DANIEL HUYNH

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EDUCATION

University of Virginia, School of Engineering and Applied Sciences, Charlottesville, VA ***August 2021 - May 2024***
Bachelor of Science in Computer Science **GPA**: 3.92 / 4.0

- Coursework: Machine Learning, Artificial Intelligence, Natural Language Processing, Web Apps, Computer Systems, Algorithms

SKILLS

- Languages/Frameworks: Java, Python, C++, Typescript, JavaScript, C#, PHP, SQL; Next.js, Angular, Django, Tailwind, Bootstrap
- Software: Git, Docker, AWS (EC2, RDS, Lambda), Arduino IDE, MySQL, PostgreSQL, Heroku, Gradle, MATLAB
- Systems: Windows, MacOS, LINUX (WSL & Ubuntu)
- Libraries: React, TensorFlow, Flask, scikit-learn, PyTorch, JavaFX, NLTK, JUnit, jQuery, BeautifulSoup, Matplotlib, pandas

EXPERIENCE

Software Engineering Intern,* Ansys,** Exton, PA ***May 2024 - Present

- Tasked with implementing the complete redesign and redevelopment of the user interface of the flagship AGI products at Ansys (STK and ODTK) on .NET Core framework, using C#, C++, and WPF.

Perception and Motion Planning Researcher,* Cavalier Autonomous Racing** ***April 2024 - Present

- Lead research on ground segmentation and classification of LiDAR-based point clouds collected from sensors for perception.
- Develop UCS & other graph search algorithms on spatiotemporal graphs to predict best possible path for vehicle from conditions.

Research Assistant & Head of IoT,* Floodwatch Project at University of Virginia (floodwatch.io)** ***May 2023 - Present

- *Head of IoT Team, lead researcher of LiDAR sensors* for mapping floods in cities, solely built sensor transmitting over LoRaWAN network. Program sensor device with Arduino, using C++, with accuracy up to 7 m. Experienced in embedded systems.
- Build and maintain pipeline data collection from IOT devices to gateway to project databases hosted on AWS EC2 as part of Hardware team. Utilized AWS Lambda for pipeline. Funded by *the National Science Foundation.*

Application Engineering Intern,* Ansys,** Exton, PA ***May 2023 – August 2023

- Solely responsible for building software to simulate & calculate large-scale communications data from satellite constellations to ground antennas. Developed algorithm to improve efficiency of conflict resolution computation from quadratic time to logarithmic by over 50%. *Simulation adopted by a major telecommunications company and integrated in next STK release*.
- Developed software to seamlessly convert between multiple industry-wide 3D antenna files ensuring compatibility with STK software, *integrated in next release***.** Researched 3D file format types and file conversion for intern project.
- Built user interfaces, automation scripts, and integration code to modify Ansys STK for customer missions using C++, C#, Python.

Researcher and Subteam Head,* CliniVision Project at UVA** ***September 2023 – May 2024

- Head of *Diagnosis* machine learning team, use PyTorch on medical images/X-rays to detect anomalies against healthy patients, diagnose medical conditions & standardize images using convolutional neural networks (CNNs) and Spatial Transformers.

Teaching Assistant,* CS3100 (Algorithms) & CS2130 (Computer Systems) at UVA** ***August 2022 – May 2023

- ***DSA2***: Led discussions in teaching: algorithms of graph traversal (BFS, DFS, Dijkstra's, Prim's, Kruskal's), greedy algorithms, dynamic programming, recursive relations, proofs, machine learning algorithms, NP/NP-C, runtime analysis.
- ***CSO1***: Direct student learning in C/C++, computer architecture, x86, computer memory, logic gates, writing Assembly, CLI, Linux, SSH, IP, and version control using Git. Led lab sections of ~100 students, owned teaching responsibility for 15 students.

PROJECTS

- ***BudgetBuddy***: **Winner of Capital One's Best Finance Hack HooHacks 2023** *JavaScript, Python, Flask, Twilio API, GPT API*
  User can connect/share access to bank account transaction history and data with Plaid API, make budgeting plan, see current spending analysis on dashboard, and communicate on mobile with app's chatbot through SMS texts for purchasing advice, viewing current progress, or for financial advice, which uses Twilio and GPT API.
- ***HealthWay***: *Next.js, PostgreSQL, YOLOv5 model, Google Cloud, Google Vision AI, FastAPI, Python*
  Health app designed to keep track of contents of user's fridge and generate recipes based on inventory. Used YOLOv5 computer vision model to detect food & direction of movement to determine addition or removal of items, and Vision AI for identification.
- ***HooEvents:*** *Django, PostgreSQL, Heroku, Bootstrap, Google OAuth, Google Maps API, GitHub Actions, JavaScript*
  Social app for students to post and find events, locations, and times at UVA. Solely responsible for login with Google OAuth, pin locations and find directions to events, manage database and migrations to Heroku. Automated CI & testing with GitHub Actions.
- ***Pacman AI Agent***: applying r*einforcement learning*, wrote Q-Learning and Approximate Q-Learning algorithms to train a bot to successfully play and win almost every game of Pacman provided on various size boards, trained on only 50 training games.
- ***Stock Market Bot****:* using **Scrum** methodology: utilized natural language processing NLTK library for sentiment analysis on scraped news headlines concerning stock market trends, and regression on live stock market data to make prediction on stock. Implemented with Beautiful Soup, React to display results of analysis, integrated with Flask.

ACHIEVEMENTS

- University of Virginia SEAS Dean's List: Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Spring 2024
- National Merit Commended Scholar, Class of 2021