

# Conghao Shen

Berkeley, CA

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## EDUCATION

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**University of California, Berkeley, CA**

**May 2022**

Intended Computer Science B.A. (Plan to declare in 12/2019)

GPA: 3.971/4.0

**Relevant Coursework:** CS170: Algorithms CS161: Computer security

CS61A: The Structure and Interpretation of Computer Programs CS61B: Data Structures CS61C: Great Ideas of Computer Architecture (Machine Structures) CS70: Discrete Mathematics and Probability Theory EE16A: Designing Information Devices and Systems CSC8: Foundations of Data Science

## SKILLS

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**Coding Experience:** Familiar with Python, Java, C. Know C++, PHP, Go, Javascript

**Learning Ability:** Able to learn and start to use a new programming language in few days.

**Miscellaneous:** RISC-V based architecture design, cache-friendly programming, thread-level parallelism, data-level parallelism (SSE & AVX intrinsics, Spark), common data structures and algorithms, RSA encryption, secret sharing scheme

**Working Language:** Fluent in English and Chinese. Basic level of Japanese.

**What I am working on this semester:** Advanced Algorithms, Cryptography, memory safety

## HIGHLIGHTED PROJECT & EXPERIENCE

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**Byte Scissor**

Fall 2019

*Personal Project:* <https://github.com/tsunrise/ByteScissor>

- Implemented a secret sharing scheme, using C++.
- The tool splits a file into fragments. File can be restored if required amount of fragments (any of those) are recovered.
- Wrote finite-field arithmetic code (add/subtract/multiply/inverse) to speed up calculation and avoid overflow error.
- Designed a file format to compress fragment size by half, using bitwise operations.
- Improved spatial locality to make this program cache friendly
- Used OpenMP to speed up

**GAME: CYBERSNAKE**

Spring 2019

*Course Project: CS 61B: Data Structures – UC Berkeley*

- Wrote a multi-player game from scratch – using Java
- Cooperated with another team member using a shared repository
- Built frameworks and kernel by myself, allowing other team members write code to add more functionalities. The kernel includes essential game mechanisms: clock, data saving, user I/O. All other functions were written as plugins.
- Built various tests, including randomized tests and edge cases.

## LEADERSHIP & EXTRACURRICULAR ACTIVITIES

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**UC Berkeley EECS Department**

Fall 2019

*Academic Intern*

- Supported weekly sections of 50+ students.
- Helped students to debug the code and understand core concepts such as trees, heaps, asymptotic, etc.

**CalHacks 2019**

*Team Member*

- 48 hour hackathon
- Developed the prototype of a social AR-based App. User can post note anywhere (on the table, near a tree, etc) and others can see it.
- My contribution: use React to build an interactive map, showing the location of the post.