

## A Biographical Information

### 1 Personal

Department of Computer Science  
40 St. George Street, Room 7266  
Toronto ON M5S 2E4

Personal webpage: <http://mariakakis.github.io/>

Lab webpage: <https://chai.cs.toronto.edu/>

### 2 Degrees

**Ph.D.:** Computer Science & Engineering, University of Washington, 2019

Thesis: “Making Medical Assessments Available and Objective Using Smartphone Sensors”

Supervisors: Shwetak Patel, Jacob O. Wobbrock

**M.S.:** Computer Science & Engineering, University of Washington, 2015

**B.S.E.:** Electrical & Computer Engineering, Duke University, 2013

**B.S.:** Computer Science, Duke University, 2013

### 3 Employment

**Aug 2020–present:** Assistant Professor in the Department of Computer Science, Full Membership in the School of Graduate Studies (SGS), University of Toronto

### 4 Honours

**Oct 2025:** Honorable Mention Paper Award from the Proceedings of the ACM Computer-Supported Cooperative Work & Social Computing (CSCW)

**Oct 2024:** Distinguished Paper Award from the Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)

**Oct 2024:** Best Workshop Paper at the EarComp Workshop within the ACM International Conference on Pervasive and Ubiquitous Computing (UbiComp)

**Apr 2024:** Two Honorable Mention Paper Awards at the ACM Conference on Human Factors in Computing Systems (CHI)

**Apr 2023:** Best Paper Award at the ACM Conference on Human Factors in Computing Systems (CHI)

**Jul 2021:** Best Paper Award at the ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS)

**Sep 2020:** Best Paper Runner-Up Award from IEEE Pervasive Computing

**Apr 2019:** Best Paper Finalist at the IEEE International Conference on Radio-Frequency Identification (RFID)

**Sep 2018:** Gaetano Borriello Outstanding Student Award at the ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)

**Oct 2015:** Honorable Mention Award at the ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)

## 5 Professional Affiliations and Activities

### Memberships

**2025–present:** Education Faculty Affiliate, Temerty Centre for Artificial Intelligence Research and Education in Medicine (T-CAIREM)

**2025–present:** Affiliate Scientist, KITE, University Health Network

**2023–present:** Member, TRANSFORM HF

**2023–present:** Member, Institute of Health Emergencies and Pandemics (IHEP), University of Toronto

**2021–2025:** Affiliate Scientist, Techna, University Health Network

**2023–present:** Member, Data Science Institute, University of Toronto

**2021–present:** Member, Temerty Centre for Artificial Intelligence Research and Education in Medicine (T-CAIREM), University of Toronto

### Major Journal Review Activities

**2022–2023:** Editor for Frontiers in Digital Health Special Issue on Digital Public Health Surveillance

**2021–present:** Associate Editor for the Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)

### Major Conference Review Activities

**2026:** Associate Chair for the ACM Interactive Health Conference (IH), Short Forms Track

**2022–present:** Associate Chair for the ACM Conference on Human Factors in Computing Systems (CHI), Health Subcommittee

**2021–2022:** Associate Chair for the ACM International Conference on Mobile Human-Computer Interaction (MobileHCI)

**2020:** Associate Chair for the ACM Conference on Human Factors in Computing Systems (CHI), Interaction Techniques Subcommittee

**2019:** Associate Chair for the ACM Conference on Human Factors in Computing Systems (CHI), Late-Breaking Work Track

**2019:** Associate Chair for the ACM Symposium on User Interface Software and Technology (UIST)

## B Academic History

### 6

#### A Primary Research Endeavors

**Accurate, Inclusive, and Accessible Menstrual Tracking:** Investigating ways in which wearable sensors can be used to predict menstrual symptoms and cycle timing

**Chatbots for Patient-Physician Communication:** Generating design recommendations for chatbot services that collect patient information before in-person consultations

**Continuous Monitoring of Chronic Obstructive Pulmonary Disease:** Leveraging speech analysis, cough detection, and vital sign monitoring to identify heightened COPD symptoms

**Accessible Multimodal Blood Pressure Estimation:** Exploring how multiple sensor streams gathered across the body can be used to estimate blood pressure noninvasively

**B Research Awards (past 5 years)**

- [G22] *High-frequency Physiologic Data for Predictive Modeling of Hypotension in Pediatric Patients in the Operating Room*. Anesthesia Patient Safety Foundation, Investigator Initiated Research Grant. Jan 2026–Dec 2027. \$198,022 USD. Role: Co-PI
- [G21] *Development of an Artificial Intelligence Core Lab for Electrocardiographic Analysis and to Predict with Long-Term Cardiovascular Outcomes*. JP Bickell Foundation, Medical Research Grant. Aug 2025–Aug 2028. \$70,000 CAD. Role: Co-PI
- [G20] *Making Oscillometry More Accurate, Reliable, and Accessible for COPD Patients*. Lung Health Foundation, Hope Innovation Research Grant. Jul 2025–Jul 2027. \$100,000 CAD. Role: Lead PI
- [G19] *Automated Multi-modal Forensic Analysis on Biological Evidence*. University of Toronto, Faculty of Arts & Science Collaborative Research Fund. May 2025–May 2027. \$70,000 CAD. Role: Co-PI
- [G18] *Health Outpatient Monitoring Evaluation (HOME)*. University of Toronto, Department of Medicine Research Network Seed Funding. Feb 2025–Feb 2027. \$100,000 CAD. Role: Co-I
- [G17] *Development of Normal Physiological Behaviour Classification Using Multi-modal Biomarker Dataset Towards Machine Learning-Driven Medical Devices*. Mitacs, Accelerate. Jun 2024–Oct 2024. \$10,000 CAD. Role: Co-PI
- [G16] *Connected, at-Home, Accessible Remote Monitoring in COPD (CHARM-COPD): A Program of Care in COPD that Ensures Digital Health Equity, Improves Continuity of Care, Improves Access to Care, That is Scalable and Enables Data for Discovery*. University Health Network, Alternative Funding Program. Apr 2024–Mar 2026. \$186,743 CAD. Role: Co-PI
- [G15] *Oscillometry for Remote Clinical Monitoring of Patients with COPD*. Sunnybrook Medical Services, Alternative Funding Program. Mar 2024–Mar 2026. \$157,100 CAD. Role: Co-I
- [G14] *Chatbots for Patient Intake*. Mitacs, Accelerate International. Jan 2024–Jan 2025. \$30,000 CAD. Role: Lead PI
- [G13] *Machine-learning-assisted Seizure Annotation User Interface*. Mitacs, Accelerate. Jul 2023–Jan 2024. \$12,000 CAD. Role: Co-PI
- [G12] *Connected, at-Home, Accessible Remote Monitoring in COPD (CHARM-COPD): a Program of Care in COPD involving Virtual Pulmonary Rehabilitation, Integrated Care and Remote Clinical Monitoring*. AGE-WELL & Canada Frailty Network, Catalyst Funding Program in Healthy Aging. Apr 2023–Apr 2024. \$49,177 CAD. Role: Co-PI
- [G11] *Can I Trust an AI Chatbot with My Sensitive Health Information? An Exploratory Study on the Impact of Cultural Influence on the Perception and Sharing of Sensitive Health Information with AI Chatbots*. Toronto Metropolitan University, TRSB Research Advancement Grant. Mar 2023–Jul 2025. \$15,000 CAD. Role: Co-PI
- [G10] *Accessible Blood Pressure Estimation with Earbuds*. TRANSFORM HF, Seed Grant. Feb 2023–Sep 2025. \$70,000 CAD. Role: Lead PI
- [G9] *Cognitive Assessments in Virtual Reality*. Mitacs, Globalink. Jan 2023–Dec 2023. \$12,000 CAD. Role: Lead PI
- [G8] *Accessible Women's Health*. Google, Unrestricted Gift. Nov 2022–unrestricted. \$266,300 CAD. Role: Lead PI
- [G7] *Automatic Seizure Detection, Prediction, and Mitigation Using Minimally Invasive Implantable Bioelectrical Sensors*. Mitacs, Accelerate. May 2022–Aug 2022. \$40,000 CAD. Role: Co-PI
- [G6] *Capillary Refill Time Measurement Utilizing Mobile Application (CapApp) in Children*. University of Minnesota, Pediatric Device Innovation Consortium. Jan 2022–Apr 2023. \$34,621 USD. Role: Co-PI
- [G5] *Accessible Women's Health*. Google, Unrestricted Gift. Dec 2021–unrestricted. \$200,000 CAD. Role: Lead PI
- [G4] *Continuous Passive Sensing for Bayesian Diagnostics in Mobile Health*. University of Toronto, Connaught New Researcher Award. Sep 2021–Sep 2023. \$20,000 CAD. Role: Lead PI
- [G3] *Earbuds as a Sensing Platform for Physical and Mental Wellbeing*. University of Toronto, Tsinghua University Joint Research Fund. Jul 2021–Jul 2022. \$40,000 CAD. Role: Lead PI

