Vimal Mollyn

vimal-mollyn.com
ms123vimal@gmail.com

US Citizen

Research Interests

Interaction Techniques, Machine Learning and Sensing

Education

Carnegie Mellon University — Pittsburgh, USA
Ph.D. in Human-Computer Interaction — 2023-Current
Advisor: Chris Harrison

Indian Institute of Technology Madras (IIT Madras) — Chennai, India
B.Tech in Engineering Design and M.Tech in Data Science — 2017-2022
CGPA: 9.5/10.0 (*Department Rank 2*)

Technical University of Denmark (DTU) — Lyngby, Denmark
Exchange student in Computer Science and Applied Mathematics — Fall 2019

Publications

8. Daehwa Kim, **Vimal Mollyn**, and Chris Harrison. 2023. WorldPoint: Finger Pointing as a Rapid and Natural Trigger for In-The-Wild Mobile Interactions. *In Proceedings of the 2023 Conference on Interactive Surfaces and Spaces (ISS '23). Association for Computing Machinery, New York, NY, USA, 1–4. ISS 2023*
7. Nathan DeVrio*, **Vimal Mollyn***, and Chris Harrison. 2023. SmartPoser: Arm Pose Estimation with a Smartphone and Smartwatch Using UWB and IMU Data. *In Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (UIST '23). Association for Computing Machinery, New York, NY, USA, Article 79, 1–11. UIST 2023*
6. **Vimal Mollyn**, Riku Arakawa, Mayank Goel, Chris Harrison, and Karan Ahuja. IMUPoser: Full-Body Pose Estimation using IMUs in Phones, Watches, and Earbuds. To appear in *Proceedings of the 41st Annual SIGCHI Conference on Human Factors in Computing Systems* (April 23 – 30, 2023). CHI '23. ACM, New York, NY. *CHI 2023*, **Best Paper Honorable Mention.**
5. Riku Arakawa, Hiromu Yakura, **Vimal Mollyn**, Suzanne Nie, Emma Russell, Dustin Demeo, Haarika Reddy, Alexander Maytin, Bryan Carroll, Jill Fain Lehman, Mayank Goel. 2022. PrISM-Tracker: A Framework for Multimodal Procedure Tracking Using Wearable Sensors and State Transition Information with User-Driven Handling of Errors and Uncertainty. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 6, 4, Article 156, (Dec. 2022), 27 pages. Ubicomp 2023*
4. **Vimal Mollyn**, Karan Ahuja, Dhruv Verma, Chris Harrison, and Mayank Goel. 2022. SAMoSA: Sensing Activities with Motion and Subsampled Audio. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) 6, 3, Article 132 (September 2022), 19 pages. *Ubicomp 2022*
3. Adwait Sharma, Christina Salchow-Hömmen, **Vimal Mollyn**, Aditya Shekhar Nittala, Michael A. Hedderich, Marion Koelle, Thomas Seel, and Jürgen Steimle. 2022. SparseIMU: Computational Design of Sparse IMU Layouts for Sensing Fine-Grained Finger Microgestures. *ACM Transactions on Computer-Human Interaction*, (October 2022). *TOCHI 2022*
2. Vinay Krishna Sharma, Kamalpreet Saluja, **Vimal Mollyn**, and Pradipta Biswas. 2020. Eye Gaze Controlled Robotic Arm for Persons with Severe Speech and Motor Impairment. *In ACM Symposium on*

Eye Tracking Research and Applications (ETRA '20 Full Papers). Association for Computing Machinery, New York, NY, USA, Article 12, 1–9. *ETRA 2020*

1. Vinay Krishna Sharma, LRD Murthy, Kamalpreet Singh Saluja, **Vimal Mollyn**, Gourav Sharma, and Pradipta Biswas. 2020. Webcam controlled robotic arm for persons with SSMI. *Technology and Disability*, 32, 3, 179–197

