Leonidas Varveropoulos

linkedin.com/in/leonidas-varveropoulos | leonidas.blog | Austin, TX

OVERVIEW

The University of Texas at Austin, Austin, TX 8/2022 - 5/2026
Bachelor of Science, Computer Science, Honors Turing Scholars Program – *Minor in Statistics and Data Science* GPA 3.73

Languages: Advanced C++, Advanced Python, Advanced C, Advanced C#, Advanced Java
Skills: Machine Learning, PyTorch, Generative Models (VAEs, GANs, Diffusion), Reinforcement Learning, Robotics (ROS2), Simulations (Isaac Sim, Unreal, Unity), Computer Vision/Perception (OpenCV, OpenGL), Distributed Computing (MapReduce, Spark), Operating Systems, ONNX Runtime, Model Quantization, GCP/AWS, Docker, gRPC, Linux, GIT, Jira/Confluence

EXPERIENCE

***Reinforcement Learning Research* - University of Texas**, Austin, TX 1/2025 - Present

- Performing research aimed at teaching an agent to "learn how to learn", through in context meta-reinforcement learning. Using model distillation and curriculum learning techniques to efficiently scale the model to large and sparse task domains.
- Developing a large scale foundation world model, across all NES retro games for the efficient training of this agent.

Meta Reinforcement Learning / Zero-shot Learning / World Models / Model Distillation

***Software Automation Engineer Internship* - Garmin**, Olathe, KS 5/2025 - 8/2025

- Researched and led the development of a custom machine learning application for the detection of components within an autonomous gantry screw driving system. Identified previous struggles of the team's computer vision team and designed a proposal based segmentation and keypoint matching network for the identification of the type and pose of PCB boards.
- Created data gathering and labeling simulation environment utilizing trained hyper-realistic gaussian splatting models for scalable sim to real transfer. The built simulation environment opens many doors for future ML + computer vision tasks across different projects, including anomaly detection and manufacturing process tracking.
- Developed an Oracle simulator for efficient testing and demoing of a new automated warehouse packaging + routing system.

Machine Learning / Gaussian Splatting / Digital Twin Simulation / Computer Vision / Distributed Web Applications

***Robotics Machine Learning Internship* - Roboligent**, Austin, TX 5/2024 - 1/2025

- Worked in a fast paced startup environment, to develop a "soft" robotic arm and mobile base with advanced AI to safely operate closely with humans in a variety of environments.
- Collaborated to implement imitation learning of tasks based off of a paper introducing Action Chunking with Transformers. Helped integrate, train, and debug ML models. Quantized model for faster inference speeds. Connected learned sub-tasks with a larger behavior tree to accomplish more complex goals involving navigation and recovery behaviors.
- Solely led the introduction of a fully autonomous mobile base with state of the art navigation and dynamic obstacle avoidance enabled by a sensor suite of LiDARs and depth cameras in the ROS2 ecosystem.

Imitation Learning / ROS2 / Navigation (SLAM + Path Planning) / Isaac Sim / Real Time Systems

***Medical Robotics Research (REU Grant Program)* - University of Texas**, Austin, TX 11/2022 - 9/2023

- Conducted research aimed at creating cooperative semi-autonomous control for the Da Vinci Surgical Robot, where the surgeon and any autonomous manipulators can work together to accomplish a surgical task while still respecting safety and the constraints of the environment.
- Specifically looked at Gaussian Mixture Models encoding the surgical movement and environment to influence the autonomous arm or provide haptic feedback to aid in completing the prescribed movement.
- Established robot proprioception, created an augmented reality overlay for the stereo cameras of the surgeon, created a program aimed at minimizing delay in the video stream while accurately saving video, created an experiment GUI to speed up the process of gathering data, and worked on parts of the paper.

ROS / Machine Learning / Vision Processing / OpenGL

***Co-Founder, Software Project Lead* - Virtual Robot Simulator (FIRST Tech Challenge),** Remote 9/2020 - 1/2022

- Created an open-source virtual robot simulator to help students continue learning to code during COVID. The project gained official support and funding from FIRST Tech Challenge, evolving into Virtual FTC with me as a founding member and technical lead of a volunteer and contractor team. vrobotsim.com
- Built a Unity-based simulator hosted on Google Cloud, enabling students to run code locally and control robots in real time via API, with video streamed directly to the browser — no installation required. Now used by 32,000+ students worldwide.

Simulation / Robotics / Google Cloud / Website / Real-time Streaming

PROJECTS

More Info: leonidas.blog/projects

Project Skydrop: Bayesian Likelihood Model for Real-World Weather Station Localization

- Designed a multi-modal VAE-based likelihood model to infer weather station location from daily temperature and satellite readings. Applied conditional flow matching to properly model the latent space, and estimate likelihoods of sensor readings.
- Simulated and gathered a real-world geospatial dataset using historical weather APIs. Achieved accurate posterior refinement across days, visualized through a custom 3D web app for real-time inference tracking of the station location.

Neural Network Anti-aliasing of Path-traced Images

- Researched and designed a deep neural network using pretrained stable diffusion layers to denoise and anti-alias path-traced renders generated from a custom Monte Carlo ray/path tracer. Implemented physically based rendering with russian roulette, fresnel effects, importance sampling, and next-event estimation to simulate realistic global illumination.