- [G2] *Continuous Passive Sensing for Bayesian Diagnostics in Mobile Health*. NSERC, Discovery Grant. Apr 2021–Apr 2027. \$156,500 CAD. Role: Lead PI
- [G1] *Extending the Use of Time-of-Flight Cameras for Mobile Health*. University of Toronto, Mobile AI Innovation Lab. Nov 2020–Nov 2022. \$193,000 CAD. Role: Lead PI

### C Patents (past 5 years)

- [P2] Lynn McGrath, Anthony Law, Randy Bly, Shwetak Patel, **Alex Mariakakis**, and Jacob Baudin. Smartphone-based Digital Pupillometer, 2023
- [P1] Shwetak Patel, Chunjong Park, **Alex Mariakakis**, and Matthew Thompson. Computing Devices and Methods for Peripheral Perfusion Assessment Including Examples Using Smartphones, 2022

## C Scholarly and Professional Work

Career Publication Count	
Papers in refereed journals	38
Papers in refereed conferences	33
Papers in refereed workshops	7
Clinical abstracts	4
Other refereed contributions	6

## 7 Refereed Publications

### A Journal Articles (\* = received award recognition)

- [J38] Benjamin T Kaveladze, Jan G Voelkel, Michael N Stagnaro, Mingjing Huang, Amanda E Smock, Erin K Sullivan, Yao M Xu, Madison P McCall, Juan Pablo Zapata, Syed Ishtiaque Ahmed, and others. A crowdsourced megastudy of 12 digital single-session interventions for depression in US adults. *Nature Human Behaviour*, pages 1–17, 2026
- [J37] Robert Wu, **Alex Mariakakis**, Eyal de Lara, Joseph Munn, Daniyal Liaqat, Salaar Liaqat, Junlin Chen, Teresa To, Philip W Lam, Andrew Simor, and others. Predicting low oxygen in patients with acute COVID-19 infection isolating at home: a clinical prediction model. *BMJ Open Respiratory Research*, 13(1), 2026
- [J36] Georgianna Lin, Jin Yi Li, Kaavya Kalani, Khai N Truong, and **Alex Mariakakis**. A longitudinal dataset of physiological, hormonal, metabolic, and self-reported menstrual health data. *Scientific Data*, 2026
- [J35] Georgianna Lin, Min Ngoc Le, Pierre-William Lessard, Gillian Einstein, Khai Truong, and **Alex Mariakakis**. From Fertility to Overall Health: Barriers and Catalysts to a Holistic Menstrual Health Perspective. *ACM Transactions on Computing for Healthcare (HEALTH)*, 2025
- [J34] Kenneth Christofferson, Michelle Lin, Joseph A Cafazzo, and **Alex Mariakakis**. ArtEARial: Arterial Pressure Waveform Reconstruction Using Earbud Audio. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 9(4):1–24, 2025
- [J33] Ian Ruffolo, Asad Siddiqui, Binh Nguyen, Will Dixon, Azadeh Assadi, Robert Greer, Steven Schwartz, Michael Brudno, **Alex Mariakakis**, and Andrew Goodwin. High-fidelity measurement of pulse arrival time in critically ill children using standard bedside monitoring equipment. *Physiological Measurement*, 46(11):115006, 2025
- [J32] Bruno Caracci, Will Dixon, Rilong Zhang, German Serrano, Spencer Vecile, Andrew Goodwin, Robert Greer, Clyde Matava, **Alex Mariakakis**, and Asad Siddiqui. Development of Normative Ranges for Vital Signs and Differentiation by American Society of Anesthesiologists Physical Status Category: A Retrospective Observational Study. *Journal of Medical Systems*, 49(1):1–10, 2025

- [J31] Robert Wu, Ronald Chow, Olivia So, Lauren Lapointe-Shaw, **Alex Mariakakis**, and Andrea Gershon. Development of Multivariable Prediction Models for 30-Day Risk of Readmission After COPD Hospital Admission: A Retrospective Cohort Study Using Electronic Medical Record Data from 7 Hospitals. *Studies in Health Technology and Informatics*, 329:992–996, 2025
- [J30] Andrea S Gershon, **Alex Mariakakis**, Eyal de Lara, Joseph Munn, Maryann Calligan, Daniyal Liaqat, Salaar Liaqat, Junlin Chen, Teresa To, Philip W Lam, and others. Monitoring People With COVID-19 at Home With the COVIDFree@Home Program: Feasibility Cohort Study. *JMIR Formative Research*, 9(1):e69140, 2025
- [J29] Sejal Bhalla, Deshang Kong, Salaar Liaqat, Daniyal Liaqat, Robert Wu, Andrea Gershon, Eyal de Lara, and **Alex Mariakakis**. Association of daily lung condition in COPD patients with wearable speech and physiological data. *Scientific Reports*, 15(1):33645, 2025
- [J28] Georgianna Lin, Minh Ngoc Le, Khai N Truong, and **Alex Mariakakis**. The Cognitive Strategies Behind Multimodal Health Sensemaking: A Menstrual Health Tracking Case Study. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 9(3):1–27, 2025
- [J27] Robert Wu, Jansen Zhou, **Alex Mariakakis**, Eyal de Lara, Jeyani Jeyaparan, and Andrea Gershon. Determining What Patients Admitted with a Chronic Obstructive Pulmonary Disease (COPD) Exacerbation Will Use for Remote Clinical Monitoring: A Patient Engagement Survey. *BMJ Open Respiratory Research*, 12(1), 2025
- [J26] \* Ananya Bhattacharjee, Joseph Jay Williams, Miranda Beltzer, Jonah Meyerhoff, Harsh Kumar, Haochen Song, David C Mohr, **Alex Mariakakis**, and Rachel Kornfield. Investigating the Role of Situational Disruptors in Engagement with Digital Mental Health Tools. *Proceedings of the ACM on Human-Computer Interaction*, 9(7):1–35, 2025
- [J25] You Zhi Hu, Max Beggs, Yu Xue, Sinuo Gao, Junyoung Seok, Yawen Xiao, Ziqi Zhou, Yifei Zhou, **Alex Mariakakis**, and Mark Chignell. Are Virtual Forests Just for Relaxation, or Can They Enhance the Benefits of Therapy? *Healthcare*, 13(6):621, 2025
- [J24] Antonia Barbaric, Kenneth Christofferson, Susanne M Benseler, Chitra Laloo, **Alex Mariakakis**, Quynh Pham, Joost F Swart, Rae SM Yeung, and Joseph A Cafazzo. Health recommender systems to facilitate collaborative decision-making in chronic disease management: A scoping review. *Digital Health*, 11:20552076241309386, 2025
- [J23] Anthony J Maxin, Bernice G Gulek, Do H Lim, Samuel Kim, Rami Shaibani, Graham M Winston, Lynn B McGrath, **Alex Mariakakis**, Isaac J Abecassis, and Michael R Levitt. Smartphone pupillometry with machine learning differentiates ischemic from hemorrhagic stroke: A pilot study. *Journal of Stroke and Cerebrovascular Diseases*, 34(2):108198, 2025
- [J22] Georgianna Lin, Jin Yi Li, Ken Christofferson, Shwetak N Patel, Khai N Truong, and **Alex Mariakakis**. Understanding wrist skin temperature changes to hormone variations across the menstrual cycle. *npj Women's Health*, 2(1):35, 2024
- [J21] Dhruv Verma, Ian Ruffolo, David B Lindell, Kiriakos N Kutulakos, and **Alex Mariakakis**. ChromaFlash: Snapshot Hyperspectral Imaging Using Rolling Shutter Cameras. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 8(3):1–31, 2024
- [J20] Georgianna Lin, Brenna Li, Jin Yi Li, Chloe Zhao, Khai Truong, and **Alex Mariakakis**. Users' Perspectives on Multimodal Menstrual Tracking Using Consumer Health Devices. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 8(3):1–24, 2024
- [J19] Anthony J Maxin, Do H Lim, Sophie Kush, Jack Carpenter, Rami Shaibani, Bernice G Gulek, Kimberly G Harmon, **Alex Mariakakis**, Lynn B McGrath, and Michael R Levitt. Smartphone Pupillometry and Machine Learning for Detection of Acute Mild Traumatic Brain Injury: Cohort Study. *JMIR Neurotechnology*, 3(1):e58398, 2024
- [J18] Robert Wu, Maryann Calligan, Tanya Son, Harshmeet Rakhra, Eyal de Lara, **Alex Mariakakis**, and Andrea S Gershon. Impressions and Perceptions of a Smartphone and Smartwatch Self-Management Tool for Patients With COPD: A Qualitative Study. *COPD: Journal of Chronic Obstructive Pulmonary Disease*, 21(1):2277158, 2024

