

## Skills

- **Programming Languages:** Java, Python, SQL, JavaScript, C, C++, HTML, CSS, and SCSS.
- **Technical Tools:** JUnit, PostgreSQL, JSON, AJAX, Django, Flask, NoSQL (Redis), SQLite, Git, AWS (RDS), TensorFlow, Keras, VMware, Github, GCC, HTTPS, Telnet, Linux (Ubuntu), Bootstrap, EclEmma, Matplotlib.
- **Software Development Principles:** Design and Analysis of Backend Distributed Systems, Database Modeling & Design, Full-Stack Web Development, Front-End UI/UX Design, REST API & Network Protocol Design, Test-Driven Development, Algorithms & Data Structures, Agile, CI/CD, Programming Paradigms (Object-Oriented, Asynchronous, Functional, Parallel), Caching, Cloud Computing and Storage, Data Analysis, Machine Learning.

## Technical Projects (on my GitHub)

**Multiplayer Minesweeper** ([bit.ly/31Yskgo](https://bit.ly/31Yskgo)): Developed a Java server application using network sockets that allows multiple clients to play multiplayer minesweeper over Telnet. Designed multithreaded server modules using synchronization with locks and multiple thread-safe message queues to improve scalability and safely handle dozens of concurrent clients in one game board. Made a custom regular grammar ASCII-based application layer wire protocol for sending messages using Java streams between client and server. Developed automated JUnit tests (unit, integration, server-side and client-side) to validate for correctness with concurrent client connections.

**Social Network** ([youtu.be/krm\\_nRB1hmc](https://youtu.be/krm_nRB1hmc)): Developed a full-stack Twitter-like social network website using Python by designing a distributed system with a Django web application server, PostgreSQL database server, and Redis NoSQL cache server. Benchmarked web server requests with Python test scripts and reduced latency by 30% using user-specific per-view Redis caching. Designed a single-page user interface with a server-side JSON REST API and client-side JavaScript/AJAX scripts to asynchronously respond to HTTPS requests. Implemented front and back-end user authentication with encrypted cookies to prevent cross-site reference forgery and unauthorized user API access. Designed and developed PostgreSQL database models to handle new posts, likes, follows, and edits. Performed SQLite and PostgreSQL migrations, backups and restorations using JSON. Used GitHub and Git to iteratively prototype, develop, and test new features (database migrations, caching, and benchmarking). Designed front-end web page templates using HTML, CSS, SCSS, and Bootstrap.

**Email** ([youtu.be/dox7e7Zaqaw](https://youtu.be/dox7e7Zaqaw)): Developed a full-stack email website with a Django web server using Python. Supported a single-page front-end user interface for all user interactions (composing, viewing, and replying to emails) by designing a server-side JSON REST API and client-side JavaScript/AJAX scripts to asynchronously respond to HTTPS requests. Designed front-end web page templates using HTML, CSS, SCSS, and Bootstrap. Designed and developed SQLite relational database models to handle new users and emails.

**Traffic** ([youtu.be/cC-Hpk9I-t8](https://youtu.be/cC-Hpk9I-t8)): Developed a machine learning model using a convolutional neural network with Python, Keras, and TensorFlow that classifies with greater than 98% accuracy 43 different kinds of road signs trained and cross validated on a dataset of thousands of images (German Traffic Sign Recognition Benchmark).

## Education

Harvard University	CS50 Certificate in Web Programming	Expected Feb 2022
Harvard University	CS50 Certificate in Artificial Intelligence with Python	June 2020
Harvard University	CS50x Certificate: Introduction to Computer Science	May 2020
Haverford College	Bachelor of Arts in Philosophy	May 2017

## Work Experience

Global Sourcing Specialist      US Dairy Trade, Inc.      Hartland, WI      Sep 2017- Jan 2022

- Sourced dairy and fruit products from North and South America for export to China. Communicated with new suppliers and negotiated purchasing contracts following specifications of a Chinese partner company.