

Charles Bolton

208-709-8950 | charboltron@gmail.com | Portland, OR

Education

Portland State University: Master's Computer Science (3.95 GPA) 2020

Portland State University: Accelerated Undergrad Computer Science 2019

Portland State University: Bachelor's English Literature 2009

Portland Community College: Audio Engineering 2018

Skills

Programming: C, C++, Python, Java, Javascript, Haskell

Development: HTML, CSS, Bootstrap, React, Angular, Node.js, ejs, Android

Databases: Postgres, MySQL, Pandas, MongoDB, Mongoose, Sequelize, sqlalchemy

Engineering: Agile, Scrum, Project MGMT, Leadership, Design, Architecture, Fullstack

Mathematics: AI/ML, Numerical/Theory Computation, Algorithms, Cryptography, Quantum Computing, DSP

Tools: Latex, Postman, Jupyter, Flask, Matplotlib, Android Studio, VS Code, IntelliJ, JUnit, Mockito, Travis, Git

Languages: English, Chinese, Spanish

Projects And Websites

Portfolio: <https://charboltron.github.io>

Github: <https://www.github.com/charboltron>

LinkedIn: <https://www.linkedin.com/in/charboltron/>

Fullstack App: <https://best-trivia-game.herokuapp.com/>

Work Experience

Graduate Teaching Assistant Grader and TA at PSU. 2019-2020

Teacher: Taught ESL, Chinese, all ages in China, Japan, USA 2010-2016

Teahouse Personnel: Barista, Warehouse, Driver, at Brew Dr. Tea 2007-2018

Freelance: Translator/Interpreter (ZH->EN), book editor, audio engineer

Project Examples

Fullstack Trivia App: Javascript, HTML/CSS and Bootstrap, postgresSQL. Made API calls to a database of trivia questions and presented them to users in game with signup, login, leaderboard, and other features.

Cryptography: Twofish-like protocol using a Feistel structure and other symmetric methods. Elgamal asymmetric key exchange and encryption scheme using square multiply and Miller-Rabin primality test. Graduate lecture on elliptic curve cryptography and ECC Diffie-Hellman key-exchange. Research paper investigating candidate solutions for post-quantum cryptography.

Countries Database: Created a small relational database and corresponding embedded-SQL application with countries data related to statistics such as human rights, wealth and income, etc. Used postgresSQL, pandas, sqlalchemy and psycpg2.

MIT Battlecode Software Engineering : Project manager for a small team of engineers using an sprint process with the goal of building a complicated Java program to compete in the battlecode robot competition, an annual exercise in developing features for a multithreaded interface.

Digital Signal Processing & Ear Trainer: Created over 5000 .wav files of sine, square, saw, and triangle waves, and combined them in many musical ways, wrote a Discrete Fourier Transform which decomposed waves. Made a game/practice tool for audio engineers and musicians.

RESTful API and Spreadsheet Parser: Internship with ecommerce consulting company The Good. Worked with a strategist and two software developers over the course of five months. Data wrangling from spreadsheets to REST API using pandas, flask, JSON, postman.

AI/ML: Sliding puzzle solver comparing A* with several heuristics. 8-queens puzzle solver using genetic algorithms. FFTs and GAs for audio mimicry. NBA success prediction: comparing SVM, Regression, Naive Bayes and Random Forest. Comparing simple perceptron model to multilayer perceptron using MNIST handwritten digits data. Predicting spam email using probabilistic Bayesian and logistic regression models. Unsupervised K-means clustering on random data.

For more details on these and other projects, please visit my portfolio site.