

## Sabrina Lakhdir

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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: December 2026*

*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 586B – Designing Collaborative Technologies*

Spring 2024

*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, Spring 2024

#### 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

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

## Publications

*Conference Proceedings*

P.1. **Lakhdhir, S.**, Perin, C., & Somanath, S. *Expressive Clothing: Understanding Hobbyist-Sewers' Visions for 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. *GlucMaker: Enabling Collaborative Customization of Glucose Monitors*. Under review at CHI Conference on Human Factors in Computing Systems (CHI '24).

*Short Papers*

SP.1. **Lakhdhir, S.** *Creating Positive Social Experiences Through the Design of Custom Wearables*. Under review at CHI Conference on Human Factors in Computing Systems (CHI EA'24).

SP.2. **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>

## 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, GI '24

**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, GI '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, <i>to attend CHI '23 to present SP.1</i> )	April 2023
Faculty of Graduate Studies International Travel Grant (\$600, <i>to attend CHI '23 to present SP.1</i> )	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 – February 2024
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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

*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

*Course:* Human-Robot Interactions

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

**Professional Work Experience****Student WestJetter**, 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.