

Julian Quevedo

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Education

Stanford University

Sep 2020 - Jun 2024

Bachelor of Science, Computer Science

Relevant Coursework

ML Machine Learning with Graphs ◦ Natural Language Processing ◦ Coursera Deep Learning Specialization [**cert**]
CS Computer Organization and Systems ◦ Probability for Computer Scientists ◦ Design and Analysis of Algorithms
Physics Mechanics and Special Relativity ◦ Electricity, Magnetism, and Waves ◦ Quantum and Thermal Physics

Experience

Hogan Group

Jun - Aug 2021

Undergraduate Physics Researcher

Stanford University

- Designed Magtrack, an **Arduino**-based device to characterize mu-metal magnetic shielding for the MAGIS-100 atom interferometer
- Wrote a **C** program to communicate with serial devices and synchronize magnetometer measurements with device movement
- Modeled a light yet robust 3D-printed electronics housing using **Solidworks**
- Automated laser power regulation with **Python** and a motorized waveplate mount, saving time spent re-locking lasers throughout the day and improving interferometer stability

Boeing Satellite Systems

Jun - Aug 2019

FPGA Design and Verification Intern

El Segundo, CA

- Developed a 2-way traffic light controller module using **Verilog** as part of summer FPGA project
- Verified design by testing possible input states using testbench scripts and **Cadence NCSim**
- Awarded **Best Technical Presentation** for my poster session on integrated circuit design

Projects

GNNs in Neuroscience

Nov - Dec 2021

- Graph Neural Network framework for predictive neuroscience based on cGCN and BrainGNN
- Uses resting-state fMRI data (taken while subject watches a short film) to predict subject's age group
- Generates ROI correlation matrices data using **ni-learn**, interpreted as a graph of functional connectome
- Uses graph convolutional layers to propagate ROI information and pooling layers to narrow dimensionality into overall graph-level predictions, implemented in **Python** with **PyTorch** and **PyTorch Geometric**
- 1 of 25 featured project blogposts on the Stanford CS 224W GraphML Tutorials Medium page

Policy Gradient Algorithms

Feb 2022

- Implementations of two policy gradient reinforcement learning algorithms: REINFORCE (Sutton & Barto) and SIMPLEREINFORCE (inspired by Karpathy)
- Built from-scratch in **NumPy** without reference to outside code
- Agent learns to play Pong against a hard-coded AI

Vector Field Plotter

Jun - Oct 2021

- Interactive vector field plotter built with **p5.js**
- Approximates differential equation trajectories with Euler's method

dot-buddy

Jan - May 2019

- Instantly calculates hundreds of field checkpoints, step sizes, displacement vectors, other metrics that marching bands typically spend hours working out by hand
- **Congressional App Challenge Winner**, 1.14k downloads on the iOS App Store, built with **Swift**

Programming Languages

Python (PyTorch, DeepSNAP, TensorFlow, NumPy), C, C++, JavaScript (React, node.js, p5.js), Java, Swift, Verilog