- [J17] Mohammad Kianpisheh, **Alex Mariakakis**, and Khai N Truong. exHAR: An Interface for Helping Non-Experts Develop and Debug Knowledge-based Human Activity Recognition Systems. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 8(1):1–30, 2024
- [J16] Ananya Bhattacharjee, Pan Chen, Abhijoy Mandal, Anne Hsu, Katie O’Leary, **Alex Mariakakis**, and Joseph Jay Williams. Exploring User Perspectives on Brief Reflective Questioning Activities for Stress Management: Mixed Methods Study. *JMIR Formative Research*, 8(1):e47360, 2024
- [J15] Anthony J Maxin, Bernice G Gulek, Chungueun Lee, Do Lim, **Alex Mariakakis**, Michael R Levitt, and Lynn B McGrath. Validation of a Smartphone Pupillometry Application in Diagnosing Severe Traumatic Brain Injury. *Journal of Neurotrauma*, 2023
- [J14] Georgianna Lin, Rumsha Siddiqui, Zixiong Lin, Joanna M Blodgett, Shwetak N Patel, Khai N Truong, and **Alex Mariakakis**. Blood glucose variance measured by continuous glucose monitors across the menstrual cycle. *npj Digital Medicine*, 6(1):140, 2023
- [J13] Sejal Bhalla, Salaar Liaqat, Robert Wu, Andrea S Gershon, Eyal de Lara, and **Alex Mariakakis**. Pulmolistener: Continuous acoustic monitoring of chronic obstructive pulmonary disease in the wild. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 7(3):1–24, 2023
- [J12] Solveig K Sieberts, Henryk Borzymowski, Yuanfang Guan, Yidi Huang, Ayala Matzner, Alex Page, Izhar Bar-Gad, Brett Beaulieu-Jones, Yuval El-Hanani, Jann Goschenhofer, and others. Developing better digital health measures of parkinson’s disease using free living data and a crowdsourced data analysis challenge. *PLOS Digital Health*, 2(3):e0000208, 2023
- [J11] \* Joseph Breda, Mastafa Springston, **Alex Mariakakis**, and Shwetak Patel. FeverPhone: Accessible Core-Body Temperature Sensing for Fever Monitoring Using Commodity Smartphones. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 7(1):1–23, 2023
- [J10] Ananya Bhattacharjee, Jiayu Pang, Angelina Liu, **Alex Mariakakis**, and Joseph Jay Williams. Design Implications for One-Way Text Messaging Services that Support Psychological Wellbeing. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 2022
- [J9] Ananya Bhattacharjee, Joseph Jay Williams, Karrie Chou, Justice Tomlinson, Jonah Meyerhoff, **Alex Mariakakis**, and Rachel Kornfield. "I Kind of Bounce off It": Translating Mental Health Principles into Real Life Through Story-Based Text Messages. *Proceedings of the ACM on Human-Computer Interaction*, 6(CSCW2):1–31, 2022
- [J8] **Alex Mariakakis**, Ravi Karkar, Shwetak N Patel, Julie A Kientz, James Fogarty, and Sean A Munson. Using Health Concept Surveying to Elicit Usable Evidence: Case Studies of a Novel Evaluation Methodology. *JMIR Human Factors*, 9(1):e30474, 2022
- [J7] Alexandros A Sklavounos, Julian Lamanna, Dimpdy Modi, Sidharth Gupta, **Alex Mariakakis**, Jeannie Callum, and Aaron R Wheeler. Digital Microfluidic Hemagglutination Assays for Blood Typing, Donor Compatibility Testing, and Hematocrit Analysis. *Clinical Chemistry*, 67(12):1699–1708, 2021
- [J6] Xin Liu, Yuang Li, Josh Fromm, Yuntao Wang, Ziheng Jiang, **Alex Mariakakis**, and Shwetak Patel. SplitSR: An End-to-End Approach to Super-Resolution on Mobile Devices. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 5(1):1–20, 2021
- [J5] Chunjong Park, Hung Ngo, Libby Rose Lavitt, Vincent Karuri, Shiven Bhatt, Peter Lubell-Doughtie, Anuraj H Shankar, Leonard Ndwiga, Victor Osoti, Juliana K Wambua, and others. The Design and Evaluation of a Mobile System for Rapid Diagnostic Test Interpretation. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 5(1):1–26, 2021
- [J4] Victoria Lyon, Monica Zigman Suchsland, Monique Chilver, Nigel Stocks, Barry Lutz, Philip Su, Shawna Cooper, Chunjong Park, Libby Rose Lavitt, **Alex Mariakakis**, and others. Diagnostic accuracy of an app-guided, self-administered test for influenza among individuals presenting to general practice with influenza-like illness: study protocol. *British Medical Journal Open (BMJ Open)*, 10(11):1–8, 2020
- [J3] \* **Alex Mariakakis**, Edward Wang, Shwetak Patel, and Mayank Goel. Challenges in Realizing Smartphone-Based Health Sensing. *IEEE Pervasive Computing*, 18:1–9, 2019

- [J2] **Alex Mariakakis**, Jacob Baudin, Eric Whitmire, Vardhman Mehta, Megan A. Banks, Anthony Law, Lynn McGrath, and Shwetak N. Patel. PupilScreen: Using Smartphones to Assess Traumatic Brain Injury. *Proceedings of the ACM on Interactive, Mobile, Wearable, Ubiquitous Technologies (IMWUT)*, 1(3):1–27, 2017
- [J1] **Alex Mariakakis**, Megan A Banks, Lauren Phillipi, Lei Yu, James Taylor, and Shwetak N Patel. BiliScreen: Smartphone-based Scleral Jaundice Monitoring for Liver and Pancreatic Disorders. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 1(2):1–26, 2017

