Computing Machinery (ACM) Student Member	April 2021 – Present

Leadership and Mentoring Experience

University of Victoria ACM Student Chapter	March 2022 – Present
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Role: Co-founder and Chair

- Co-founded and led student chapter to increase student knowledge and engagement with digital fabrication.

National Convenor for iCompute, Aga Khan Education Board, Council for Canada	November 2019 – July 2023
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Roles: Instructor, Co-Instructor, National Convenor

- Developed curriculum and organized teaching team for nation-wide virtual delivery of a youth coding program.
- Cumulatively organized programming and taught Scratch and Thinkable to over 200 students.

Technical Mentor, University of Calgary, Technovation	January 2018 – June 2020
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- Mentored junior (MIT App Inventor) and high school (Swift) teams in developing apps to address problems.

Peer Helper, Leadership & Student Engagement Office, University of Calgary	September 2016 – April 2018
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Offices: Meal Exchange, Sophomore Leadership Program

- Supported planning and execution of various events to support students in developing their leadership styles.

Development Projects

GlucoMaker	May 2023 – Present
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- Designed and developed a collaborative system to support end-users in designing customized glucose monitors.
- Developed as a web application using JSCAD's 3D modelling library.

Mental Health Wearable	September 2020 – December 2020
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Course: Wearable Design for Mental Health

Presented at: Nickle at Noon Showcase, Nickle Galleries, University of Calgary

- Designed a comfort device that aims to combat common mental health illnesses such as anxiety and loneliness.

Drone Movie Director	September 2020 – December 2020
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Course: Human-Robot Interactions

- Developed a web interface to mediate videography interactions between a drone and human movie director.

Professional Work Experience

Student WestJet, WestJet Main Campus, Calgary

September 2019 – April 2020

Training: ServiceNow Fundamentals

- Supported End User Experience IT team in gathering user requirements and managing projects for operations.