

Education

University of Illinois at Urbana-Champaign, College of Engineering

Urbana-Champaign, IL

B.S., COMPUTER ENGINEERING

August 2015 — May 2019

- Minor: Statistics
- Honors: Dean's List

COURSEWORK

In Progress Distributed Systems, Computer Security, Probability with Engineering Applications**Completed** Algorithms & Models of Computation, Computer Systems Engineering, Foundations of Data Science, Data Structures, Discrete Structures, Digital Systems Laboratory, Computer Systems and Programming, Differential Equations, Analog Signal Processing, Introduction to Computing, Introduction to Electronics

Experience

Jump Trading

Champaign, IL

INCOMING SOFTWARE ENGINEERING INTERN - CORE DEVELOPMENT

June 2018 — August 2018

- Write highly performant C++ code for Jump's algorithmic trading systems (Bitcoin).

Leidos

Arlington, VA

SOFTWARE ENGINEERING INTERN - ADVANCED SOLUTIONS

January, March 2018

- Using both supervised and unsupervised MLAs to develop an automated analysis model, which will be rendered in Unity.

Capital One

Champaign, IL

SOFTWARE DEVELOPMENT INTERN - CENTER FOR MACHINE LEARNING

September 2017 — October 2017

- Used machine learning algorithms to analyze traffic patterns and detect botnet traffic for external facing websites.

CME Group

Chicago, IL

SOFTWARE ENGINEERING INTERN - TRADE EXECUTION SYSTEMS, ORDER ENTRY TEAM

May 2017 — August 2017

- Worked on core Market Segment Gateway (MSGW) code - the MSGW is the first entry point for every order and is critical to CME's low-latency trading system.
- Developed a python module using the REST API to control AWS EC2 instance life-cycle (Provision, Start, Stop, and Deprovision), which decreased operation time from 40 to 10 minutes.
- Developed frameworks for DropCopy & IPALM, internal CME applications, to deploy & test on AWS EC2 instances - this decreased testing time from 4 hours to 30 minutes.

Johns Hopkins University Applied Physics Laboratory

Laurel, MD

SOFTWARE ENGINEERING INTERN - NAVIGATION GROUP, FORCE PROJECTION SECTOR

June 2013 — August 2013

- Wrote software to implement APL's 1960s autonomous robot, Ferdinand using an adaptation of C, ROBOTC.

Projects

Stock Trading Engine

Milwaukee, WI

HACKATHON @ ROKKINCAT, INDIVIDUAL PROJECT

- Developed a market simulator based on the Wiener Process.
- Implemented functionality to visualize stock price trends.
- Built in Java.

Using Machine Learning to Forecast Market Volatility

Chicago, IL

HACKATHON @ CME GROUP, 3rd PLACE WINNER.

- Designed & trained an artificial neural network with historical market data to predict volatility within the next hour.
- Used predicted volatility to adjust per-order transaction fees, thereby maximizing volume and consequently revenue.
- Projected revenue, based on Jaeckel's Solution for implied volatility at a given price point, to increase by 3%.
- Built using the REST API and the following python packages: pandas, numpy, and scikit-learn.

Brick Breaker Game

Urbana-Champaign, IL

GROUP PROJECT

- Implemented a graphic-intensive Brick Breaker game playable with a VGA Monitor, USB keyboard, & DE2-115 FPGA board. Built using SystemVerilog, C, & Python.

Relevant Skills

Languages	C, C++, Java, x86, SystemVerilog, Python, SQL, HTML, CSS, Javascript, ROBOTC, \LaTeX
Client	Bootstrap, React
Cloud	AWS, CloudClient
Debugging Tools	GDB, Valgrind, ASAN
Version Control	Subversion, Git
Automation	Ansible, vRa