## B Conference Papers (\* = received award recognition)

- [C33] Salaar Liaqat, Daniyal Liaqat, Tatiana Son, Robert Wu, Andrea Gershon, Eyal de Lara, and **Alex Mariakakis**. Addressing Extra Voices and Background Noise in Continuous Speech Monitoring: A Case Study on Chronic Obstructive Pulmonary Disease. In *To appear in IEEE International Conference on Pervasive Computing and Communications (PerCom)*, pages 1–10, 2026
- [C32] Sejal Bhalla, Benson Chou, Tianyu Xu, **Alex Mariakakis**, Karan Ahuja, and Ishan Chatterjee. Mudra: Enabling Microgesture Recognition on COTS Smartwatches. In *To appear in Graphics Interface (GI)*, 2026
- [C31] Dhruv Verma, Andrew Qiu, Roberto Rangel, Ayandev Barman, Hao Yang, Chenjia Hu, Fengqi Zhang, Roman Genov, David Lindell, Kyros Kutulakos, and **Alex Mariakakis**. Lumosaic: Hyperspectral Video via Active Illumination and Coded-Exposure Pixels. In *To appear in IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2026
- [C30] Brenna Li, Liam Bakar, Anna Kirik, Jiaqi Guo, Khai N Truong, and **Alex Mariakakis**. Digitizing the Clinical Pre-Consultation Experience: Impacts and Design Recommendations. In *To appear in the ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–18, 2026
- [C29] Mohammad Kianpisheh, **Alex Mariakakis**, and Khai N Truong. SAHARA: Self-supervised Approach for Human Activity Recognition based on Audio Events. In *Proceedings of the 2025 ACM International Symposium on Wearable Computers (ISWC)*, pages 134–140, 2025
- [C28] Ananya Bhattacharjee, Sarah Yi Xu, Pranav Rao, Yuchen Zeng, Jonah Meyerhoff, Syed Ishtiaque Ahmed, David C Mohr, Michael Liut, **Alex Mariakakis**, Rachel Kornfield, and others. Perfectly to a Tee: Understanding User Perceptions of Personalized LLM-Enhanced Narrative Interventions. In *Proceedings of the 2025 ACM Designing Interactive Systems Conference (DIS)*, pages 1387–1416, 2025
- [C27] Brenna Li, Saba Tauseef, Khai Truong, and **Alex Mariakakis**. A Comparative Analysis of Information Gathering by Chatbots, Questionnaires, and Humans in Clinical Pre-Consultation. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–17, 2025
- [C26] Sejal Bhalla, Tien Han, Andrea Gershon, Robert Wu, Eyal de Lara, and **Alex Mariakakis**. Phoneme-Aware Acoustic Analysis of Natural Speech for Lung Function Assessment. In *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 1–5, 2025
- [C25] Zeyu Wang, Xiyuxing Zhang, Ruotong Yu, Yuntao Wang, Kenneth Christofferson, Jingru Zhang, **Alex Mariakakis**, and Yuanchun Shi. DreamCatcher: A Wearer-aware Multi-modal Sleep Event Dataset Based on Earables in Non-restrictive Environments. *Advances in Neural Information Processing Systems (NeurIPS)*, 37:85155–85178, 2024
- [C24] Alvin Cao, Ken Christofferson, Parker Ruth, Naveed Rabbani, Yuanchun Shi, **Alex Mariakakis**, Yuntao Wang, and Shwetak Patel. EarSteth: Cardiac Auscultation Audio Reconstruction Using Earbuds. In *International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, pages 1–5, 2024
- [C23] Salaar Liaqat, Daniyal Liaqat, Tatiana Son, Tiago Falk, Robert Wu, Andrea Gershon, Eyal de Lara, and **Alex Mariakakis**. Promoting Engagement in Remote Patient Monitoring Using Asynchronous Messaging. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–14, 2024
- [C22] Georgianna Lin, Pierre-William Lessard, Minh Le, Brenna Li, Fanny Chevalier, Khai Truong, and **Alex Mariakakis**. Functional Design Requirements to Facilitate Menstrual Health Data Exploration. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–14, 2024

- [C21] Brenna Li, Mohit Jain, Khai Truong, and **Alex Mariakakis**. Beyond the Waiting Room: Patients’ Perspectives on the Conversational Nuances of Pre-Consultation Chatbots. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–17, 2024
- [C20] Xuefu Dong, Yifei Chen, Yuuki Nishiyama, Kaori Sezaki, Yuntao Wang, Ken Christofferson, and **Alex Mariakakis**. ReHEarSSE: Recognizing Hidden-in-the-Ear Silently Spelled Expressions. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–15, 2024
- [C19] \* Ananya Bhattacharjee, Yuchen Zeng, Sarah Yi Xu, Dana Kulzhabayeva, Minyi Ma, Rachel Kornfield, Syed Ishtiaque Ahmed, **Alex Mariakakis**, Mary P Czerwinski, Anastasia Kuzminykh, Michael Liut, and Joseph Jay Williams. Understanding the Role of Large Language Models in Personalizing and Scaffolding Strategies to Combat Academic Procrastination. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–14, 2024
- [C18] \* Book Sadprasid, Anne Mei, **Alex Mariakakis**, Scott Bateman, and Fanny Chevalier. Leveraging Idle Games to Incentivize Intermittent and Frequent Practice of Deep Breathing. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–15, 2024
- [C17] \* Ananya Bhattacharjee, Joseph Jay Williams, Jonah Meyerhoff, Harsh Kumar, **Alex Mariakakis**, and Rachel Kornfield. Investigating the Role of Context in the Delivery of Text Messages for Supporting Psychological Wellbeing. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–19, 2023
- [C16] Brenna Li, Tetyana Skoropad, Puneet Seth, Mohit Jain, Khai Truong, and **Alex Mariakakis**. Constraints and Workarounds to Support Clinical Consultations in Synchronous Text-based Platforms. In *ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–17, 2023
- [C15] Jonathan Strutt, Chunjong Park, Devesh Sarda, Sixuan Wu, Girish Narayanswamy, Matthew Thompson, Lauren Harvey, Rachel Hedstrom, Amy Kodet, Shwetak Patel, and **Alex Mariakakis**. CapApp: Smartphone-based capillary refill index assessment in healthy children. *Frontiers in Biomedical Devices*, 86731:V001T09A009, 2023
- [C14] Yi Zhu, **Alex Mariakakis**, Eyal De Lara, and Tiago H Falk. How Generalizable and Interpretable are Speech-based COVID-19 Detection Systems?: A Comparative Analysis and New System Proposal. In *2022 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI)*, pages 1–5. IEEE, 2022
- [C13] \* George Hope Chidziwisano, **Alex Mariakakis**, Susan Wyche, Vitumbiko Mafeni, and Esau Gideon Banda. NkhukuProbe: Using a Sensor-Based Technology Probe to Support Poultry Farming Activities in Malawi. In *ACM SIGCAS Conference on Computing and Sustainable Societies*, pages 275–287, 2021
- [C12] Chunjong Park, Morelle Arian, Xin Liu, Leon Sasson, Jeffrey Kahn, Shwetak Patel, **Alex Mariakakis**, and Tim Althoff. Online Mobile App Usage as an Indicator of Sleep Behavior and Job Performance. In *The World Wide Web Conference (WWW)*, 2021
- [C11] Mingrui Zhang, **Alex Mariakakis**, Jacob Burke, and Jacob O Wobbrock. A Comparative Study of Lexical and Semantic Emoji Suggestion Systems. In *iConference 2021*, pages 1–19, 2021
- [C10] **Alex Mariakakis**, Sifang Chen, Bichlien H. Nguyen, Kirsten Bray, Molly Blank, Jonathan Lester, Lauren Ryan, Paul Johns, Gonzalo Ramos, and Asta Roseway. EcoPatches: Maker-Friendly Chemical-Based UV Sensing. In *Proceedings of the ACM Conference on Designing Interactive Systems (DIS)*, pages 1–11, 2020
- [C9] Chunjong Park, **Alex Mariakakis**, Jane Yang, Diego Lassala, Yasamba Djiguiba, Youssouf Keita, Hawa Diarra, Beatrice Wasunna, Fatou Fall, Mareme Soda Gaye, Bara Ndiaye, Ari Johnson, Isaac Holeman, and Shwetak Patel. Supporting Smartphone-Based Image Capture of Rapid Diagnostic Tests in Low-Resource Settings. In *Proceedings of the International Conference on Information and Communication Technologies and Development (ICTD)*, pages 1–11, 2020
- [C8] Xuhai Xu, Haitian Shi, Xin Yi, Wenjia Liu, Yukang Yan, Yuanchun Shi, **Alex Mariakakis**, Jennifer Mankoff, and Anind K Dey. EarBuddy: Enabling On-Face Interaction via Wireless Earbuds. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–14, 2020
- [C7] \* Hanchuan Li, Eric Whitmire, **Alex Mariakakis**, Victor Chan, Alanson Sample, and Shwetak Patel. IDCam: Precise Item Identification for AR-Enhanced Object Interactions. *IEEE International Conference on RFID*,

