Daniel Lohn

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Education

University of California, Santa Barbara, Class of 2023

- B.S. in Computer Science, Cumulative GPA: 3.93
- College of Engineering Honors Program
- Relevant Coursework: Machine Learning, Computer Vision, Computer Graphics, Undergraduate Research, Data Structures & Algorithms, Adv. App Programming

Research Interests

- Computer Vision, Computer Graphics, Machine Learning.
- Virtual, Augmented, and Mixed Reality.
- Generating synthetic data for Computer Vision.
- Generating 3D scenes from text prompts.
- Manipulating depth maps generated by pretrained machine learning models.

Projects *(View more info and my full list of projects at daniellohn.com)*

Plenoxels + CLIP – Optimizing a 3D voxel grid to resemble a text prompt *Jan 2022 – Ongoing*

- Translated a 3D voxel grid and volumetric rendering system from JAX to PyTorch. Added the ability to optimize the voxel grid to resemble image features generated from a text prompt using OpenAI's CLIP model.
- Experimented with different scene representations and loss functions to improve the quality of generated 3D models.

CMPSC 184 Project: H2GO UCSB – Android app for locating and rating drinking water on the UCSB campus. *May 2022*

- (Ongoing as of May 2022) Used Android Studio, the Kotlin programming language, and an as-of-yet undecided database to create an Android application with both mapping and social media features.
- Assembled team of student developers and came up with the app's concept.

CMPSC 148 Project: UCSB Polls – Web app that allows UCSB students to create and vote on polls. *May 2021*

- Implemented a ReactJS front end, which interfaces with Auth0 and an Express server to authenticate and fetch users.
- Wrote backend code for the Express server to get and update user info for the profile page using a Firebase database.

SigNN – Real-time ASL (American Sign Language) Alphabet Translator. *Jan 2020 – Oct 2020*

- A computer-generated neural network architecture generates sign predictions from pose tracking data.
- Set up machine learning models in Google Colab notebooks to test out different types of network architectures.
- Used Google's machine learning pipeline MediaPipe to enable real-time sign language translation on mobile devices.

Publications

Pranav Acharya*, Daniel Lohn*, Vivian Ross*, Maya Ha, Alexander Rich, Ehsan Sayyad, and Tobias Höllerer. "Using Synthetic Data Generation to Probe Multi-View Stereo Networks," In *Proceedings of the International Conference on Computer Vision (ICCV)*, 2021, pp. 1583–1591.

Experience

Software Engineering Intern – Arista Networks, Santa Clara, CA *Jun 2022 – Sep 2022*

- Built a benchmarking tool to monitor the query performance of a vital backend component of a web application for managing, monitoring, and automating deployments of network switches.
- Used Golang, Docker, Kubernetes, gRPC, and Git to add new functionality and tests to cloud applications.

Computer Vision Student Researcher – UC Santa Barbara *Sep 2020 – Aug 2021*

- Developed a tool in the Unity game engine to load 3D indoor scene datasets and generate synthetic data for CV tasks.
- Used tool to generate RGB images, depth maps. Used data as input to five pre-trained 3D reconstruction networks.
- Wrote up how variation of the data impacts network performance, paper accepted to ILDAV workshop at ICCV 2021.

Data Science Intern – UC Santa Barbara Data Science Club *Oct 2019 – Mar 2020*

- Provided assistance to small teams of students working on their own projects involving data collection and analysis.
- Assisted teams with data collection by writing Selenium scripts to scrape and archive data from web sources.
- Presented final project to a large audience of fellow students and a review panel.

Honors and Awards

- **Dean's Honors Recipient, 6 Quarters** – Awarded to students with a GPA of 3.5 or higher *Jun 2021*
- **SigNN** – Winner, Best Overall, UCSB Data Science Project Showcase *Jun 2020*
- **Cloudflu** – Winner, Best use of Domain.org prize, BASEHacks 3.0 *Sep 2019*
- **National AP Scholar** – Received for scoring 4/5 or 5/5 on at least 8 AP exams taken *Aug 2019*