

# Charlotte Chen

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## EDUCATION

### Columbia University

*B.S. Computer Engineering, Minor in Biomedical Engineering*

- GPA: ?/4.3 (Major GPA: ?/4.3)

New York, NY

*Sept. 2024 – May 2026*

### Grinnell College

*B.A. Computer Science, B.A. Japanese*

- GPA: 3.96/4.0 (Major GPA: 4.0/4.0)
- Dean's List (five semesters)

Grinnell, IA

*Aug. 2021 – May 2024*

Relevant Coursework: Computer Organization and Architecture, Operating System, Analysis of Algorithms, Automata and Formal Languages

## RESEARCH EXPERIENCE

### GreenerSKU: Lower Carbon Datacenter Operations Research

*University of Minnesota Twin Cities*

- Developed a simulation model to evaluate the carbon emissions of datacenter operations
- Analyzed the impact of different datacenter configurations on carbon emissions
- Identified and analyzed bugs in the simulation model

May. 2024 – Present

*Minneapolis, MN*

### Autonomous Driving Research

*North Carolina State University*

- Implemented remote control hardware systems to enhance the evaluation of autonomous driving algorithms
- Wrote advanced algorithms for autonomous driving, focusing on optimizing vehicle behavior, safety, and efficiency
- Analyzed the performance of the algorithms in real-world driving scenarios

Dec. 2023 – April 2024

*Raleigh, NC*

### Japanese Independent Research

*Grinnell College*

- Researched the relationship between Japanese and Chinese languages and its impact on Japanese education
- Held interviews with Japanese professors and students to gather data
- Wrote a 20-page paper on the topic and presented in the Japanese department

Sep. 2023 – Dec. 2023

*Grinnell, IA*

### Stats2Lab Software Development Research

*Grinnell College*

- Designed and developed three web educational games in Unity using C# (Farmer, Greenhouse, and Coffeetruck) to assist teaching of multivariate statistical models in college courses
- Deployed games to 1000+ students as part of undergraduate statistics curriculum at 5 institutions for testing
- Developed a web application to collect and analyze data from the games

Feb. 2023 – Sept. 2023

*Grinnell, IA*

## TEACHING EXPERIENCE

### Computer Architecture Course Mentor

*Department of Computer Science, Grinnell College*

- Managed weekly prep assignments, check-ins, and general logistics for class
- Held multiple weekly discussions, labs, and homework sessions for students
- Answered questions and provided feedback on assignments

Jan. 2024 – May 2024

*Grinnell, IA*

### General Chemistry Course Mentor

*Department of Chemistry, Grinnell College*

- Managed weekly prep assignments, check-ins, and general logistics for class
- Held multiple weekly discussions, labs, and homework sessions for students
- Answered questions and provided feedback on assignments

Jan. 2023 – Dec. 2023

*Grinnell, IA*

### Physics Lab Assistant

*Department of Physics, Grinnell College*

- Tutored students in fundamental physics course sequence (Mechanics, E&M)
- Assisted professor setup lab apparatus

Sep. 2022 – Sep. 2023

*Grinnell, IA*

## PROJECTS

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### **COOL Compiler** | *lex, Java, C++*

June 2024 – August 2024

- Developed a compiler for the COOL programming language
- Implemented lexical analysis, parsing, semantic analysis, and code generation

### **Pintos Operating System** | *C, Assembly*

May 2023 – August 2023

- Implemented user program support, system call interface, priority thread scheduling, and cached file system of the Pintos Operating System
- Optimized the system by priority scheduling, lazy loading, and cache manipulation

### **NUMC** | *C, Python, SIMD*

April 2023 – June 2023

- Replicated the NumPy functions of matrix operation in C and generated python package
- Optimized the package by SIMD, OpenMP, loop unrolling, cache manipulation, matrix transposition

### **CS61CPU** | *C, Assembly*

March 2023 – May 2023

- Designed and implemented a skeleton CPU that can execute RISC-V instructions
- Implemented a 2-stage pipeline and branch prediction

### **Gitlet** | *Java, Git, Maven*

Dec. 2022 – Jan. 2023

- Developed a simple version control system in Java that mimics some of the basic features of Git
- Used Java standard library to implement init, add, commit, log, branch, checkout functions
- Implemented remote features, allowing collaboration with other people over the internet

## GRANTS

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- Grinnell College. Student Research Fund. \$4000. Awarded March 2023
- University of Minnesota Twin Cities. Undergraduate Research Opportunities Program. \$???. Awarded May 2024