pages 1–7, 2019

- [C6] **Alex Mariakakis**, Sayna Parsi, Shwetak N. Patel, and Jacob O. Wobbrock. Drunk User Interfaces: Determining Blood Alcohol Level Through Everyday Smartphone Tasks. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–13, 2018
- [C5] **Alex Mariakakis**, Edward Wang, Shwetak N Patel, and Joanne C Wen. A Smartphone-based System for Assessing Intraocular Pressure. In *International Conference of the Engineering in Medicine and Biology Society (EMBC)*, pages 1–4. IEEE, 2016
- [C4] \* Mayank Goel, Eric Whitmire, **Alex Mariakakis**, T Scott Saponas, Neel Joshi, Dan Morris, Brian Guenter, Marcel Gavrilu, Gaetano Borriello, and Shwetak N Patel. HyperCam: Hyperspectral Imaging for Ubiquitous Computing Applications. In *Proceedings of the ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, pages 1–11, 2015
- [C3] Edward J Wang, Tien-Jui Lee, **Alex Mariakakis**, Mayank Goel, Sidhant Gupta, and Shwetak N Patel. Magnifisense: Inferring Device Interaction Using Wrist-worn Passive Magneto-inductive Sensors. In *Proceedings of the ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, pages 1–11, 2015
- [C2] **Alex Mariakakis**, Mayank Goel, Md Tanvir Islam Aumi, Shwetak N Patel, and Jacob O Wobbrock. SwitchBack: Using Focus and Saccade Tracking to Guide Users’ Attention for Mobile Task Resumption. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–11, 2015
- [C1] **Alex Mariakakis**, Souvik Sen, Jeongkeun Lee, and Kyu-Han Kim. SAIL: Single Access Point-based Indoor Localization. In *Proceedings of the ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, pages 1–13, 2014

### C Workshop Papers (\* = received award recognition)

- [W7] Nina Huang, Katherine Jelich, Brenna Li, Khai Truong, and **Alex Mariakakis**. Physicians’ Lived Experiences with AI Scribes. In *Envisioning the Future of Interactive Health Workshop, ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–4, 2025
- [W6] \* Kenneth Christofferson, Sejal Bhalla, Joseph Cafazzo, and **Alex Mariakakis**. On the Production and Measurement of Cardiac Sounds in the Ear Canal. In *International Workshop on Earable Computing (EarComp), ACM International Joint Conference on Pervasive and Ubiquitous Computing*, pages 685–690, 2024
- [W5] Pranav Rao, Sarah Yi Xu, Ananya Bhattacharjee, Yuchen Zeng, **Alex Mariakakis**, and Joseph Jay Williams. Integrating Digital Calendars with Large Language Models for Stress Management Interventions. In *Workshop on Algorithmic Behavior Change Support (ALBECS), International Conference on Persuasive Technology*, pages 1–4, 2024
- [W4] Ken Christofferson, Xuyang Chen, Zeyu Wang, **Alex Mariakakis**, and Yuntao Wang. Sleep Sound Classification Using ANC-Enabled Earbuds. In *Human-Centered Computational Sensing Workshop, IEEE International Conference on Pervasive Computing and Communications (PerCom)*, pages 1–6, 2022
- [W3] Sidharth Gupta, Alexandros Sklavounos, Joshua Dahmer, Anthony Yong, Mohammed Abdullah, Gilberto Camacho, Keith Morton, Matthew Shiu, Jean Labrecque, Teodor Veres, Aaron Wheeler, and **Alex Mariakakis**. Machine Learning to Automate the Visual Interpretation of Chemical Agglutination Tests. In *Workshop on Annotation of User Data for Ubiquitous Systems, IEEE International Conference on Pervasive Computing and Communications (PerCom)*, pages 1–6, 2022
- [W2] Tina Sedaghat, Salaar Liaqat, Daniyal Liaqat, Robert Wu, Andrea Gershon, Tatiana Son, Tiago Falk, Moshe Gabel, **Alex Mariakakis**, and Eyal de Lara. Unobtrusive Monitoring of COPD Patients using Speech Collected from Smartwatches in the Wild. In *Workshop on Sensing Systems and Applications Using Wrist Worn Smart Devices (WristSense), IEEE International Conference on Pervasive Computing and Communications (PerCom)*, pages 1–6, 2022

- [W1] **Alex Mariakakis**, Vijay Srinivasan, Kiran Rachuri, and Abhishek Mukherji. WatchUDrive: Differentiating Drivers and Passengers using Smartwatches. In *Workshop on Sensing Systems and Applications Using Wrist Worn Smart Devices (WristSense), IEEE International Conference on Pervasive Computing and Communication Workshops (PerCom)*, pages 1–4. IEEE, 2016

#### D Clinical Abstracts (\* = received award recognition)

- [CA4] Robert Wu, **Alex Mariakakis**, Eyal De Lara, Joseph Munn, Maryann Calligan, Daniyal Liaqat, Salaar Liaqat, Junlin Chen, Teresa To, Philip W Lam, and others. Predicting low oxygen in COVID-19 patients isolating at home. In *European Respiratory Society Congress Abstract Book*, 2025
- [CA3] Kylie Zhong, Rilong Zhang, Will Dixon, Spencer Vecile, **Alex Mariakakis**, and Asad Siddiqui. Determining incidence and actionability of hypotension in pediatric patients in the operating room. In *Canadian Anesthesiologists' Society Annual Meeting Abstract Book*, page 133. Springer, 2025
- [CA2] Andrea Gershon, Nisha Patel, Robert Wu, Salaar Liaqat, Daniyal Liaqat, Eyal de Lara, **Alex Mariakakis**, Andrew Simor, Philip Lam, Sameer Masood, and others. Trends in Oxygen Level During Acute COVID-19 Infection in Patients Quarantining at Home. In *Cutting Edge COVID Research Poster Session, American Thoracic Society*, 2022
- [CA1] Salaar Liaqat, Tiago Falk, Teresa To, Nisha Andany, Nisha Patel, Robert Wu, Andrea Gershon, **Alex Mariakakis**, Eyal de Lara, and Daniyal Liaqat. Predicting Low Oxygen Saturation of COVID-19 Patients Using a Random Forest Classifier. In *Cutting Edge COVID Research Poster Session, American Thoracic Society*, 2022

