

# 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 **Python's multiprocessing, Django, PostgreSQL, Elasticsearch, Docker, AWS**.
- Improving Deal IQ's UI performance by migrating frontend features from **AngularJS** to **ReactJS**.
- Used **GraphQL** to integrate Deal IQ data with CBRE's meta database for research and development.
- 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 web application course recommender

May 2019 – Present

- Implemented **NLP** recommendation engine in **Python**, combining doc2vec and tf-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** | PennApps XVIII Hackathon project

September 2018

- Collaborated with team of 4 to create 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

**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.