

# Jimmy J. Li

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## EDUCATION

### University of Chicago

*Majors: B.S. Computer Science, B.A. Business Economics*

Chicago, IL

Expected Jun. 2027

## EXPERIENCE

### Voiceblocks

*Full stack Engineer*

Remote

Jun. 2025

- Designed the MVP backend architecture, including secure authentication and database schema. Implemented the web application based on design specifications from the product and art team
- Designed the infrastructure on GCP and attended Google's AI Agent class for startups to prepare for future AI integration.
- Conducted market research on EdTech SaaS, saving the team at least two weeks and accelerating product strategy decisions.

### Texas A&M University System

*Teaching Assistant, Calculus 1*

Commerce, TX

Jan. 2024 - May. 2024

- Assisted 50 students during lecture and lab by providing guidance on problem-solving and reinforcing key concepts.
- Hosted weekly review sessions and lectures to support student comprehension and exam preparation.
- Dedicated 10 paid hours weekly to student support and regularly volunteered additional hours to assist students outside of class and review session hours.

### Research Assistant

Sept. 2023 - May. 2024

- Conducted research under the mentorship of Dr. Abdullah Arslan, CS Department Head, focusing on AI-based object detection and classification techniques.
- Explored machine learning approaches for recognizing rigid objects in digital imagery, with emphasis on deep neural networks and computer vision pipelines.
- Implemented and tested models using YOLOv3 and Faster R-CNN architectures with MXNet, PyTorch, and OpenCV.

## TECHNICAL PROJECTS

### 8-bit CPU & Cache Simulator in C

Oct. 2025 - Dec. 2024

- Implemented a cycle-accurate CPU simulator with 256-byte memory (8-bit address space) and 8 registers.
- Implemented a 4-set, 2-way set-associative cache with 4-byte blocks, tag/set/offset decoding, and write-through regime.
- Implemented instruction execution (movb, addb) supporting immediate, register, and memory operands with modulo-256 arithmetic.

### Python Implementation of a Card Game (Group project) (GUI/Game Logic)

Jan. 2025 - Mar. 2025

- In a team of four students, developed a playable card game, including the game logic, a GUI, a terminal-based interface, a simple gameplaying strategy, and tests. Code is available upon request.

### Molecular Dynamics Simulations on the Ice-Crystal Inhibition of the Type III Antifreeze Protein

Jan. 2025 - Mar. 2025

- Designed and executed molecular dynamics simulations to study how the 1UCS antifreeze protein inhibits ice-crystal growth in polar fish. Compared protein-containing vs. bulk-water systems under controlled freeze-thaw conditions.
- Analyzed hydrogen-bond formation, water mobility, and protein conformational stability using a TIP4P/2005 water model and NAMD 2.11 on a high-performance computing cluster.
- Discovered a critical bug in NAMD 2.14 that prevented its use with the TIP4P/2005 model, leading to a switch to NAMD 2.11 on the Midway2 supercomputer for reliable simulation results.

## Skills & Interests

**Programming Languages:** Python, C, C++, R

**Frameworks & Libraries:** pygame, pytest, NumPy, YOLOv3, OpenCV, PostgreSQL

**Tools & Platforms:** Git, Github, Unix/posix/Linux, VMD, GCP, HTML, CSS

**Languages:** Native Proficiency: Mandarin & Sichuanese

**Interests:** Concert Piano (12+ years), Jazz Big Band, Marching Band, League of Legends(Diamond), Golf, Mechanics

**Other:** TIP4P/2005, Microsoft Excel, Microsoft Word