#### E Other Contributions (\* = received award recognition)

- [OC6] Pranav Rao, Maryam Taj, **Alex Mariakakis**, Joseph Jay Williams, and Ananya Bhattacharjee. Fitting the Message to the Moment: Designing Calendar-Aware Stress Messaging with Large Language Models. In *Short Papers Track, ACM Conference on Conversational User Interfaces (CUI)*, pages 1–6, 2025
- [OC5] Andrii Lenyshyn, You Zhi Hu, Mark Chignell, and **Alex Mariakakis**. HoleyMoley: A Cognitive Assessment for Emotion Recognition in Virtual Reality. In *Work in Progress Track, Annual Symposium on Computer-Human Interaction in Play (CHI PLAY)*, pages 163–168, 2024
- [OC4] Anthony James Maxin, Bernice G. Gulek, Rami Shaibani, **Alex Mariakakis**, Lynn B. McGrath, and Michael Levitt. Smartphone-based Pupillometry for Diagnosis of Ischemic and Hemorrhagic Stroke. In *Proceedings of the 14th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics*, pages 1–1, 2023
- [OC3] Devesh Sarda, Chunjong Park, Hung Ngo, Shwetak Patel, and **Alex Mariakakis**. RDTCheck: A Smartphone App for Monitoring Rapid Diagnostic Test Administration. In *Late-Breaking Work Track, ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–6, 2021
- [OC2] Lynn B McGrath, Jessica C Eaton, Anthony Law, **Alex Mariakakis**, Shwetak Patel, and Michael R Levitt. Mobile Digital Pupillometry for Rapid Triage of Patients With Severe Traumatic Brain Injury. *Neurosurgery*, 66(Supplement\_1):nyz310\_844, 2019
- [OC1] **Alex Mariakakis** and Shwetak Patel. Ocular Symptom Detection using Smartphones. In *Doctoral Colloquium, Proceedings of the ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, pages 1–5, 2016

## 8 Non-Refereed Publications

### A Journal Articles

- [NRJ2] Joseph Breda, Mastafa Springston, **Alex Mariakakis**, and Shwetak Patel. Lessons Learned From FeverPhone: Towards Scalable, Accessible At-Home Diagnostics via Fever Detection on Unmodified Smartphones. *GetMobile:*

*Mobile Computing and Communications*, 29(2):35–39, 2025

- [NRJ1] **Alex Mariakakis**, Sifang Chen, Bichlien Nguyen, Kirsten Bray, Molly Blank, Jonathan Lester, Lauren Ryan, Paul Johns, Gonzalo Ramos, and Asta Roseway. Project Calico: Wearable Chemical Sensors for Environmental Monitoring. *arXiv preprint arXiv:2006.15292*, 2020

## 9 Manuscripts/Publications in Submission

Unlisted for brevity

## 10 Papers Presented at Meetings and Symposia

- [CP6] EcoPatches: Maker-Friendly Chemical-Based UV Sensing. ACM Conference on Designing Interactive Systems (DIS), Eindhoven, Netherlands, July 2020
- [CP5] Drunk User Interfaces: Determining Blood Alcohol Level Through Everyday Smartphone Tasks. ACM Conference on Human Factors in Computing Systems (CHI), Montreal, QC, Canada, April 2018
- [CP4] PupilScreen: Using Smartphones to Assess Traumatic Brain Injury. ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), Maui, HI, United States, September 2017
- [CP3] BiliScreen: Smartphone-based Scleral Jaundice Monitoring for Liver and Pancreatic Disorders. ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), Maui, HI, United States, September 2017
- [CP2] Ocular Symptom Detection Using Smartphones. ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), Doctoral School, Heidelberg, Germany, September 2016
- [CP1] SwitchBack: Improving Interaction with Mobile Devices. ACM Conference on Human Factors in Computing Systems (CHI), Seoul, South Korea, April 2015

## 11 Invited Lectures

- [IL35] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Vancouver Island Inflammatory Bowel Disease Forum (keynote), Apr 2026. Victoria, BC, Canada
- [IL34] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. AI ConferenceX, University of Toronto, Jan 2026. Toronto, ON, Canada
- [IL33] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. GVU Lunch Lecture Series, Georgia Tech, Oct 2025. Atlanta, GA, United States
- [IL32] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Design Lab, University of California San Diego, Oct 2025. San Diego, CA, United States
- [IL31] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. HCI Seminar, University of Michigan, Sep 2025. Ann Arbor, MI, United States
- [IL30] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Cornell Tech, Sep 2025. New York City, NY, United States
- [IL29] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Department of Biomedical Informatics, Columbia University, Sep 2025. New York City, NY, United States
- [IL28] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. HCII Seminar Series, Carnegie Mellon University, Aug 2025. Pittsburgh, PA, United States
- [IL27] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. KITE Research Rounds, University Health Network, June 2025. Toronto, ON, Canada
- [IL26] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Department of Computer Science, University of Victoria, June 2025. Victoria, BC, Canada

- [IL25] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Department of Computer Science, University of British Columbia, June 2025. Vancouver, BC, Canada
- [IL24] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. VINCI Seminar, Simon Fraser University, June 2025. Burnaby, BC, Canada
- [IL23] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Department of Computer Science, University of British Columbia Okanagan, May 2025. Kelowna, BC, Canada
- [IL22] Panel on AI in Medicine and Medical Research. Annual Board of Directors Meeting for Physicians' Services Incorporated (PSI), October 2024. Toronto, ON, Canada
- [IL21] Accessible Blood Pressure Estimation with Earbuds. TRANSFORM HF Spring Network Meeting, May 2024. Toronto, ON, Canada
- [IL20] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Translational Biology and Engineering Program Conference (keynote), University of Toronto, May 2024. Toronto, ON, Canada
- [IL19] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Mobile and Wearable Health Seminar, University of Cambridge, April 2024. Cambridge, United Kingdom
- [IL18] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. InnoVision Summit, Chinese Professionals Association of Canada, April 2024. Toronto, ON, Canada
- [IL17] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. College of Computer Sciences, Northeastern University, November 2023. Boston, MA, United States
- [IL16] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. College of Information and Computer Sciences, University of Massachusetts Amherst, November 2023. Amherst, MA, United States
- [IL15] Embracing Ubiquitous Technology to Complement, Scale, and Extend Traditional Healthcare. Applied Research in Action (keynote), University of Toronto, November 2023. Toronto, ON, Canada
- [IL14] Making Medical Assessments Available and Objective Using Smartphone Sensors. Toronto Human-AI Interaction Summer Research School, University of Toronto, August 2022. Toronto, ON, Canada
- [IL13] Making Medical Assessments Available and Objective Using Smartphone Sensors. Human-Machine Interaction Lab, Huawei Canada, May 2022. Toronto, ON, Canada
- [IL12] Making Medical Assessments Available and Objective Using Smartphone Sensors. iBest Visiting Lecturer Series, Toronto Metropolitan University, April 2022. Toronto, ON, Canada
- [IL11] Objectifying Subjective Medical Assessments Using Smartphone Sensors. University of Toronto, March 2020. Toronto, ON, Canada
- [IL10] Objectifying Subjective Medical Assessments Using Smartphone Sensors. Georgia Tech, March 2019. Atlanta, GA, United States
- [IL9] Objectifying Subjective Medical Assessments Using Smartphone Sensors. University of Virginia, February 2019. Charlottesville, VA, United States
- [IL8] Drunk User Interfaces: Determining Blood Alcohol Level Through Everyday Smartphone Tasks. CSE Industry Affiliates, University of Washington, November 2018. Seattle, WA, United States
- [IL7] BiliScreen: Smartphone-based Scleral Jaundice Monitoring for Liver and Pancreatic Disorders. mHealth Symposium at Fred Hutchinson Cancer Research Center, November 2018. Seattle, WA, United States
- [IL6] Using Mobile Devices to Quantify Traditionally Qualitative Health Measures, September 2017. HalfMoon Education: Internet of Things Workshop
- [IL5] BiliScreen: Smartphone-based Scleral Jaundice Monitoring for Liver and Pancreatic Disorders. Quantified Self Meetup, November 2017. Seattle, WA, United States
- [IL4] BiliScreen: Smartphone-based Scleral Jaundice Monitoring for Liver and Pancreatic Disorders. CSE Industry Affiliates, University of Washington, November 2017. Seattle, WA, United States
- [IL3] A Smartphone-based System for Assessing Intraocular Pressure. Microsoft Student Summit on Mobility, Systems, and Networking, February 2016. Petaluma, CA, United States

- [IL2] Ocular Symptom Detection Using Smartphones. CSE Industry Affiliates, University of Washington, October 2016. Seattle, WA, United States
- [IL1] SwitchBack: Improving Interaction with Mobile Devices. CSE Industry Affiliates, University of Washington, October 2014. Seattle, WA, United States

