SREEVISHAKH VASUDEVAN

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PERSONAL STATEMENT

I am passionate about developing data-efficient methods for achieving robust and generalizable machine learning models with particular emphasis on reinforcement learning, Bayesian optimization, and vision-language-action systems for robotics and autonomous agents. I'm equally fascinated by Generative AI, Natural Language Processing, and Explainability, as tools for making AI more human-aligned and trustworthy.

EDUCATION

Arizona State University August 2024 - May 2026 (Expected)
MS in Computer Science *GPA: 4.0/4.0*
Advisor: Ransalu Senanayake
Relevant coursework: Foundations of Machine Learning, Artificial Intelligence, Knowledge Representation, Natural Language Processing (NLP), Data Structures and Algorithms, Data Visualization.

College of Engineering Trivandrum August 2017 - June 2021
BTech in Electronics and Communication Engineering *GPA: 8.33/10*

Relevant coursework: Digital Signal Processing, Microcontrollers, Embedded Systems, Soft Computing, Probability, Differential Equations, Information Theory, Linear Algebra and Complex Analysis.

PUBLICATIONS

In Progress

1. **Sreevishakh Vasudevan**, and Ransalu Senanayake, From Raw Data to Tailored Instructions: Unifying How We Customize Foundation Models. To be submitted at *ICML,* 2026

Completed

1. **Sreevishakh Vasudevan**, Som Sagar and Ransalu Senanayake, Strategic Vantage Selection for Learning Viewpoint-Agnostic Manipulation Policies. Presented at *ICML Workshop on Exploration in AI (EXAIT),* 2025. Under review at *ICRA,* 2026. (PDF)
2. Som Sagar, Jiafei Duan, **Sreevishakh Vasudevan**, Yifan Zhou, Heni Ben Amor, Dieter Fox and Ransalu Senanayake, From Mystery to Mastery: Failure Diagnosis for Improving Manipulation Policies. Presented at *RSS Workshop on Out-of-Distribution Generalization in Robotics,* 2025. Under review at *ICLR,* 2026. (PDF)

EXPERIENCE

Research Assistant August 2024 - Present
LENS Lab ASU *Tempe, Arizona*

- Leading a survey paper **unifying strategies for data selection and augmentation** to improve training efficiency and accuracy across robotics, LLMs, and multimodal learning systems.
- Developed a **Reinforcement Learning** framework using **Proximal Policy Optimization (PPO)** to estimate failure mode probabilities in robotic manipulation policies (*RSS25 OOD Workshop*).
- Devised a **Bayesian Optimization** method to determine optimal camera placement during training, ensuring the resulting robot policy performs effectively across diverse viewing angles during testing (*ICML25 EXAIT Workshop*).
- Leveraged **H100 GPU**s to accelerate training and optimization of reinforcement learning policies for robotic systems, achieving high efficiency and scalability.

Machine Learning Engineer April 2022 - July 2024
LifeSignals *Bengaluru, Karnataka*

- Conducted research and implemented a **transformer** based model to predict future patient risk scores based on vital sign measurements with an accuracy of 80% leading to better patient prioritization in emergency care wards.

- Designed a **U-net** architecture to classify and identify beat locations in ECG signals with 96% accuracy.
- Collaborated to develop a noninvasive and cuff-less method to obtain blood pressure measurements using ECG and other vital waveform data, which led to a 20% improvement in availability and accuracy over existing methods.
- Developed a debugging tool for in-house and **MIMIC** datasets, leading to 5x faster algorithm testing.
- Created an algorithm to remove PPG baseline noise, improving SPO2 and BP estimation accuracy by 8%.

Machine Learning Engineer September 2021 - March 2022
Deloitte USI *Bengaluru, Karnataka*

- Built and deployed ML pipelines to automate leave approval predictions and flag payroll anomalies, reducing manual workload and improving error detection accuracy by 23%.
- Implemented automated data pipelines for generating HR reports and an interactive dashboard to monitor and manage team workloads, improving resource allocation efficiency by 35%.

OTHER SELECTED PROJECTS

Wayfinder: A Robot Guide for the Visually Impaired January 2025 - April 2025
Bayesian Optimization, Navigation *Tempe, Arizona*

- Developed an intelligent robot guide for the visually impaired, integrating LiDAR, depth sensing, and GPS for autonomous navigation and obstacle avoidance.
- Trained a camera-agnostic robot arm policy using RGB images and Bayesian optimization for object pick-and-place tasks, achieving reliable performance across varying viewpoints.

Study Coach December 2024 - March 2025
Graph RAG, LLM Finetuning *Tempe, Arizona*

- Built an intelligent study planning assistant using **Graph-based Retrieval-Augmented Generation** (Graph RAG) to model task dependencies and enhance response grounding.
- Fine-tuned large language models with task-specific feedback and graph-structured inputs, improving contextual relevance and schedule alignment.

Automated Stock Trading November 2024 - January 2025
RL, Reward Modeling *Tempe, Arizona*

- Built a robust reinforcement learning (RL) trading system leveraging **DQN**, **Proximal Policy Optimization** (PPO), and **Advantage Actor-Critic** (A2C) algorithms to optimize and refine trading strategies.
- Formulated a multi-reward function with diverse technical indicators, utilizing **Multi-Layer Perceptron** (MLP) and **Long Short-Term Memory** (LSTM) models, resulting in a 23% improvement in decision-making accuracy.

Preference Diffusion August 2024 - November 2024
Stable Diffusion, Clustering *Tempe, Arizona*

- Enhanced clarity of generated images from fuzzy prompts in Stable Diffusion models by implementing **Direct Preference Optimization** (DPO), reducing output uncertainty by 15%.
- Designed and implemented a feedback mechanism using real-time minimal human input and **Gaussian Mixture Modeling** (GMM) on **CLIP embeddings** to refine Direct Preference Optimization (DPO), achieving a 20% increase in user satisfaction by aligning generated images more closely with user preferences.

TECHNICAL SKILLS

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

Frameworks and Libraries: PyTorch, BoTorch, TensorFlow, Scikit-learn, Keras, NumPy, Stable-Baselines, Diffusers, Transformers, NLTK, Pandas, Beautiful Soup, Plotly, Gymnasium

Hardware: Unitree Go2 (Quadraped), G1 (Humanoid), D1 (Manipulator)

Tools and Platforms: Git, MuJoCo, Robosuite, RLBench, IsaacLab, ROS

Database & Cloud Services: MySQL, Firebase, AWS