



## 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 •  $\text{\LaTeX}$   
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 firmware features
- Maintain the testing tools and further streamline the automation
- Establish data collection and analysis pipeline for internal machine learning team

## PROGRAMMING PROJECTS

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

- Simple Regex** </> : An LISP like language that saves human from inhumane regex syntax
- Enables writing type-checked, modular, reusable expressions using functions and variables.
- Log Analysis** 🎭 </> : 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** 🎭 </> : 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** </> : 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