#### SOFTWARE DEVELOPMENT ENGINEER • FLECTROMECHANICAL ENGINEER

#### **ADDRESS**

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## Work Experience

**Amazon** Seattle, WA, USA

SOFTWARE DEVELOPMENT ENGINEER INTERN

MAY 2018 - JULY 2018

- Software Development | Java, Distributed Systems, NoSQL, DynamoDB
  - (Java) Developed a scalable tool to allow customers to obtain previously inaccessable billing data utilizing distributed computing
  - (DynamoDB) Leveraged consistent hashing algorithms and indexes to ensure proper data distribution to avoid hot keys for big data
  - (Java) Provided customers an iterable interface for programmatic access while lazy loading paginated results of large queries
  - (Java) Created backfilling tool to populate indexes utilized by the tool in order to provide seamless utilization by current customers

Penn State
University Park, PA, USA

**UNDERGRADUATE RESEARCH INTERN** 

MAY 2017 - PRESENT

- Programming | Java, C++, Python, Octave/Matlab, Keras
  - (Java) Created algorithm to re-distribute pathfinding endpoints based on suitability of regions near each endpoint
  - (Python) Developed scripts to automate path forecasting tests, including options to randomize the endpoint and graph weights
  - (Octave/Matlab) Prototyped Machine Learning algorithms
  - (Keras) Experimented with Convolutional Neural Networks for extrapolation of position data

### **Advanced Acoustic Concepts**

Uniontown, PA, USA

MAR 2015 - JAN 2017

**ELECTROMECHANICAL ENGINEER** 

- Software & Hardware Engineering | Test Automation, Arduino, Python, BASH
  - (BASH/Python) Automated server hardware defect checking and network distributed CPU stress tests that were previously done manually
  - (Arduino/C) Designed and programmed test fixtures using bit manipulation to automate testing of ICs and circuit card assemblies
  - (Arduino/C) Synchronized Arduinos to process analog signal information in real-time and adjust output based on a feedback loop
- Mechanical Engineering | Solidworks
  - · (Solidworks) Developed adjustable 3-axis vibration fixtures for rackmount servers and various Hammond enclosures
  - (Solidworks) Designed modular truss structure for supporting winches on ships with the goal of being hot-swappable for missions
- Miscellaneous
  - · Mentored interns to bring them up to speed on projects for the company and assigned work based on skill level/familiarity

# **Projects**

## Parallax (Link: Development Videos)

Classroom & Personal Project

UNREAL ENGINE

MAR 2017

• Parallax is a classroom turned personal project to create a 3-dimensional side scrolling, cover-based shooter. The unique mechanics of the game are that the platforming elements involve depth and the ability for the player to switch between a side-scrolling view that provides better visibility and a low-visibility 3rd person view allowing more accuracy in aiming.

Oculus Drift

HackYSU

C#, UNITY FEB 2017

• OculusDrift was an experiment in audio-visual entrainment employing Unity (C#) and the Oculus Rift. The purpose of the project was to create a relaxing environment by using binaural audio and simulating the user floating through a star field.

Class Projects PSU

### C++, C, C# PYTHON, MATLAB, R, LATEX, BASH

Various

- The repository PSU\_Class\_Projects in my GitHub (linked in the header) contains a variety of class programming projects
- Notable Projects: Pure Content-Based Music Consumption Estimating Neural Network, pathfinding algorithms in C++ and Python,
   OpenMP algorithms in C++, MySQL-like DBMS recreation in C

### Education

### The Pennsylvania State University

• Minors: Engineering Mechanics, Mathematics, Statistics

University Park, PA, USA

December 2019

- B.S. IN ENGINEERING SCIENCE
- Thesis: Effects of Print Orientation, Fill Density and Size on 3D Printed Structures