Soroush Etemad

U.S. Citizen — DoD Secret Clearance

240-370-0372 | setemad.dev@gmail.com | linkedin.com/in/soroush-etemad | github.com/soroushetemad

Education

University of Maryland — College Park, MD
M.Eng in Robotics — *Aug. 2023 – May 2025*

University of Maryland — College Park, MD
B.S in Mechanical Engineering — *Aug. 2019 – May 2023*

Relevant Coursework: Robot Learning, Deep Learning and AI, Computer Vision, Path Planning, Robot Modeling, Human-Robot Interaction, Control Systems, Software Product Management, Mechatronics, Remote Sensing

Skills

Languages: Python, C++, C, SQL, MATLAB
AI/ML: PyTorch, TensorFlow, Keras, Ollama, LangChain, Huggingface
Tools: ROS2, Rviz, Gazebo, OpenCV, Docker, Git, Helm, Kubernetes
CAD: SolidWorks, Autodesk Inventor, Siemens NX

Experience

Booz Allen Hamilton — July 2023 – Present
Systems Engineer — *McLean, VA*

- Virtual Space Ground System (VSGS): Built a self-hosted AI assistant for on-prem LLM inference using a RAG pipeline over satellite mission data, with memory and reusable architecture later adopted by client teams; deployed microservices, API integration, and data flow optimization improving platform modularity and interoperability.
- Partnered with a drone startup to integrate ATAK and TAK Server into their FPV UAS platform, enabling real-time telemetry and video to enhance warfighter situational awareness and operational effectiveness.
- Shaped Army robotics program proposal by co-authoring whitepaper and translating customer requirements into system design and technical solution; informed market research and guided proposal response.

Perception Robotics Group (PRG) — Dec. 2024 – Present
Graduate Robotics Research Assistant — *College Park, MD*

- Researching tactile-based manipulation using behavior cloning under Prof. Yiannis Aloimonos; developed handheld data collection tool with custom grippers to support imitation learning for robotic manipulators.
- Collected multi-modal training data (tactile, visual, proprioceptive) and trained a diffusion policy network.

U.S. Nuclear Regulatory Commission (NRC) — May 2022 – Aug. 2022
Mechanical Engineering Intern — *College Park, MD*

- Modeled boric and pure water mixing in NuScale SMRs using Nek5000 CFD software; analyzed jet flow during accident conditions, produced visualizations, and presented findings to the Code and Reactor Analysis Branch.

Projects

Touch3D | *Python, PyBullet, Open3D, Stable-Baselines3* — May 2025

- Designed and trained a PPO-based RL agent for active tactile exploration in simulation, achieving 95% 3D reconstruction coverage on unseen objects by integrating DIGIT sensor simulation, temporal tactile stacking, and custom reward shaping in PyBullet.

TransUNet for Autonomous Driving | *PyTorch, ViT, Transformers, Keras* — Dec 2024

- Implemented and compared UNet, TransUNet, and Swin-TransUNet architectures for semantic segmentation on KITTI autonomous driving dataset, achieving 87.3% Dice overlap with Swin-TransUNet while demonstrating superior depth perception and 26.63ms inference time for real-time applications.

SfM 3D Reconstruction | *Python, OpenCV, Open3D* — March 2024

- Built a real-time 3D Structure-from-Motion pipeline using feature matching, Essential Matrix, and triangulation to reconstruct dense point clouds from monocular video.

TurtleBot Autonomous Navigation | *C++, ROS2, Gazebo* — June 2024

- Developed ROS2 navigation stack enabling a TurtleBot to visually locate floating marker signs in sequence using camera input and action server integration.

Shower Fall Detection Device | *Python, Arduino, OpenCV, YOLO, RPi, SolidWorks* — May 2023

- Led senior design team to create a computer vision-based fall detection system for showers using YOLO and embedded microcontrollers; earned Linda Schmidt Innovation Award and filed patent (US-2024411290-A1).