## 12 Media and Other Public Engagements

- [ME25] From Detection to Prediction in Remote Patient Monitoring. MindSea, November 2025
- [ME24] Get Your Hands Dirty: Upcoming T-CAIREM Courses Help Learners Develop Data Science and Machine Learning Skills. T-CAIREM, October 2025
- [ME23] New T-CAIREM AI in Medicine Courses Explore the Intersection of Data Science, Machine Learning. T-CAIREM, November 2024
- [ME22] Playing the Future of Digital Health by Ear. TRANSFORM HF, March 2023
- [ME21] The Evolution of Fitness Trackers. The Evolution Newsletter, Canadian Business, September 2023
- [ME20] The Future of Mobile Health. To Vima, August 2020
- [ME19] Hair Dye That Changes in UV Light Can Reveal Your Risk of Sunburn. New Scientist, July 2020
- [ME18] PupilScreen: A Smartphone App for Measuring the Pupillary Light Reflex as an Indicator of Traumatic Brain Injury. NSF Science Now, National Science Foundation, November 2017
- [ME17] Time Out: Smartphone App Detects Concussions on the Field. NVIDIA, October 2017
- [ME16] This New App Detects Concussions Just By Looking Into Your Eyes. Newsweek, September 2017
- [ME15] Smartphone App Scans Pupils to Detect Concussions. New Atlas, September 2017
- [ME14] Handheld Tech Can Diagnose Concussions in the Field. Science & Health, VOA News, September 2017
- [ME13] Geek of the Week: Duke Grad Alex Mariakakis Finds a Home at UW and a Vision for Continued Success. Geek of the Week, Geekwire, September 2017
- [ME12] UW Researchers Develop App to Determine Concussions. KIRO 7 News, September 2017
- [ME11] GeekWire: UW Researchers Developing Smartphone App That Can Detect Concussions. King 5 News, September 2017
- [ME10] Selfie App 'Spots Early Signs of Pancreatic Cancer'. BBC News, September 2017
- [ME9] Eye Scans to Detect Cancer and Alzheimer's Disease. IEEE Spectrum, August 2017
- [ME8] How Your Selfies Could Help Detect Pancreatic Cancer. USA Today, August 2017
- [ME7] How Selfies Could Soon Be Used to Diagnose Cancer. Cosmopolitan, August 2017
- [ME6] The Aspen Institute's Five Best Ideas. The Aspen Institute, August 2017. Time Magazine
- [ME5] App Uses Smartphone Selfies to Screen for Pancreatic Cancer. United Press International, August 2017
- [ME4] App Uses Smartphone Selfies to Screen for Pancreatic Cancer. Engadget, August 2017
- [ME3] Selfies Helping Detect Cancer? UW Researchers Are On It. KIRO 7 News, August 2017
- [ME2] Take a Selfie, Help Screen Yourself for Cancer. KUOW Public Radio, August 2017
- [ME1] BiliScreen: A Smartphone App for Measuring Scleral Jaundice as an Early Screening Tool for Pancreatic Cancer. KTLA 5 News at 10, August 2017

## D Teaching and Supervision

### 13

#### A Undergraduate courses taught

**JSC 270 H, Winter 2026:** Data Science I (sole instructor, 45 students)

**CSC 318 H, Fall 2025:** The Design of Interactive Computational Media (sole instructor, 115 students)

**CSC 318 H, Winter 2025:** The Design of Interactive Computational Media (sole instructor, 115 students)

**CSC 318 H, Winter 2024:** The Design of Interactive Computational Media (sole instructor, 120 students)  
**C4M Y, Fall 2023–Winter 2024:** Computing for Medicine Workshops (sole instructor, 10 students)  
**CSC 318 H, Winter 2023:** The Design of Interactive Computational Media (sole instructor, 120 students)  
**C4M Y, Fall 2022–Winter 2023:** Computing for Medicine Workshops (sole instructor, 10 students)  
**CSC 318 H, Winter 2022:** The Design of Interactive Computational Media (sole instructor, 110 students)  
**C4M Y, Fall 2021–Winter 2022:** Computing for Medicine Workshops (sole instructor, 14 students)  
**EE 590A (University of Washington), Spring 2018:** Advanced Topics in Ubiquitous Computing (sole instructor, 35 students)

## B Graduate courses taught

**CSC 2631 H, Fall 2025:** Mobile and Digital Health (sole instructor, 12 students)  
**CSC 2631 H, Winter 2025:** Mobile and Digital Health (sole instructor, 15 students)  
**CSC 2526 H, Fall 2024:** HCI: Topics in Ubiquitous Computing (sole instructor, 15 students)  
**CSC 2526 H, Winter 2023:** HCI: Topics in Ubiquitous Computing (sole instructor, 11 students)  
**CSC 2526 H, Winter 2022:** HCI: Topics in Ubiquitous Computing (sole instructor, 31 students)

## C Graduate theses supervised

Career Student Numbers		
	In Progress	Completed
Masters	3	4
PhD	8	2
Postdocs	0	1

### Ongoing

**Salaar Liaqat (PhD, 2021–present):** “Challenges and Opportunities in Wearable-Based Remote Patient Monitoring: A Case Study on COPD”; secondary supervisor (primary: Eyal de Lara)

**Ken Christofferson (PhD, 2021–present):** “Exploring the Production and Applications of Cardiac Sounds Recorded from the Occluded Ear Canal”; primary supervisor (secondary: Joseph Cafazzo)

**Sejal Bhalla (PhD, 2021–present):** “Utilizing Speech as a Biosignal for Monitoring Respiratory Health and Beyond”; primary supervisor (secondary: Eyal de Lara)

**Dhruv Verma (PhD, 2021–present):** “Augmenting Color Perception for Humans and Machines”; sole supervisor

**Ian Ruffolo (PhD, 2021–present):** “Intelligent Alarms for Hospital Bedside Monitors”; primary supervisor (secondary: Michael Brudno)

**Andrii Lenyshyn (PhD, 2023–present):** “Cognitive Assessments in Augmented Reality”; sole supervisor

**Zahra Hassanzadeh (PhD, 2025–present):** “Digital Micro-Interventions as a Gateway to Healthy Habits”; primary supervisor (secondary: Joseph Williams)

**Vaibhav Ganatra (PhD, 2025–present):** “Efficient and Physiologically Informed Machine Learning for Cutting-Edge Digital Health Research”; sole supervisor

**Thomas Kleinknecht (MSc, 2025–present):** “A Comprehensive Benchmark for Noninvasive Blood Pressure Estimation via Pulse Transit Time Measurement”; sole supervisor

**Kelsey Stemmler (MSc, 2025–present):** “Stress Patterns in Co-Parenting Dyads”; sole supervisor

**Katherine Jelich (MSc, 2025–present):** “Understanding Physicians’ Personas and Experiences with AI Scribes”; primary supervisor (secondary: Joseph Cafazzo)

#### Completed

**Samanvay Vajpayee (MScAC, 2025–2026):** “LLMs for Cardiology Aftercare”; sole supervisor

**ChengYue Zhang (MScAC, 2025–2026):** “Structuring Biomechanical Waveforms When Working with Big Data”; sole supervisor

**Brenna Li (PhD, 2020–2025):** “Enhancing Patient-Centered Care: Examining the Design and Evaluation of Conversational Agents for Clinical Pre-Consultation”; primary supervisor (secondary: Khai Truong)

**Blue Lin (PhD, 2021–2025):** “Multimodal Tracking with Ubiquitous Devices to Foster Holistic Menstrual Health Sensemaking”; secondary supervisor (primary: Khai Truong)

**Gerard O’Leary (Postdoc, 2023–2025):** “Physiological Monitoring in Dogs Using Novel Collar-based Hardware”; sole supervisor

**Filip Miscevic (MScAC, 2022–2023):** “Automatic Seizure Detection, Prediction, and Mitigation Using Minimally Invasive Implantable Bioelectrical Sensors”; secondary supervisor (primary: Gerard O’Leary)

