

EDUCATION

MIT CSAIL Cambridge, MA Aug 2018 – Present

- **Ph.D. in Computer Science**
- **Coursework:** Databases, Computational Theory.

Brown University Providence, RI Sep 2016 – May 2018

- **B.Sc. in Computer Science GPA 3.4**
- **Coursework:** Design and Analysis of Algorithms, Computer Vision, Machine Learning, Distributed Systems, 3D Game Engines.

EMPLOYMENT

Data Engineer Intern SpaceX, Hawthorne CA Jun 2018 – Aug 2018

- Built a dockerized template repository for the team's machine learning work. Became the starting point for all new machine learning projects on the team. The template provided automatic jenkins testing and deployment of an internal REST API for querying the model.
- Worked on a project to estimate operation labor hours. Used ensemble tree models and complex SQL queries against historical audit tables. $R^2=.4$ for ops under an hour and $R^2=.9$ for ops over an hour.
- Optimized code written by other members of the team to allow for memory or CPU heavy code to run on the limited resources SpaceX has internally.
- Provided a model to the avionics team which is able to identify issue tickets which correspond to electrical component failures.

Team Lead Brown Graphics Lab, Providence RI May 2016 - May 2018

- Worked as one of the main developers on NuSys, a pen and touch app for small groups of people to work together synchronously and asynchronously on an unbounded 2D workspace.
- Worked as the team lead for a group of ten engineers developing Dash, the principal project of Andy van Dam's undergraduate research lab. Continuously set and met three week development goals for the entire team, managed code reviews, and presented the application to research groups at both MIT and Berkeley.

LANGUAGES AND TECHNOLOGIES

- C#, Python, C++, Go, Typescript, SQL (Postgres, MSSqlServer, MySQL), Java
- Docker, git, linux, UWP, react, flask, python datascience libraries

TECHNICAL EXPERIENCE

Projects

- **Game Engine:** Designed and implemented an entity component system game engine in C++ and OpenGL with support for animations, physics, collision detection, cascading shadow maps, bounding volume hierarchy for culling physics and rendering, and multiplayer networking. Also created a game using the game engine.
- **Multiperson Hand Pose Estimation:** Adapted and retrained a multiperson body pose estimation project from CMU to identify multiple hand poses in an image. Written in python/tensorflow.
- **LMNtal:** Wrote a parametric terrain generator in C++ and OpenGL with reflective and refractive water, GPU based terrain tessellation, GPU based frustum culling, and a free flying camera.
- **SELECTS and the City:** Wrote a python generator based wrapper for postgres and MySQL in order to easily write and perform machine learning calculations on large datasets (12M+ records) using limited memory of student laptops. Developed map visualizations in d3 with the ability to render up to 200k data points simultaneously with pan zoom functionality.

ADDITIONAL EXPERIENCE AND AWARDS

- **Bike Share Program:** Worked on allocating funding and meeting insurance and safety requirements to implement a bike share program at Boston College. With limited resources we registered the bikes with the library. Keys to the bike locks could get checked out as if they were books and the existing system managed late fees and no return fees.