Scholarships and Awards

Honorable Mention Award (Top 5%) ACM CHI	2023
American Express Award - Highest GPA across IIT Madras in the 7th and 8th semesters (10.0/10.0)	2021
Half Time Teaching Assistant (HTTA) Award	2021
NSF REU - CMU HCII Summer Research Program	2021
ACM CHI 2021 Student Volunteer Award	2021
Tuition Scholarship - Exchange at DTU, Denmark	2019
Rank 9 - Karnataka State (12^{th} grade) - 100/100 in Math, Physics, Chemistry and Computer Science	2017
KVPY Fellow (IISc Bangalore)	2017
NTSE State Scholar (Karnataka, India)	2015

Experience

Apple — Cupertino, USA
PhD Intern | Video Computer Vision Group — June 2023 - Aug 2023

Investigated 3D, real-time, hand mesh tracking in the wild. iContest Winner (Top 3).

Future Interfaces Group, Carnegie Mellon University — Pittsburgh, USA
Research Associate | Collaborators: *Chris Harrison, Mayank Goel, Karan Ahuja* — Sept 2021 - Aug 2023

Researched new methods for privacy-sensitive activity recognition and mobile full-body digitization. Led to publications at *CHI 2023* [6. IMUPoser] and *UIST 2023* [7. SmartPoser] and *Ubicomp 2023* [5. PrISM-Tracker]. Other papers under review.

Smash Lab, Carnegie Mellon University — Pittsburgh, USA
Summer HCII REU Intern | Collaborators: *Mayank Goel, Chris Harrison, Karan Ahuja* — Summer 2021

Researched a new method for real-time, mobile, privacy-sensitive activity recognition. Published at *ACM IMWUT/Ubicomp 2022* [4. SAMoSA]

Human Computer Interaction Lab, Saarland University — Remote, Saarbrücken, Germany
Research Intern | Collaborators: *Jürgen Steimle, Adwait Sharma* — May 2020 - August 2021

Worked on *SparseIMU*, a method to sense microgestures with sparse IMU layouts. Published at *ACM TOCHI 2022* [3. SparseIMU]

Honeywell — Bangalore, India
Robotics and Computer Vision Research Co-Op — Dec 2020 - May 2021

Worked on computer vision systems that could help aircrafts become more autonomous, during multiple stages of flight.

I^{3}D Lab, Indian Institute of Science — Bangalore, India
Research Intern | Collaborators: *Pradipta Biswas* — Summer 2019

Explored using gaze as input to an assistive robotic arm. Led to a publication at *ETRA 2020* [2].

IIT Madras Robotics Lab — Chennai, India
Embedded Systems Engineer — Winter 2018

Nimaya Robotics — Chennai, India
Summer Intern — Summer 2018

Teaching and Mentoring

Guest Lecturer at Carnegie Mellon University — Fall 2022
Machine Learning and Sensing (CMU 17-428/17-728)

Teaching Assistant at IIT Madras — Spring 2022
Functional and Conceptual Design (ED 1011)

Teaching Assistant at IIT Madras — Fall 2021
Analog and Digital Electronics (ED 2130)

Section Leader - Code in Place (Stanford University) — Summer 2021
Programming Methodologies (CS106A)

Tutor - Chegg Tutors — Dec 2018 - Jan 2020
Tutored undergraduate math, physics, electrical engineering, mechanical engineering and computer science. Average rating of 5/5 with over 50 students.

Student Mentor - Avanti Fellows — August 2017 - Sept 2018
IIT-JEE mentoring for students from underprivileged backgrounds.

Academic Service

Paper Reviewing

ACM UIST	2023
ACM CHI LBW	2023
ACM IMWUT	2022
ACM SIGGRAPH	2022

Volunteering

ACM CHI Student Volunteer	2021
ACM UIST Student Volunteer	2022

References

Dr. Chris Harrison	Associate Professor, School of Computer Science, Carnegie Mellon University
Dr. Mayank Goel	Associate Professor, School of Computer Science, Carnegie Mellon University
Dr. Jürgen Steimle	Full Professor, Department of Computer Science, Saarland University
Dr. Pradipta Biswas	Associate Professor, CPDM, Indian Institute of Science