

CURRICULUM VITAE

Aman Raghu Malali

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EDUCATION

University of Massachusetts Amherst Amherst, MA
MS/PhD in Computer Science, GPA: 4.0/4.0 Aug 2022 - Current
Advisor: Peter J. Haas and Yanlei Diao
Data systems Research for Exploration, Analytics, and Modeling Lab (DREAM Lab)

- Research: I work at the intersection of machine learning and systems, building reliable MLOps pipelines for models in production. My research focuses on monitoring, failure prediction, and cost-aware, drift-triggered retraining. Current projects include coreset selection for rapid retraining and techniques to fine-tune LLMs efficiently as user queries evolve under drift.

Ramaiah Institute of Technology Bangalore, India
Bachelor of Engineering in Computer Science and Engineering, GPA: 9.53/10.0 Aug 2020
• Relevant Coursework: Probability, Statistics, Linear Algebra, Machine Learning, Deep Learning, Artificial Intelligence, High Performance Computing.
• Head of CodeRIT, the competitive coding club.

RESEARCH EXPERIENCE

Dolby Advanced Technology Group (ATG) Atlanta, GA
PhD Research Intern Jun 2024 - Sept 2024
• Developed a feature-based temperature scaling technique with a novel calibration loss that calibrates both probabilities and uncertainty under drift, improving prediction reliability.
• Expanded predictive model maintenance by incorporating granular loss levels and adaptive loss bounds to optimize retraining decisions, while experimenting with extensions to address concept drift.

DREAM Lab Amherst, MA
University of Massachusetts Amherst
Research Assistant Aug 2022 - Present
• Built an uncertainty-aware ensemble metamodel that forecasts deployed ML model performance without ground truth and tracks data drift's direct impact on ML model loss.
• Developed a predictive MLOps retraining orchestrator that retrains only when needed based on performance forecasts, minimizing downtime, reducing drift-induced errors, and lowering compute costs.

Robert Bosch Center for Cyber Physical Systems and ArtPark, IISc Bangalore, India
Aham Avatar Xprize Team Jul 2020 - Jul 2022
Technical Associate
• Led a small team in designing and developing a robot telepresence solution from the ground up. Users could control multiple robots simultaneously using a web interface with minimal latency. .
• Built a framework to track positions of human arms and to recreate the motion on a pair of 7 DoF robotic arms using an inverse kinematics system.
• \$10 Million ANA Avatar Xprize Competition Semifinalist.

PUBLICATIONS

- **Malali, A.**, Haas, P., Diao, Y., Mehra, A., & Maneriker, P. (2025). Scout: Predictive maintenance of machine learning models. *In Submission, manuscript available on request.*
- **Malali, A.**, Hiriyannaiah, S., Siddesh, G. M., Srinivasa, K. G., & Sanjay, N. T. (2020). Supervised ECG wave segmentation using convolutional LSTM. *ICT express*, 6(3), 166-169.

PROJECTS

Perceptually guided zero-shot saliency for scalable visualization

Ongoing

- Developing a training-free saliency method that leverages multi-layer activations from pretrained foundation vision models to approximate human perception and drive adaptive downsampling of large scatter plots—preserving salient structure while reducing render cost.
- Fuses early and late-layer activations to capture both local detail and global context for clearer, more informative visualizations without needing task-specific labels or training.

NeuralGLAZE: Noise generation for artwork using neural networks

Aug 2024

Project for COMPSCI 682: Neural Networks

- Developed a single-pass, perception-aware (LPIPS) noise generator that preserves human visual perception of images while rendering artworks unusable to image classifiers. Achieved modest performance while significantly reducing computational cost compared to techniques like GLAZE.

INVITED TALKS AND POSTER PRESENTATIONS

ERC BigFastData Workshop

Paris, France

Ecole polytechnique

Oct 2023

- Presented my work on predictive ML model maintenance, covering advanced techniques for model upkeep and retraining strategies.

North East Database Day

Boston, MA

Northeastern University

Mar 2023

- Presented a poster on the machine learning model lifecycle, emphasizing the critical role of model maintenance. Highlighted preliminary results of predictive model maintenance and advanced drift detection techniques.

TEACHING EXPERIENCE

Teaching Assistant

Amherst, MA

University of Massachusetts Amherst

COMPSCI 345: Practice and Applications of Data Management

Aug 2022 - Current

Undergraduate Teaching Assistant

Bangalore, India

Ramaiah Institute of Technology

CSE11 Machine Learning

Jan 2020 - Jun 2020

AWARDS AND HONOURS

- Placed 1st in the Blume Bootstrap Professional Hackathon Aug 2019
- Placed 1st in the Mercuri Goldmann Hackathon Aug 2019
- Placed 2nd in the Red Hat Bit Byte Bit Hackathon Dec 2018
- Placed 2nd in the General Electric Precision Healthcare Hackathon Dec 2018
- Placed 1st in the IISc IBM Pravega Hackathon Aug 2018

SKILLS AND INTERESTS

- Programming : Python, Tensorflow, PyTorch, C++, Spark, Docker, AWS, Unix, Flask, ROS.
- Language: Fluent in English, Hindi and Kannada.
- Interests: Competitive Trivia, Formula 1, Basketball, Badminton.