

# Arthur K. Zhang

Project Portfolio: [www.arthurkzhang.com](http://www.arthurkzhang.com)

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## Education

University of Michigan, Ann Arbor, MI

May 2022

Bachelors in Science and Engineering in Computer Engineering

GPA: 3.85/4.0

Coursework: Algorithms and Data Structures, Logic Chip Design, Differential Equations

## Work Experience

Sandia National Laboratories (Software Engineering R & D Intern)

May - August 2019

- Architected SQL database and automated data processing pipeline to analyze radiological data from nuclear detectors for scientists in Lawrence Livermore and Pacific National Labs
- Optimized regression algorithms for radiation particle analysis to improve computation accuracy by 20% and built continuous integration/deployment pipeline (CI/CD) for unit and integration testing

Clinic (Software Engineering Intern)

June - August 2018

- Developed and optimized website features on Spotlight AI platform across full web stack to improve user experience for global corporate clients, such as isBank and USAA
- Designed an end-to-end automated testing infrastructure that reduced bugs pushed to production by 40%

## Extracurricular Activities

University of Michigan Spark Electric Motorcycle Racing Team

August 2018 - Present

- Built in-browser telemetry system GUI and programmed onboard sensor payload in C for displaying real-time motorcycle performance metrics during circuit races
- Designed custom PCBs for telemetry and battery management systems using Altium Designer and programming embedded control systems in C for battery cooling systems and cell pack balancing

Shift Student Creator Space

August 2018 - Present

- Designing and manufacturing several embedded C projects, including an electric longboard and speed controllers

## Projects

Dead Reckoning (<https://github.com/KingArthurZ3/Dead-Reckoning>)

- A distributed embedded system that deploys sensor fusion algorithms for performing attitude determination on inertial measurement units (IMUs) and position state estimation with Kalman Filters; built for STM32 ARM-based microcontroller and completely written in C
- Controls three microcontrollers and IMUs in parallel with custom written clock synchronization and Byzantine Generals algorithm to support triple fault redundancy

Electric Longboard (<http://www.arthurkzhang.com/#/projects>)

- Electric Longboard with a custom battery management system and Bluetooth nunchuck controller; designed with Altium, Autodesk Inventor, and programmed in C
- Retrofitting Wii Nunchuck and speed controllers with Bluetooth sensor module to control speed controllers; developed CAN communication code in C to synchronize dual wheel motors

Mr. MarketWatch (<https://github.com/KingArthurZ3/MrMarketWatch>)

- A collection of machine learning (ML) models that analyze stock market technical data and recommend specific stocks to buy based on their predicted profit/loss ratio; written in Python and Javascript on top of Tensorflow and Vue.js frameworks
- Automated hyperparameter tuning on Random Forest, XGBoost, and Convolutional ML models; Developed web parser to scrape numeric financial data and automatically retrain ML models

Fashion-Mnist (<https://github.com/KingArthurZ3/fashion-mnist>)

- A Convolutional Neural Network that recognizes images of clothing and classifies them by clothing type; analyzed in Python with Tensorflow Backend

## Skills

Computer Programming: C++, C, Javascript, Python, Java, Matlab, Tensorflow, React.js, Vue.js, Django, Selenium, MySQL

Computer-Aided Design: Autodesk Inventor, Altium PCB Designer, Autodesk Eagle, Solidworks