Samitha Ranasinghe

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Education

Purdue University – MS in Computer Engineering Dec 2026
Concentration: Machine Learning & Automatic Controls
Graduate Teaching Assistantships in VIP and ECE Departments
Relevant Classes: Robotics, Autonomous Systems, Digital Control Systems, Deep & Reinforcement Learning

Purdue University – BS in Computer Engineering Dec 2024
Concentrations: Artificial Intelligence/Machine Learning | Automatic Controls
Certificates: Entrepreneurship & Innovation
GPA: **3.71**/4.00 | Eli Shay & Dr R Bollini Scholarship Recipient, Dean's List and Semester Honors

Professional Experience

KAYA Global, INC. – New York City, NY
Machine Learning Intern May 2023 – Dec 2023
- Combined a custom Llama2 model with a Vector DB through LangChain for help and context through a chatbot.
- Configured services using Pub-Sub and Cloud Functions to transcribe and extract contexts through public LLMs.
  Full-Stack, React, Python, Google Cloud Platform (GCP), Jira, Express, Firebase, TensorFlow

Projects

Multi-Robot Collaborative Object Manipulation – Reinforcement Learning April 2025 – Present
- Training several UR5e arms to work together to move large objects to different positions using Mujoco.
- Designing a reward function taking into account shared progress, stable transportation, and collision penalty.
  Isaac Sim, PyTorch, Ray RLlib

Digital Controller Design for a Submarine – Digital Control Systems Mar 2024 – May 2024
- Derivation and analyses of linearized dynamics of a submarine with a hydroplane as an actuator.
- Designed digital controllers using frequency domain and then emulation using bilinear transformation and then also through state-space methods for comparison.
  MATLAB, Simulink, State Space

Vertically Integrated Projects

Artificial Intelligence for Music – Robot Cello Aug 2024 – Dec 2024
- Developing algorithms for a robotics hand to bow a cello using motion capture data and reinforcement learning.
- Simulating an environment in Gazebo to derive kinematics for bow manipulation.
  ROS, Gazebo, UR5e, Reinforcement Learning, MoCap

POSSE – Workflows Team Co-lead Jan 2024 – May 2024
- Built an industry standard set of Security Best Practices for workflows for open-source projects.
- Compiled tools using Go and Python to perform an end-to-end analysis on a GitHub workflow to aid in fixing risks.
  Python Scripting, GitHub Actions, Go

Object Tracking UAVs – Autonomous Team Co-lead Jan 2022 – Dec 2022
- Implemented and improved path planning and obstacle avoidance algorithms using ROS for target following.
- Designed a simulation of the miniature city using Gazebo simulator for comparing path planning algorithms.
  ROS, Gazebo, OpenCV, Fusion 360, 3D-Printing

Conference Presentations

"A Self-Adapting Wheel System for Space Exploration Rovers" Oct 2021
International Astronautical Congress 2021, World Trade Center, Dubai, UAE
- Co-authored and presented a paper on an efficient wheel system for space exploration rovers that would reduce instances of slipping and sinkage by integrations of continually adjusting grousers.
- Designed and developed the grouser control algorithm leading to further optimization of the wheel.