



## EDUCATION

### B.A. in Computer Science

GRINNELL COLLEGE | MAY 2020

Major GPA: 3.87 with Honors

## INTERESTED TOPICS

Empower non-coders & researchers  
Improve code development process  
Proofs, types, computation theory  
Operating systems and DevOps

## COURSEWORK

### Computation

HCI and programming  
Computation theory  
Computer vision  
Advanced operating systems  
Computer organization & architecture  
Algorithm and data Structure  
OOP, imperative, functional  
programming paradigms

### Math

Graph theory • Linear algebra • Calc

## SKILLS

### Programming Languages

☑ C/C++ • TypeScript/JavaScript • Rust  
• Python • Haskell  
☑ Java • MATLAB • Bash • Scheme •  
Assembly • Dart  
☑ Go • Swift • Objective C

### Frameworks, Libraries, Tools

#### Web Dev

☑ D3.js • Node.js • React • Webpack •  
Webassembly • Flutter

#### DevOps & Data

☑ Jenkins • Docker • Kubernetes •  
MySQL • RabbitMQ

#### Deep Learning

☑ TensorFlow • scikit-learn • Keras

### General

#### Software

ADOBE suite • Tableau • Stata •  $\LaTeX$

#### Languages

English • Chinese • German • Korean

### Interests

#### Dance

Kpop Dance cover & performance 🎭  
Modern dance composition &  
performance w/ theme of inclusion 🎭

#### Origami 🎭

Led a 120-min origami class combining  
lecture & hands-on activities

## INDUSTRY WORK EXPERIENCE

### Qualcomm | JULY 2020 - PRESENT

#### 📍 software engineer

- Design and implement various 5G modem features
- Maintain the debugging tools and further streamline the automation, which saves on-call developers debugging time on urgent issues
- Establish data collection, cleaning and storage pipeline for ML purpose

## PROGRAMMING PROJECTS

### Developing Tools and Productivity | SPRING 2020 - PRESENT

- Simple Regex**  $\langle \rangle$ : An LISP like language that saves human from inhumane regex syntax
- Enables writing type-checked, modular, reusable expressions using functions and variables.
- Log Analysis**  $\langle \rangle$ : A VScode extension to filter keywords for efficient examination of log files
- Compatible with VScode async workflow
  - Supports multiple tabs and multiple windows
  - 700 downloads with 5 star review

### Web and Games | FALL 2020 - PRESENT

**Infrared Camera Placement Challenge**: Designing and implementing a game for public awareness of the wildlife conservation and research process for ShanShui Conservation Center

- Design prototype in Figma
- Implement the game in flutter

**QR-Haggis**  $\langle \rangle$ : Web poker game that plays through QR-code offline or websocket online

- Wrote game logic in Rust and compiled to Webassembly; Frontend rendering in React
- Hand crafted the compression algorithm to fit the whole game state into QRcode

### Operating Systems and C/C++ | SUMMER 2018 - SUMMER 2020

**Checkboard**: Use virtual page aliasing to mitigate false sharing, a cache performance issue

- Wrote a customized memory allocator
- Utilized hardware performance stats as heuristics

**No Use after Free**  $\langle \rangle$ : A customized memory allocator to prevent all use-after-free and double-free errors in C/C++, which are currently the top root causes of CVE

- Utilized virtual page aliasing and MMU to invalidate freed objects
- Covered corner cases including large objects, interior pointers, parallel programs
- Very low time overhead in the evaluation process (7/10 benchmarks have <1% overhead)

**Analysis of EXecution**: A software profiler to analyze physical resource usage

- Spearheaded the development of data visualization part using D3.js
- Streamlined C++ code collecting performance data through Linux API
- Designed and standardized the data format for the data analysis in Protocol Buffers

## PUBLIC SERVICE

### PPE donation from China to US for COVID-19 🎭 | SPRING - SUMMER 2020

#### 📍 organizer

Initialized and organized the donation of PPE from 150+ donors to a small college town

- Collaborated with student families, alumni, manufacturers, and non-profit organizations
- Selected products and wrote education materials guided by health professionals and standards
- Led the fund-raising, purchase, shipping, distribution and education of PPE usage
- Special care for vulnerable groups including the elders, children, MCPs, and immigrants

### Assisting environmental agency and researchers | SPRING 2020 - PRESENT

#### 📍 developer

- Developing the camera placement game as mentioned above for public education
- Automated department data analysis pipeline using JupyterLab for non-coder researchers

### Intro CS Classes & Liberal Arts in Prison 🎭 | FALL 2017 - SUMMER 2020

#### 📍 teaching assistant, volunteer

- Graded homework and labs, held review sessions, and wrote worksheets
- Emphasized high level planning, and best practices in coding
- Led 1:1 math courses for students in prison w/o concrete math foundation