

Jahnavi Yelamanchi

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SUMMARY

ML graduate student at NYU specializing in robotics and hardware acceleration, with prior R&D experience at NUS and IIT-B. Focused on world models, multimodal perception, and RL for safe & generalizable agents.

EDUCATION

New York University

Master's in Computer Engineering

Aug. 2024 – Present

Advisor: Lerrel Pinto

Vellore Institute of Technology

Bachelor's in Computer Science Engineering

Sept. 2020 – June 2024

GPA: 3.97/4.0

- Visiting student at the National University of Singapore, Dec. 2022 – May 2023

PUBLICATIONS

Prediction of Cerebrospinal Fluid (CSF) Pressure with Generative Adversarial Network Synthetic Plasma-CSF Biomarker Pairing

Phani Paladugu, Rahul Kumar, [Jahnavi Yelamanchi](#), et al.

Neuroinformatics, Vol. 23, Issue 3, p. 38. Springer US, 2025.

Performance Evaluation of Generative Adversarial Networks for Anime Face Synthesis Using Deep Learning Approaches

[Jahnavi Yelamanchi](#), Perepi Rajarajeswari, et al.

Multidisciplinary Science Journal, Vol. 7, Issue 3, Article 2025093, 2025.

Artificial Intelligence-Based Methodologies for Early Diagnostic Precision and Personalized Therapeutic Strategies in Neuro-Ophthalmic and Neurodegenerative Pathologies

Rahul Kumar, Ethan Waisberg, [Jahnavi Yelamanchi](#), et al.

Brain Sciences, Vol. 14, Issue 12, Article 1266. MDPI, 2024.

RESEARCH EXPERIENCE

NYU GRAIL (Generalizable Robotics and AI Lab)

Graduate Researcher

April 2025 – Present

Mentor: Prof. Lerrel Pinto

- Developing tactile-centric world models using the AnySkin tactile sensor for reorientation tasks in LIBERO.
- Built a custom “push-to-align” task (rigid block + cabinet) with dynamics and latent space modeling for reinforcement learning.
- Presented initial results (Aug 2025) on DreamerV2-style multimodal world model integrating tactile + visual input

System & Artificial Intelligence (SAI) Lab

Graduate Researcher

Jan 2025 – April 2025

Mentor: Prof. Sai Zhang

- Accelerated Efficient-VAR model inference by integrating OpenAI Triton for kernel-level optimization, reducing latency by 17%.
- Designed a non-invasive instrumentation framework to visualize tradeoffs across top-k, top-p, and classifier-free guidance settings without altering model logic.

National University of Singapore (NUS)

Deep Learning Research Intern

2022 – 2023

Mentor: Prof. Liu Lili

- Achieved 93% accuracy in multilingual language recognition using advanced neural network architectures.
- Processed 11,000+ diverse text samples with custom NLP pipelines to enable successful model training.
- Deployed models on Microsoft Azure, improving scalability and throughput.

IIT Bombay (E-Yantra Robotics Competition)

Software Development Team Lead

2022

- Distinguished among top 25 out of 500+ participants by clearing Stage 1 of E-Yantra robotics competition.
- Implemented a Linear Quadratic Regulator (LQR) controller in CoppeliaSim for system identification, improving control accuracy by 20%.

WORKING EXPERIENCE

MLOps Intern

Jan 2023 – Mar 2023

Edventure.Club

Bangalore, India

- Fine-tuned GPT models for personalized QA, enabling user-specific memory and context-aware responses
- Customized model outputs by integrating archival user information for improved accuracy and relevance

Head of Engineering

Nov 2021 – May 2022

Unlearners Tech

Tamil Nadu, India

- Led the implementation of innovative visual representations, achieving a 25% increase in user comprehension through strategic design and team collaboration
- Developed advanced signal processing algorithms, improving data accuracy by 15% and enhancing user satisfaction
- Achieved a 30% decrease in app loading time and a 20% increase in user engagement with a revamped app design

PROJECTS

Weight Prediction with Tactile World Models | *PyTorch, Reskin Tactile Sensors*

2025

- Built a tactile-centric world model to predict object weight using force feedback on an xArm + scale setup.
- Validated predictions on real-world tactile datasets, improving weight estimation accuracy over baseline methods.

xArm Cup Picking Task | *PyTorch, LIBERO, Reskin Tactile Sensors*

2025

- Collected and processed real-world tactile + proprioceptive data for xArm cup-picking demos, enabling evaluation of multimodal policy robustness.
- Developed preprocessing tools to align tactile and proprioceptive data streams for multimodal learning.

Curiosity-driven Robot RL | *PyTorch, PPO, Random Network Distillation*

2024

- Integrated curiosity-based intrinsic motivation into a PPO robot policy using Random Network Distillation (RND), observing reduced performance in robotic tasks compared to RND's success in video games.
- Benchmarked curiosity-augmented policies against standard PPO to analyze generalization gaps in robotics.

Trajectory Optimization and Control for Quadrotors | *Python, SQP, MPC*

2024

- Designed SQP-based trajectory controllers and MPC policies for quadrotor tracking under thrust constraints, improving accuracy by 30–40%.
- Implemented dynamic feasibility checks to ensure safe quadrotor trajectories under actuation limits.

Quadrotor Obstacle Avoidance with RL | *C++, PyTorch, PPO, Xcode Instruments*

2024

- Developed a custom RL environment and PPO controller with Stable-Baselines3 for quadrotor obstacle avoidance, improving path efficiency by 20%.
- Profiled and optimized PPO inference using Xcode Instruments to reduce latency in obstacle-rich environments.

Self-Balancing Delivery Bike | *CoppeliaSim, Euler-Lagrange Mechanics, LQR*

2023

- Developed and simulated a self-balancing 2-wheeled delivery bike using LQR controllers, Euler-Lagrange mechanics, and Lua programming in CoppeliaSim.
- Optimized balancing dynamics and delivery performance through control tuning in Octave.

Language Link: Advanced Language Detection | *Python, TensorFlow, Flask, Streamlit*

2023

- Built a web app for fast multilingual text detection and query resolution, reducing support response times.
- Deployed a Streamlit interface for real-time user interaction with language detection and retrieval features.

TEACHING

CSE1006 Blockchain and Cryptocurrency Technologies

Vellore Institute of Technology

Instructor: Jaisankar N, Winter 2023

CSE4001 Parallel and Distributed Computing

Vellore Institute of Technology

Instructor: Nalini N, Fall 2023

TECHNICAL SKILLS

Programming Languages: Python, C/C++, MATLAB, Bash

Libraries & Frameworks: PyTorch, JAX, TensorFlow, Stable-Baselines3, OpenCV, Open3D, Robosuite, ROS, Mujoco

Software & Tools: Git, Docker

Relevant Coursework: Inference and Representation, Advanced Computer Vision, Swarm Robotics, Reinforcement Learning, Optimal Control for Robotics, Efficient AI and Hardware Accelerator Design