**Ian Ruffolo (MSc, 2021–2023):** “Augmented Reality Guidance for Consistent Motor Control Assessments”; completed MSc in Spring 2023; primary supervisor (secondary: Michael Brudno)

## **D Undergraduates supervised**

#### Ongoing

**Irmak Aytakin (2025–present):** “LLM-Powered Chatbots for Mental Wellbeing”

**Joe Fang (2025–present):** “Personalized, Adaptive Coaching Via LLMs”

**Larry Kieu (2025–present):** “Phoneme-Aware Foundation Model for Speech Analysis”

**Aina Fatema Merchant (2025–present):** “Phoneme-Aware Foundation Model for Speech Analysis”

**Maryam Taj (2025–present):** “Long COVID Classification Using Respiratory Oscillometry”

**Tim Wang (2025–present):** “10,000 FPS Video with Hyperspectral Camera”

**Yibin Wang (2025–present):** “LLM-Powered Chatbots for Mental Wellbeing”

**Richard Yin (2025–present):** “Spectral Spotlighting for Low-Contrast Objects”

**Harpuneet Singh (2024–present):** “Virtual Dyeing of Sperm Cells in Sexual Assault Victim Samples”

**Minh Le (2023–present):** “Multimodal Health Tracking for Menstrual Health Sensemaking”

#### Completed

**Samraj Aneja (2025):** “Phoneme-Aware Foundation Model for Speech Analysis”

**Matthew Parvaneh (2025):** “Improved Information Retrieval in Veterinary Hospitals Using LLMs”

**Tanaya Sharma (2025):** “Spectral Spotlighting for Low-Contrast Objects”

**Jackson Wu (2025):** “Improved Information Retrieval in Veterinary Hospitals Using LLMs”

**Benson Chou (2024–2025):** “Microgesture Classification Using Smartwatch Motion Sensors”

**Tien Han (2024):** “Speech Analysis for Continuous COPD Monitoring”

**Kevin Huang (2024):** “Cardiac Monitoring Using Earbuds”

**Nina Huang (2024–2025):** “Understanding the Role of Ambient Scribes in Modern Clinics”

**Malaikah Hussain (2024):** “Menstrual Health Sensemaking Chatbot”

**Katherine Jelich (2024–2025):** “Understanding the Role of Ambient Scribes in Modern Clinics”

**Kaavya Kalani (2024–2025):** “Menstrual Health Sensemaking Chatbot”  
**Michelle Lin (2024):** “Cardiac Monitoring Using Earbuds”  
**Katherine Ma (2024):** “Multimodal Health Tracking for Menstrual Health Sensemaking”  
**Shivesh Prakash (2024):** “Material Classification Using Hyperspectral Imaging”  
**Andrew Qiu (2024–2025):** “Accessible Hyperspectral Imaging Using a Smartphone”  
**Jeb Thomas (2024–2025):** “Design Considerations for Pre-Consultation Summarization”  
**Owen Zhang (2024–2025):** “Hypotension Prediction in Operating Rooms Using Noninvasive Signals”  
**Yifang Zhang (2024):** “Accessible Hyperspectral Imaging Using a Smartphone”  
**Yiteng Zhang (2024):** “Multimodal Health Tracking for Menstrual Health Sensemaking”  
**Olivia Zhou (2024):** “Multimodal Health Tracking for Menstrual Health Sensemaking”  
**Liam Bakar (2023):** “Clinical Pre-Consultation Chatbot”  
**Ofek Gross (2023):** “Evaluation of a Clinical Pre-Consultation Chatbot”  
**Jiaqi Guo (2023):** “Clinical Pre-Consultation Chatbot”  
**Kaartik Issar (2023):** “Multimodal Health Tracking for Menstrual Health Sensemaking”  
**Anna Kirik (2023–2025):** “Clinical Pre-Consultation Chatbot”  
**Shawn Kong (2023–2024):** “Speech Analysis for Continuous COPD Monitoring”  
**Pierre-William Lessard (2023–2024):** “Multimodal Health Tracking for Menstrual Health Sensemaking”  
**Sannat Bhasin (2022):** “Material Classification Using Hyperspectral Imaging”  
**Helen Li (2022–2025):** “Multimodal Health Tracking for Menstrual Health Sensemaking”  
**Zixiong Lin (2022–2023):** “Menstrual Cycle Prediction Using Multimodal Health Data”  
**Tanya Skoropad (2022):** “Evaluation of a Clinical Pre-Consultation Chatbot”  
**Yining Wang (2022):** “Augmented Reality Guidance for Consistent Motor Control Assessments”  
**Chloe Zhao (2022):** “Multimodal Health Tracking for Menstrual Health Sensemaking”  
**Sidharth Gupta (2021):** “Automated Chemical Agglutination Tests Visual Assessment”  
**Sixuan Wu (2020–2023):** “Capillary Refill Time Assessment with Smartphones”

## **E Other teaching and lectures given (past 5 years)**

**Jan 2026–Jun 2026:** Instructor for "Computing in Medicine Professional Development Course", T-CAIREM, University of Toronto  
**Sep 2025–Apr 2026:** Instructor for "Computing for Medicine Certificate", School of Medicine, University of Toronto  
**Apr 2025–Jul 2025:** Instructor for "Computing in Medicine Professional Development Course", T-CAIREM, University of Toronto  
**Jan 2025–Apr 2025:** Instructor for "Computing in Medicine Professional Development Course (self-study)", T-CAIREM, University of Toronto  
**Sep 2024–Apr 2025:** Instructor for "Computing for Medicine Certificate", School of Medicine, University of Toronto  
**Jun 2024–Aug 2024:** Instructor for "Computing for Medicine Professional Development Course", T-CAIREM, University of Toronto  
**Nov 2022:** Guest lecture for "MHI2012H: Introduction to Big Data for Health", IHPME, University of Toronto  
**Feb 2022:** Guest lecture for "CSC428H: Human-Computer Interaction", Department of Computer Science, University of Toronto  
**Nov 2021:** Guest lecture for "MHI2012H: Introduction to Big Data for Health", IHPME, University of Toronto  
**Mar 2021:** Guest lecture for "CSC428H: Human-Computer Interaction", Department of Computer Science, University of Toronto

## **E Administrative Positions**

**14**

### **A Positions held and service on committees and organizations within the University**

**Jan 2026–Apr 2026:** Graduate Admissions Committee Member

**Jan 2025–Apr 2025:** Graduate Visit Days Co-Chair

**Jan 2024–Apr 2024:** Graduate Visit Days Co-Chair

**Sep 2023–present:** Director of the Dynamic Graphics Project (DGP) Lab

**Sep 2022–Apr 2023:** Departmental Faculty Hiring Committee

**Sep 2021–Apr 2022:** Departmental Outreach Committee Member

**Sep 2020–Apr 2022:** Second-Year Learning Community Faculty Mentor

### **B Positions held and service on committees and organizations outside the University (of scholarly and academic significance)**

**Dec 2025–Oct 2027:** Technical Program Committee Co-Chair for ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)

**Dec 2025–Oct 2026:** Student Volunteer Co-Chair for ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)

**Aug 2024–Jul 2025:** Finances Chair for ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS)

**Feb–Oct 2023:** Posters & Demos Co-Chair for ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)

**Nov 2022–Apr 2023:** Co-organizer for Workshop on Integrating Individual and Social Contexts into Self-Reflection Technologies

**Feb–Jul 2022:** Co-organizer for Workshop on Emerging Devices for Digital Biomarkers

**Feb–Jun 2022:** Notes & Posters Co-Chair, ACM SIGCAS Computing and Sustainable Societies (COMPASS)

**Jun–Sep 2020:** Online Conference Co-Chair, ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)

**Jan–Apr 2017:** Online Video Preview Co-Chair, ACM Conference on Human Factors in Computing Systems (CHI)

## **F Other Relevant Information**

N/A