

Sabrina Lakhdhir

University of Victoria • sabrinakhdhir@gmail.com • 587-892-6600

Research Interests

Wearable Computing, Customization, Creativity Support Tools, Interaction Design, Human Computer Interaction.

Education

Doctor of Philosophy in Computer Science

University of Victoria

May 2022 – Present

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

University of Victoria

September 2021 – April 2022

Transferred to PhD

Thesis: Envisioning Toolkits for Storytelling Wearables

Supervisor: Dr. Sowmya Somanath

Bachelor of Science, Honours, Computer Science

University of Calgary

September 2015 – April 2021

Concentration: Human-Computer Interactions

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

Supported professor during the lecture with medial tasks and ensured students participated in lecture activities. Graded assignments for a class of approximately 65 students.

Course: CSC 106 – The Practice of Computer Science

Spring 2022

Engaged two lab sections of first-year undergraduate students in introductory computer science concepts such as number systems, logic gates, and programming with Python and Processing.

Course: SENG 310 – Human Computer Interaction

Fall 2021, Summer 2022

Instructed classes of approximately 30 upper-year undergraduate students in a mandatory lab section. Taught concepts such as use cases, task descriptions, and heuristic evaluation and led students through the user-centered design process using their own group projects as a baseline.

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

Research Projects and Experience

Research Associate

September 2021 – Present

VIXI Lab, University of Victoria

Projects: Storytelling in Garment Creation, Collaboration for the Customization of Assistive Technologies

Supervisor: Dr. Sowmya Somanath

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

Leading a series of research projects to study how technological tools or toolkits can support the customization of technology-embedded wearables in multiple contexts, with a focus on accessibility and supporting/empowering diverse user groups to customize their own devices as needed.

Research Associate

September 2020 – August 2021

iLab, University of Calgary

Project: Designing Wearable Technologies for AV-Pedestrian Interactions

Supervisors: Dr. Ehud Sharlin, Dr. Sowmya Somanath

Led a research project to study possible effective designs of wearable technologies, specifically e-textiles, to assist in AV-pedestrian interactions. This included conducting a thorough literature review, developing and running a design study, analyzing qualitative data, and prototyping a subset of promising wearable ideas.

Research Associate

October 2020 – September 2021

Multilingual Families Lab, University of Alberta

Project: LinGrow

Supervisor: Dr. Andrea MacLeod

Collaborated with an interdisciplinary team of researchers to design, develop, and evaluate an early-stage minimum viable product of an English Second Language support web application to aid research and communication between families, therapists, and educators who face challenges due to language barriers.

Research Intern

Summer Internship 2019

Calgary Pediatric Stroke Program, University of Calgary & Alberta Children's Hospital

Project: Transcranial Magnetic Stimulation (TMS) Trainer

Supervisors: Dr. Ephrem Zewdie, Dr. Adam Kirton

Co-led a research project to design and develop an interactive training system to simulate a widely used physical treatment method. Produced a first prototype of a realistic training system using collected data and coded with over 1500 lines of code in C# on Unity which graphed electromyography signals containing over 2400 data points.

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>

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 '23 Short Papers, GI '23, UIST '23

Student Volunteer: CHI '23

Scholarships, Honours, and Awards

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
Faculty of Science Dean's List	April 2019, 2021
Jason Lang Scholarship (\$1,000)	April 2019
Westlake Chemical Corporation Scholarship (\$8,000 over 4 years)	September 2015
Alexander Rutherford Scholarship (\$2,500)	June 2015
Bronze Duke of Edinburgh Award	2014

Professional Memberships

ACM SIGCHI Member

April 2022 – Present

Association of Computing Machinery (ACM) Student Member

April 2021 – Present

Leadership and Mentoring Experience

National Convenor for iCompute

November 2019 – Present

Aga Khan Education Board, Aga Khan Council for Canada

Roles: Instructor, Co-Instructor, National Convenor

Developed curriculum and organized members nation-wide for successful delivery of a foundational coding program for youth. Adapted programming for a virtual setting, trained volunteer instructors, and taught and coordinated classes via Zoom for over 50 students during Fall 2020 (level 1), over 40 students during Spring 2021 (level 2), and over 50 students during Fall 2021 (level 1).

Programs: Scratch in Level 1, Thunkable in Level 2

University of Victoria ACM Student Chapter

March 2022 – December 2022

Role: Co-founder and Chair

Co-founded the University of Victoria ACM Student Chapter to provide mentoring opportunities, particularly for integrating more undergraduate students into research and helping them understand the broad applications of computer science, as well as to provide networking and learning opportunities for all students.

Undergraduate Student Mentor

January 2022 – October 2022

Mentored multiple final-year undergraduate students (one during their honours project, one during a MITACS internship) by engaging in weekly meetings, introducing them to research concepts and methods, and supporting completion of their project deliverables.

Technical Mentor

January 2018 – June 2020

University of Calgary, Technovation

Supported multiple teams of junior high and high school girls, along with a business mentor, in developing an app from initial ideation and business planning, through to development and a final pitch.

Languages: App Inventor for junior high team, Swift for high school team

Peer Helper

September 2016 – April 2018

Leadership & Student Engagement Office, University of Calgary

Offices: Meal Exchange, Sophomore Leadership Program

As a Meal Exchange peer helper, assisted in planning, advertising and executing various events such as Trick or Eat, an annual Halloween campaign to fight local hunger. As a Sophomore Leadership Program peer helper, mentored a group of second- and third-year students to develop their leadership styles through workshops and semesterly retreats while also engaging in extra-curricular activities and events.

Development Projects

Mental Health Wearable

September 2020 – December 2020

Course: Wearable Design for Mental Health

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

Researched, ideated and designed a device which can be used to comfort individuals and work towards combating common mental health illnesses in students such as anxiety and loneliness. Defined a target user group, a set of required functionalities, and required materials, such that a working prototype could be developed.

Drone Movie Director

September 2020 – December 2020

Course: Human-Robot Interactions

Designed a physical and touchscreen interface (HTML, CSS, JS) to mediate interactions between a drone and human movie director in order to achieve artistic views and increase basic functionality of a drone for filmmaking purposes.

Work Experience

Student WestJet

September 2019 – April 2020

WestJet Main Campus, Calgary

Training: ServiceNow Fundamentals

Worked through a variety of projects to support the End User Experience team within IT Mobility Operations for regular airline operations.

Certifications

3D Design and Print

January 2022

Digital Scholarship Commons, University of Victoria Libraries

Qualitative Data Analysis with NVivo

November 2021

Digital Scholarship Commons, University of Victoria Libraries