Anuj Tambwekar

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Experience

Vijil, Boston, MA (Remote)
Machine Learning Engineer May 2024 - Present

- Lead developer of Vijil Dome, a machine-learning powered real-time perimeter defense mechanism to safeguard AI agents from security, privacy and safety threats. Finetuned SLMs for SoTA guardrailing performance while minimizing guardrail latencies.
- Developed, tested, benchmarked, evaluated and safeguarded custom AI agents for multiple worldwide customers for a variety of use cases, including custom search agents, research assistants, helpcenter chatbots, and industrial plant failure notification bots.

University of Michigan Transportation Research Institute, Ann Arbor, MI
Research Assistant, Biosciences Department Jan 2023 - May 2024
Supervisors: Dr. Wenbo Sun, Dr. Arpan Kusari and Dr. Byoung-Keon Daniel Park
Developed ML models to estimate the full-body posture of vehicle occupants using sensor fusion of LiDAR and IR data, without any ground truth annotations.

Microsoft, Hyderabad, India
Software Engineer Jul 2021 - Aug 2022

- Analysed massive datasets ($>$ 700 TB) and created techniques to automate the filtration of unwanted spam and junk pages from Bing's search index. Reduced false positive detections by 30%, and migrated the entire legacy quality assessment pipeline to Azure as a collection of microservices and Logic Apps.
- Worked on the development of a thread-safe, shared-memory LPC library that reduced same-node feature computation latency of Bing's ranking service by 50%.

Intel, Bengaluru, India
Machine Learning Research Intern, VSG Group Jan 2021 - May 2021
Supervisor: Dr. Anbumani Subramanian
Developed a new model for few-shot object detection catered towards road-objects that obtained SOTA performance on the India Driving Dataset. Used this model to expand novel classes in IDD by 20x for future training endeavours.

Education

University of Michigan, Ann Arbor, MI
M.S. in Computer Science and Engineering Aug 2022 - May 2024
GPA: 4.00/4.00

PES University, Bengaluru, India
B.Tech in Computer Science and Engineering | Specialization: Data Science Aug 2017 - May 2021
GPA: 9.43/10.00

Publications

A. Tambwekar, B.K. Park, A. Kusari and W. Sun, *Three-Dimensional Posture Estimation of Vehicle Occupants Using Depth and Infrared Images*, Sensors, August 2024 [Link]

A. Tambwekar, A. Maiya, S. Dhavala and S. Saha, *Estimation and Applications of Quantiles in Deep Binary Classification*, IEEE Transactions on Artificial Intelligence, April 2022 [Link]

A. Tambwekar, K. Agrawal, A. Majee and A. Subramanian, *Few-Shot Batch Incremental Road Object Detection via Detector Fusion*, Proceedings of The IEEE/CVF International Conference on Computer Vision (ICCV) Workshops 2021 [Link] (Oral)

M. Kashyap*, **A. Tambwekar***, K. Manohara, and S. Natarajan, *Speech Denoising without Clean Data: A Noise2Noise Approach*, Proceedings of Interspeech 2021 [Link] (Oral - Joint First Author)

Teaching Experience

Department of Computer Science and Engineering, University of Michigan, Ann Arbor, MI

Graduate Student Instructor
EECS 492: Introduction to Artificial Intelligence (Fall 2023 & 2022), 341 & 274 students resp.
EECS 448: Human-Centered ML (Winter 2024 & 2023), 80 & 73 students resp.

Department of Computer Science and Engineering, PES University, Bengaluru, India

Peer Teacher
UE17CS302: Introduction to Operating Systems (Fall 2019), 5 students

Honors & Awards

Moeller Award, University of Michigan 2023-2024
CSE department fellowship awarded for outstanding scholarly achievement and mentorship in the academic community

Outstanding GSI Award, CSE Division, University of Michigan 2023
Recognized as one of the best teaching assistants in the Computer Science Department at UM for the '22-23 academic year.

Dr. CNR Rao Merit Scholarship, PES University 2017-2021
40% tuition scholarship awarded to the top 10% of every department. Received the award every semester.

Intel Student Developer Award, Intel India 2019

Talks

Taking Agents from Design to Deployment on the DigitalOcean GenAI Platform
DigitalOcean Deploy '25, January 2025, Austin, TX

Estimation and Applications of Quantiles in Deep Binary Classification
The International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC), October 2021, UNC Greensboro

Skills

Programming Languages: Python, C++, C, C#, JS, PHP
ML & GenAI Libraries: PyTorch, Tensorflow, Scikit-Learn, Langchain, Langgraph, Crew.ai, Swarm
Cloud Development: Azure (Certified), AWS, DigitalOcean, Docker
Parallel Computing: MPI, OpenMP, CUDA