Anthony M. Nguyen

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Summary and Interests

Highly motivated, research-oriented, Electrical Engineering student at UCSD with machine learning and robotics research experience. Interested in reinforcement learning, distributed optimization, Bayesian inference, optimal control, robotics, artificial intelligence, and machine learning.

Skills

Relevant Coursework: Machine Learning, Generative Models, Control Theory, Optimization, Probability Theory, Random Processes, Digital Signal Processing, Linear Systems, Electromagnetism, Digital Design
Programming Languages: Python (*NumPy, PyTorch, JAX, TensorFlow*), MATLAB, C, Java, Verilog, VHDL
Tools: MATLAB, QuestaSim, Active-HDL, Xilinx Vivado, LaTeX/Overleaf, RedHat Linux

Education

University of California, San Diego (UCSD) La Jolla, CA
B.S., Electrical Engineering (GPA: 3.986/4.000) *September 2023 - June 2026 (expected)*

Experience

Existential Robotics Laboratory (UCSD) La Jolla, CA
Undergraduate Student Researcher *January 2025 – Present*

- Developed Monte Carlo tree search (MCTS) algorithms for optimal control of partially observable Markov decision processes (POMDPs); Successfully implemented in Python for sensor scheduling problems
- Discovered, formalized, and proved relationships between different approaches to particle flow particle filtering (PFPF); Developed and proved methods to avoid numerical instability for PFPF
- Implemented PFPF methods in Python for linear and nonlinear observation models using analytical and numerical methods; Used ordinary differential equation (ODE) solvers (*SciPy, Diffrax*) and GPU-acceleration libraries (*JAX*)
- Self-studied material from UCSD ECE graduate courses (Sensing and Estimation in Robotics, Planning and Learning in Robotics): Decision Theory, Bayesian Inference, Bayesian Filtering, Particle Filtering, Kalman Filtering, MDPs, POMDPs, Optimal Control, Reinforcement Learning

Cognicom, Inc. San Diego, CA
Research Intern *April 2025 – Present*

- Researched realistic Radio-Frequency (RF) signal data generating diffusion models for training intelligent signal spectrum allocation models, RFML models, and cognitive radios
- Researched latest generative model and robotics technologies to contribute to company's integration of AI

Electrical Engineering Intern *January 2023 – September 2023*

- Implemented in Verilog serial communication protocols, created a precision timer circuit, and created a Xilinx Zynq bare-metal C program to control an LCD screen for a tactical radio

L3Harris Technologies, Inc. Carlsbad, CA
Electrical Engineering Intern *June 2025 – September 2025*

- Studied and presented on latest generative model and robotics technologies to the team
- Migrated a communication design in Verilog from Altera to Xilinx technology; Updated designs for the company's new hardware; Recreated transmission flagging logic on the new design

UC San Diego Institute of Engineering in Medicine (IEM): OPALS La Jolla, CA
Research Intern *June 2022 – August 2022*

- Worked to implement and analyze UCSD Biophotonics Lab research papers relating to cell microsurgery robots
- Worked with a graduate student to test results for a research project about DNA repair in cells treated with red light

Awards

Provost Honors (UCSD) All quarters since Fall 2023 – Present

- Awarded to at the end of each quarter to students who achieve a 3.5 or higher UC GPA in at least 12 graded units

George Eastman Young Leaders Award (High School) May 2022

- Awarded for strong leadership, high grades and challenging courses, and extensive extracurricular activities

Others

Hobbies and Activities

- Drawing, Computer Games, Swimming, Piano