DANIEL HUYNH

523 Red Coat Ln, Phoenixville, PA 19460 | danielhuynh523@gmail.com | (215) 870 5157 | Website: **danielhuynh0.github.io**

EDUCATION

University of Virginia, Charlottesville, VA ***August 2021 - May 2024***
Bachelor of Science in Computer Science, *summa cum laude* **GPA**: 3.92 / 4.0

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

SKILLS

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

EXPERIENCE

Software Engineer, *Johns Hopkins University Applied Physics Laboratory,* Laurel, MD ***September 2024 –Present***

- Implement new features monitoring network traffic of critical infrastructure to detect malicious cyberattacks, drastically reduced runtime of network activity analysis through rewrite of traffic logging logic for *FRISC* software. Using *Java, SpringBoot, & React*.
- Increased coverage of *Cloud Dagger Web* widgets code from 33% to 80% by building a new test suite, with *Angular & Jasmine*.

Software Engineer Intern, *Ansys,* Exton, PA ***May 2024 – August 2024***

- Solely built from scratch the menu & toolbar system for the new UI redesign of flagship product *STK* using C#, C++, WPF, .NET.
- Implement changes to low-level & business logic, app startup, file & registry I/O, and bug fixes to backend STK Engine in C++.

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

- Lead research on ground segmentation and classification of LiDAR-based point clouds collected from sensors for perception, investigating the efficacy of Patchwork++ vs Autoware library. Building software using ROS 2 framework.
- Develop UCS & other graph search algorithms on spatiotemporal graphs to predict best possible paths for vehicle from conditions.

Research Assistant & Head of IoT, *FloodWatch Project at UVA* (floodwatch.io) ***May 2023 - August 2024***

- Funded by *National Science Foundation.* Head of IoT Team, lead researcher of LiDAR sensors for flood mapping in cities. Solely built sensor transmitting over LoRaWAN network, deployed by city of Danang, VN. Program sensor device with Arduino & C++.
- Build and maintain pipeline for data collection from IoT devices to gateway to project databases hosted on AWS EC2, build and manage APIs. Utilized AWS Lambda, JavaScript webhooks for pipeline. Experienced in embedded systems, APIs, and networks.

Application Engineer 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 ~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.

Researcher and Head of Diagnosis ML Team, *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 access to bank account transactions with Plaid API, make budgeting plan, view current spending dashboard, and communicate with app's chatbot through SMS texts for purchasing or financial advice, which used Twilio and OpenAI GPT API.
- ***HealthWay***: *Next.js, Typescript, Google Cloud Platform, PostgreSQL, YOLOv5 model, 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, CI/CD*
  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 *reinforcement 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.

ACHIEVEMENTS

- University of Virginia SEAS Dean's List: all semesters, National Merit Commended Scholar (Class of 2021)