

Sourish Gunesh Dhekane

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Education

Georgia Institute of Technology Aug 23 – Current

PhD in Machine Learning — GPA: 3.9/4.0

- **Research:** Enhancing Sensor-Based Human Health Assessments through Strong Modality Shifts

Georgia Institute of Technology Aug 21 – May 23

MS in Computer Science (Machine Learning Specialization) — GPA: 3.92/4.0

- **Research:** Assessing Pre-Training Data Requirements for Self-Supervised Human Activity Recognition

Indian Institute of Information Technology Guwahati Jul 16 – May 20

BTech in Computer Science & Engineering — GPA: 9.32/10

- **Award:** President's Gold Medal, University Rank 1

Selected Publications

H-Index: 6 | Citation Count: 217

DISCOVER: Identifying Patterns of Daily Living in Human Activities from Smart Home Data [*Paper*] [🔗](#) Feb 2026

Under Review: Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)

Alexander Karpekov, Archith Iyer, *Sourish Dhekane*, Sonia Chernova, Thomas Plötz

Thou Shalt Not Prompt: Zero-Shot Human Activity Recognition in Smart Homes via Language Modeling of Sensor Data & Activities [*Paper*] [🔗](#) Dec 2025

UbiComp Companion 2025 ACM International Joint Conference on Pervasive and Ubiquitous Computing

Sourish Dhekane, Thomas Plötz

Layout Agnostic Human Activity Recognition in Smart Homes through Textual Descriptions Of Sensor Triggers (TDOST) [*Paper*] [🔗](#) Mar 2025

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)

Megha Thukral*, *Sourish Dhekane**, Shruthi Hiremath, Harish Haresamudram, Thomas Plötz

Transfer Learning in Sensor-Based Human Activity Recognition: Survey [*Paper*] [🔗](#) Mar 2025

ACM Computing Surveys (CSUR)

Sourish Dhekane, Thomas Plötz

How Much Unlabeled Data is Really Needed for Effective Self-Supervised Human Activity Recognition? [*Paper*] [🔗](#) Oct 2023

Published: ACM International Symposium on Wearable Computing (ISWC)

Sourish Dhekane, Harish Haresamudram, Megha Thukral, Thomas Plötz

Experience

Machine Learning Intern Atlanta, GA

Ethos Technologies Inc.

May 25 – Aug 25

- Built a CI/CD pipeline for a Sales Phone Engagement Model that predicts user engagement levels on sales calls for efficient lead allocation and a Weather Model that predicts the sales demand as a function of weather

Course Instructor Atlanta, GA

Georgia Institute of Technology

May 24 – Current

- Worked as the course instructor of CS 3600: Introduction to AI (Summer 24) and COMP-1019: Machine Learning for Sensor-Based Human Activity Recognition (Spring 25, Fall 25, and Spring 26)
- Tasks included conducting the lectures and designing the syllabus, assignments, and exams
- Received multiple “thank-a-teacher” awards from the Center of Teaching and Learning, Georgia Tech

Graduate Research Assistant
Cisco, Georgia Institute of Technology

Atlanta, GA
Jan 2023 – Dec 24

- Project aimed at building a transfer learning framework to perform human activity recognition in multimodal heterogeneous smart homes with minimal data and annotations
- Worked on a survey to understand the challenges, existing solutions, and knowledge gap in the domain
- Built a “train-once-deploy-everywhere” approach that can perform transfer learning between smart homes with *any* kinds of ambient sensing modalities and activity sets with an improvement over the SOTA

Graduate Teaching Assistant
Georgia Institute of Technology

Atlanta, GA
Jan 22 – Dec 22

- Worked as the teaching assistant (Spring 22) and the head teaching assistant (Summer and Fall 22) of CS 6601: Artificial Intelligence under the instruction of Prof. Thad Starner and Prof. Thomas Plötz
- Led a team of 28 TAs for managing tasks like conducting office hours, assignment recitations, & Piazza discussions, designing assignments & exams, grading, and occasional lecturing
- Received multiple “thank-a-teacher” awards from the Center of Teaching and Learning, Georgia Tech

Ongoing Projects

Predicting Influenza-like Infections before Symptom Onset using Wearables *Thesis Work*

- Used wearable data to predict Influenza infection as an out-of-distribution (OOD) detection task without using annotations by developing novel self-supervised distribution modeling techniques to capture the “healthy” class, thereby distinguishing Influenza as an OOD phenomenon
- This work is funded by Samsung Research America (expected submission planned around April 2026)

Generating Textual Descriptions of IMU Data for Zero-Shot Action Inference *Advising*

- Developed a VLM-based pipeline to generate semantically meaningful textual descriptions of the IMU data for zero-shot human activity inference for monitoring movements performed by older adults
- This work is part of my Pre-Doctoral Fellowship (Aug 2025 to May 2026), under which the goal is to advise Georgia Tech’s OMSCS students in their research credits.

Explainable Activity Recognition in Smart Homes via Language Modeling of Sensor Data *Advising*

- Developed a pipeline to generate natural language explanations by converting the sensor data into its textual descriptions and using a hierarchical attention mechanism with a natural language generation module.
- This work is part of my Pre-Doctoral Fellowship (Aug 2025 to May 2026), under which the goal is to advise Georgia Tech’s OMSCS students in their research credits.

Skills

Programming Languages: Python, C++, C, Java, SQL, CSS/HTML, MIPS

Machine Learning: PyTorch, TensorFlow/Keras, scikit-learn, OpenCV

Softwares: LaTeX, Git, Unity, MATLAB, Litmaps, Gradescope, Canvas

Miscellaneous: Google Earth Engine, QGIS, ENVI, AWS, NS3, Wiresharks, OpenMP, MPI

Relevant Coursework

Machine Learning: Artificial Intelligence, Machine Learning (ML), Deep Learning, Computer Vision, Natural Language Processing, ML with Limited Supervision, Probabilistic Graphical Models, Statistical ML

Mathematics: Mathematical Foundations of Machine Learning, Numerical Linear Algebra, Linear Optimization

Professional Service

1. Served as a reviewer for IJCAI 2024, NeurIPS 25 TS4H, UbiComp IMWUT, ACM TIST, and IEEE Access
2. Mentored 6 students in their undergraduate and graduate research for credit