

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

MS in Computer Science

August 2024 - May 2026 (Expected)

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

BTech in Electronics and Communication Engineering

August 2017 - June 2021

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.

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

LENS Lab ASU

August 2024 - Present

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 that the resulting robot policy performs effectively across diverse viewing angles during testing (*ICML25 EXAIT Workshop*).
- Leveraged **H100 GPUs** to accelerate training and optimization of reinforcement learning policies for robotic systems, achieving high efficiency and scalability.

Machine Learning Engineer

LifeSignals

April 2022 - July 2024

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 on developing 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 baseline noise from vital signals, improving SPO_2 and BP estimation accuracy by 8%.

Machine Learning Engineer

Deloitte USI

September 2021 - March 2022

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

Bayesian Optimization, Navigation

January 2025 - April 2025

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

Graph RAG, LLM Fine-tuning

December 2024 - March 2025

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

RL, Reward Modeling

November 2024 - January 2025

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 **Multilayer Perceptron** (MLP) and **Long Short-Term Memory** (LSTM) models, resulting in a 23% improvement in decision-making accuracy.

Preference Diffusion

Stable Diffusion, Clustering

August 2024 - November 2024

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, BeautifulSoup, Plotly, Gymnasium

Hardware: SO101 (Manipulator), Unitree D1 (Manipulator), Go2 (Quadruped), G1 (Humanoid),

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

Database & Cloud Services: MySQL, Firebase, AWS