






Dzung Nguyen

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Education

University of Pennsylvania: School of Engineering and Applied Sciences

Graduating May 2021

BSE in Computer and Information Science, Minor in Mathematics

Selected Coursework: Data Structures and Algorithms (Java), Programming Languages (Java, OCaml), Computer Architecture (C), Computer Graphics (C++), Big Data Analytics (Python, SQL, MapReduce, Spark, Keras), Computational Linear Algebra.

Jack Kent Cooke Merit Scholarship Recipient

One of the most competitive scholarships in the nation with a 1.6% acceptance rate, covering \$40k in costs annually over 4 years.

Rewriting the Code Undergraduate Fellow

Skills

Languages: Python, C++, C, JavaScript, HTML, CSS, Java, MATLAB, C#.

Tools and Frameworks: OpenGL, Django, React, Pandas, Node, Docker, AWS, PostgreSQL, Keras, Git, Jira.

Platforms: macOS, Ubuntu, Windows.

Experience

Teaching Assistant, University of Pennsylvania – CIS240 | Philadelphia, PA

May 2019 - Present

- Hold weekly office hours and grade exams for computer architecture course with over 200 students enrolled per semester.
- Implement automated grading systems and homework assignments in C and Assembly.

Software Engineering Intern, CBRE Build | Seattle, WA

June – August 2019

- Optimized UI performance for Deal IQ by migrating frontend features from **Angular** to **React**.
- Reduced runtime by 70% for **ETL** pipeline to process real estate transactions with **multiprocessing, Django, PostgreSQL**.
- Integrated Deal IQ data with CBRE's meta database for research and development with **GraphQL**.
- Participated in Agile development with the **Kanban** method and intensive code review process via **Gitlab**.

Research Assistant, Perelman School of Medicine | Philadelphia, PA

December 2018 – June 2019

- Created a new procedure to quickly generate binary masks for cardiac wave scans using **OpenCV** and **MATLAB**.
- Implemented a U-Net model in **Keras**, trained on **AWS** to segment aortic waves from overlapping waves with 82% accuracy. To be used as a plugin in a software helping physicians to efficiently analyze catheterization waveform scans.

Projects

PennCourseRec | **NLP, Django, Bootstrap** course recommendation engine

May 2019 – Present

- Developed **NLP** model combining **Doc2Vec** and **Latent Semantic Analysis** to create corpus of 1000+ courses offered at Penn.
- Delivered to user the most relevant courses based on freeform input description with **cosine similarity**.

Monte Carlo Path Tracer | A **C++** and **OpenGL** physics-based renderer

February 2019 - Present

- Reduced render time by 50+% with optimization techniques such as rapid recursive search in a **k-dimensional tree**.
- Increased scene complexity via homogenous particle rendering (fog), signed-distance functions, and depth of field.

Minecraft Clone | **C++** and **OpenGL** Japanese-ink rendition

November – December 2018

- Minimized gameplay latency with parallelism using **Qt multithreading** library for infinite terrain generation.
- Programmed ray-casting block removal and addition, allowing users to create unique scenes with differently block types.

WeathAR | PennApps XVIII Hackathon **Android** application

September 2018

- Collaborated with team of 4 to build an Android app to minimize human loss from weather disasters in under 48-hour time.
- Programmed **C#** scripts to map weather data to 3D weather assets in **Unity** to display on mobile app.

Leadership and Involvements

Hack4Impact | Software Engineer

September 2019 – Present

Participate in student-lead teams to design and implement open-source software for nonprofit organizations.

Currently a full-stack developer for **Flask-based** web application used to help automate processes such as managing volunteers, scheduling, tracking hours for The People's Emergency Center, whose mission is to strengthen neighborhoods and nurture families in Philadelphia.

SIGGRAPH – Special Interest Group on Computer Graphics | External Relations Chair

September 2018 – Present

Plan networking events with other local chapters, organize alumni panels, run skill-sharing workshops for local UPenn chapter.