Haarika Manda

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Education

University of California, Santa Barbara — Santa Barbara, California
PhD in Computer Science (Co-advised by Arpit Gupta and Elizabeth Belding) — Sept 2023–Present

- GPA: 4.0/4.0
- Research focus on Improving Computer Networks/Internet Measurement Systems through the Application of ML and Foundation Models.

Birla Institute of Technology and Science, Pilani
Bachelor of Engineering in Electronics and Communication Engineering — Aug 2019–May 2023

- Minor in Robotics

Scholarships and Awards

- National Science Foundation (NSF) Graduate Research Fellowship (Awarded: April 4th, 2024)
- IETF/IRTF-Applied Networking Research Prize (ANRP) 2025

PUBLICATIONS & ARTICLES

1. **H.Manda**, V Srinivasavaradhan, L Koduru, K Zhang, X Zhou, U Paul, E Belding, A Gupta, and T Narechania,"The Efficacy of the Connect America Fund in Addressing Internet Access Inequities in the US", Proceedings of the ACM SIGCOMM 2024 Conference (Aug 4th, 2024)
   Analyzed a self-collected novel dataset to audit self-reported coverage data, to study the broadband plans offered to addresses covered by CAF funding. Awarded IETF/IRTF Applied Networking Research Prize - Madrid, Spain (Aug 2025)

2. **H. Manda**, M. Sagar, Yogesh, K. Singh, X. Zhao, T. Mangla, P. Gill, E. Belding, and A. Gupta, "TURBOTEST: Learning When Less is Enough through Early Termination of Internet Speed Tests," Manuscript under Review (2025)
   Led the design of an oracle-based ML system for early termination of internet speed tests, achieving 2-4× data savings over prior heuristics (BBR) and over 95% savings in high-throughput conditions (with IIT Delhi and Google).

3. **H.Manda**, V Srinivasavaradhan, L Koduru, K Zhang, X Zhou, U Paul, E Belding, A Gupta, and T Narechania,"Measuring Broadband Policy Success", Harvard Law Review Blog (July 16th, 2024)

4. **H. Manda**, L. Zhao, Y. Tang, R.R. Kancharla, P. Xu, T. Yao, and F. Xu, "Bridging Multimodal Microscopy for Advanced Characterization on Metallic Fuel Using Machine Learning," Accepted for Journal Publication (2025)
   Led ML work at Idaho National Laboratory (collaboration with senior INL researchers) using encoder-decoder style model to identify defects in dataset used by researchers. (18x improvement over existing baseline)

5. **H.Manda**, S.Dash and R.K.Tripathy,"Time-Frequency Domain Modified Vision Transformer Model for Detection of Atrial Fibrillation Using Multi-Lead ECG Signals", National Conference on Communications (2023) (IEEE co-sponsored), IIT Guwahati
   Developed a modified Vision Transformer based architecture for detecting Heart Conditions. Involves use of signal processing techniques to convert time-series information to an image for classification.

Work Experience

University of California, Santa Barbara Santa Barbara, California
Graduate Student Researcher Sept 2023-Present

- Foundation Models for Broadband Quality: Developing and testing ML-driven, foundational models to contextualize large-scale broadband speed test data using packet captures
- Scalable Data Collection & Analysis: Co-developed a tool for web-scraping publicly available data using a scalable docker system with Selenium.
- Built data processing pipelines to extract/analyze meaningful information about internet equity. Work has been published in ACM's SIGCOMM Conference. Languages used: Python

Idaho National Laboratory Idaho Falls, Idaho
Machine Learning Intern (Research Group) June 2024-Sept 2024

- Designed ML models that utilize ResNet & U-Net on microscopy images for advanced materials analysis, aiding scientific teams in extracting faster and more accurate insights from large datasets. Manuscript accepted for journal publication.

Cisco Systems
Software Engineering Intern at Security Group (40 hours per week) Aug 2022-Dec 2022

- Enhanced Intrusion Detection: Improved network intrusion detection capabilities of firewall by redesigning installation method of network policy configurations/security package.
- Network Policy Optimization: Improved firewall threat detection system by reducing deployment time (reduction of 5 seconds) and adding performance enhancements. Languages used: Java, Perl, Golang

Dimaag-AI
Software Developer Intern of AI/ML team (40 hours per week) May 2022-July 2022

- Computer Vision & Quality Analysis: Non-destructive fruit Quality Analysis using advanced imaging with statistical ML models and instance segmentation of fruits using Mask-RCNN.

SELECTED CLASSES TAKEN

- ML For Networked Systems, Trustworthy ML in Security, Special Topics in Large Language Models and Conversational AI, Advanced Topics in Security, Machine Learning, Runtime Systems

Technical Skills

- **Programming Languages:** Python, Java, C, C++, Perl, HTML, Golang, JavaScript
- **Machine Learning:** TensorFlow, Keras, Pytorch
- **Big Data:** SQL
- **Tools/Frameworks:** LATEX, Git, Matlab, Spring Boot

Teaching Experience

- Teaching Assistant for Advanced Topics in Internet Computing (Spring 2024)

Organizations

- **Technical Team, Phoenix Club for Electronics** Aug 2019–May 2023
  Arranged and organized workshops on IoT, robotics and electronics for college technical festivals. Pitched start-up idea to judge panel on a Medical App for the compilation of patient data across various hospitals.