

DHRUV VERMA

Department of Computer Science, University of Toronto
40 St. George St, Toronto, ON M5S2E4, Canada

Email: dhruvverma@cs.toronto.edu
Website: www.dhruv-verma.com

RESEARCH INTERESTS

Ubiquitous Computing, Computational Imaging, Health Sensing, and Interaction Techniques

EDUCATION

University of Toronto

PhD in Computer Science | Advisor: Alex Mariakakis

Supervisory Committee: Khai N. Truong, Kyros Kutulakos, and Paul H. Dietz

Toronto, Canada

2021 - Present

Indraprastha Institute of Information Technology Delhi

BTech in Computer Science & Engineering

Delhi, India

2017 - 2021

WORK EXPERIENCE

Research Intern | Microsoft Research | Bengaluru, India

Topic: novel sensing techniques for detecting elevated pressure levels in the eyes.

May 2024 - Jul 2024

Applied Scientist Intern | Amazon Science (Lab 126) | Sunnyvale, USA

Topic: self-supervised contrastive learning methods for multimodal hand-gesture recognition using IMU and PPG sensors from wearables.

Jul 2022 - Oct 2022

Graduate Research Assistant | University of Toronto | Toronto, Canada

Topic: snapshot hyperspectral imaging using coded light sources, phone cameras, and novel coded-aperture sensors.

Sep 2021 - Present

Student Researcher | Carnegie Mellon University | Remote

Topic: privacy-sensitive and real-time human activity recognition using undersampled audio and IMU data from wearables.

Jun 2020 - May 2021

Student Researcher | IIT Delhi | Delhi, India

Topics: [1] real-time, unobtrusive facial expression recognition using in-ear motion data from wireless earbuds, and [2] deep learning methods for detecting human attention types from EEG data.

Dec 2018 - May 2021

PUBLICATIONS

6. **ChromaFlash: Snapshot Hyperspectral Imaging Using Rolling Shutter Cameras**
Dhruv Verma, Ian Ruffolo, David Lindell, Kyros Kutulakos, and Alex Mariakakis
ACM IMWUT 2024. <https://doi.org/10.1145/3678582>
5. **AttentioNet: Monitoring Student Attention Type in Learning with EEG-Based Measurement System**
Dhruv Verma, Sejal Bhalla, Sai Santosh, Saumya Yadav, Aman Parnami, and Jainendra Shukla
IEEE ACII 2023. <https://doi.org/10.1109/ACII59096.2023.10388212>
4. **SAMoSA: Sensing Activities with Motion and Sub-Sampled Audio**
Vimal Mollyn, Karan Ahuja, Dhruv Verma, Chris Harrison, and Mayank Goel
ACM IMWUT 2022. <https://doi.org/10.1145/3550284>
3. **ExpressEar: Sensing Fine-Grained Facial Expressions with Earables**
Dhruv Verma, Sejal Bhalla, Dhruv Sahnan, Jainendra Shukla, and Aman Parnami
ACM IMWUT 2021. <https://doi.org/10.1145/3478085>
2. **Fashionist: Personalizing Outfit Recommendation for Cold-Start Scenarios**
Dhruv Verma, Kshitij Gulati, Vasu Goel, and Rajiv Ratn Shah
ACM Multimedia 2020. <https://doi.org/10.1145/3394171.3414446>
1. **Addressing the Cold-Start Problem in Outfit Recommendation Using Visual Preference Modelling**
Dhruv Verma, Kshitij Gulati, and Rajiv Ratn Shah
IEEE BigMM 2020. <https://doi.org/10.1109/BigMM50055.2020.00043>

AWARDS & HONORS

University of Toronto Program-Level Fellowship (\$1,000 CAD)	2023
ACM SIGCHI Gary Marsden Travel Award (\$2,500 USD)	2023
University of Toronto Departmental Fellowship (\$1,355 CAD)	2023
University of Toronto, Program-Level Fellowship (\$1,000 CAD)	2022
Alberta Machine Intelligence Institute AI Week Talent Bursary (\$1,500 CAD)	2022
University of Toronto Program-Level Fellowship (\$1,000 CAD)	2022
University of Toronto Program-Level Fellowship (\$1,000 CAD)	2021
Mitacs Globalink Research Internship Award (\$6,000 CAD)	2020

PRESENTATIONS & INVITED TALKS

Microsoft Research, "Seeing Beyond" with Everyday Cameras	2024
University of Toronto, Towards Practical Hyperspectral Imaging	2024
Amazon, Hand Gesture Recognition on Wrist-Worn Devices	2022

ACADEMIC SERVICE

<i>Lead Editor, ACM XRDS magazine (focused on computational cameras)</i>	Winter 2024
<i>Lead Editor, ACM XRDS magazine (focused on augmented humans)</i>	Winter 2022
<i>Feature Editor, ACM XRDS magazine</i>	2021 - Present
<i>Reviewer, ACM IMWUT</i>	2021 - Present
<i>Reviewer, ACM MobileHCI</i>	2022
<i>Student Volunteer, ACM Ubicomp</i>	2020, 21
<i>Student Volunteer, ACM UIST</i>	2020

TEACHING EXPERIENCE

Teaching Assistant, University of Toronto Computing for Medicine	2022, 23, 24
Teaching Assistant, University of Toronto Design of Interactive Computational Media	2022, 23, 24
Teaching Assistant, University of Toronto Introduction to Image Understanding	2021
Teaching Assistant, IIIT Delhi Privacy and Security in Online Social Media	2021
Teaching Assistant, IIIT Delhi Prototyping Interactive Systems	2019

VOLUNTEERING & OUTREACH

Undergraduate Research Mentor	2023 - Present
Mentored four undergraduate students at various stages of their programs on three different projects in Professor Mariakakis' lab.	
Social Coordinator	2023 - Present
Organized multiple social events for the Dynamic Graphics Project group at the University of Toronto, managing activities for 100+ attendees, including faculty, staff, and graduate students, to promote recreation and team building.	
Pursue STEM Mentorship Program	2022
Mentored a team of grade 10 female students for capstone projects competing in the Canada-Wide Science Fair and Canadian Black Scientist Network Youth Regional Fair.	

- Last updated: September 20, 2024 -