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: Digital Media Design, Minor in Mathematics

Selected Coursework: Data Structures and Algorithms (Java), Introduction to Computer Graphics (C++/OpenGL), Physically-based Rendering (C++/OpenGL), Big Data Analytics (Python, SQL, MapReduce, Sparks), Digital Figure Modeling (Maya, ZBrush).

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

Selected from thousands of applicants to participate in women-in-tech community and professional developments.

EXPERIENCE

Full-stack Software Engineering Intern, **CBRE Build |** Seattle, WA June 2019 - Present

- Rebuilding **Extract-Transform-Load** pipeline for processing real estate transactions with $6 billion gross revenue/year, utilized in applications across 3 teams. Technologies include **Django**, **PostgreSQL**, **ElasticSearch**, **Docker**, **AWS**.
- Improving Deal IQ's UI performance (web application for managing transactions used by 3000+ brokers) by migrating frontend features from **AngularJS** to **ReactJS**.
- Used **GraphQL** to integrate Deal IQ data with CBRE's meta database for research and development.
- Reduced runtime to generate accurate test data by 70% with **Python** and **multiprocessing** tools.
- Participated in **Agile** development with **Kaban** workflow, **Jira**, and version control and code review via **Gitlab**.

Teaching Assistant, **University of Pennsylvania |** Philadelphia, PA May 2019 - Present

- Hold weekly office hours and grade exams for CIS240, computer architecture course **(C, Assembly)** with over 100 students enrolled per semester.

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** and trained with **AWS GPU Instances** 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.

Teaching Assistant, **Engineering Summer Academy at Penn |** Philadelphia, PA June – July 2018

- Introduced computer graphics concepts and 3D modeling in **Maya** to 28 high school students from around the world in course taught by Dr. Mark Van Langeveld.

PROJECTS

Monte Carto Path Tracer | *A **C++** and **OpenGL** physically-based renderer built in Qt* February 2019 - Present

- Reduced render time by over 50% with optimization techniques such as early termination with **Russian Roulette**.
- Increased scene complexity via homogenous particle rendering (fog), signed-distance functions, and depth of field.
- Integrated **k-d tree** data structure into photon mapper to improve efficiency while maintaining physical accuracy standards.

PennCourseRec | An nlp-based web application course recommender May 2019 – Present

- Implemented **NLP** recommendation engine in **Python,** combining doc2vec and df-idf models with sentiment analysis to return accurate results based on user's ideal course description.
- Designed and implemented data models in **Django** to store 1500 course objects in **PostgreSQL**.
- Created friendly user interface elements using **Bootstrap**, **HTML**, **CSS** and **JavaScript**.

WeathAR | Android app for visualizing weather data in AR September 2018

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

INVOLVEMENTS AND LEADERSHIP

Penn Women in Computer Science | Mentor September 2018 – Present

Mentor incoming freshman students on course selection, extracurriculars, and coursework management.

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.

Pennaach – South Asian Fusion Dance Troupe | Dancer and Marketing Chair September 2017 – May 2019

Facilitated the marking effort for dance shows of over 200 attendees via social media, promotional videos, and posters.