# Chuhui Han

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## EDUCATION

**University of California, Berkeley**                                    **Berkeley, CA**
*B.A. Computer Science and Data Science*                                    *Dec 2025*
- **Relevant Coursework:** Data Structures, Efficient Algorithms, Operating Systems, Database Systems, Computer Security, Machine Learning, Artificial Intelligence, User Interface Design, Probability for Data Science, Computer Architecture

## EXPERIENCE

**The Hong Kong University of Science and Technology**                    **Clear Water Bay, HK**
*Summer Exchange Program*                                            *June 2023 – Aug 2023*
- Optimized and implemented backend SQL queries for a student-project matching system serving 300+ students and 40+ faculty, achieving up to a 3x reduction in query execution time through indexing, query restructuring, and join optimization.
- Designed relational schemas and wrote complex SQL queries to support preference matching, group/faculty lookup, and group membership management.
- Integrated query results into an existing JavaScript codebase to support dynamic data rendering and user interactions.
- Collaborated with peers to solve real-world database performance and scalability challenges, enhancing teamwork and adaptability.

**AUSD Collaborative Coding Club**                                          **Alameda, CA**
*Club Co-President*                                                *August 2019 – June 2021*
- Revitalized a dormant coding club, creating a community for students interested in enhancing their programming skills. Expanded by establishing a district-wide network, integrating all other coding clubs from the Alameda School District.
- Organized and facilitated weekly educational Zoom sessions, increasing participation by 70% over 1 year.
- Provided mentorship and mini-group sessions to further develop students' skills and answer questions.
- Coordinated with other schools' club presidents and faculty to secure resources and support, ensuring sustainability and growth within the network.

## PROJECTS

**Perceptrix** | React, JavaScript, TensorFlow.js
- Collaborated in a team of 5 using an Agile development process to build a web app that recommends glasses based on face shape.
- Contributed to UI/UX design discussions and implementation, using Figma to mock up and prototype key interface components.
- Integrated facial landmark detection APIs to classify user face shape, enhancing recommendation accuracy.
- Used TensorFlow.js to map eyes, nose, and other facial features for virtual glasses try-ons.
- Showcased app at the Jacobs Design Showcase at UC Berkeley to 150-200 attendees, receiving highly positive feedback for its usefulness and usability.

**Football (Soccer) Analysis System** | Python, Ultralytics YOLO, Google Colab
- Built a video analysis system for real-time player and ball detection, using Python and Ultralytics YOLOv8.
- Applied k-means clustering to detect and group jersey colors and calculate key metrics such as ball retention (possession rate), player speed, and distance covered.
- Trained the model on 600+ frames of Bundesliga football games and later fine-tuned it on personal gameplay videos to generate individualized performance insights.
- Reduced overfitting and improved generalization by refining feature selection, improving data labeling quality, and iteratively tuning model parameters across diverse camera angles and lighting conditions.

**Gitlet** | Java, J-Unit Testing, File I/O
- Implemented a simplified Git-like version control system supporting branching, merging, resets, and conflict resolution.
- Applied graph and tree traversal algorithms (BFS, DFS) to manage commit history and branch structures.
- Gained hands-on experience with the Java I/O system, Java file handling, and debugging complex stateful systems through IntelliJ.
- Enhanced problem-solving skills through design and implementation of efficient algorithms for navigating and manipulating data structures.

## TECHNICAL SKILLS

**Programming Languages:** Java, Python, TypeScript, JavaScript, C, SQL, RISC-V/x86 Assembly, HTML/CSS

**Frameworks & Libraries:** React, React Native, Node.js, Express.js, Django, Flask, TailwindCSS

**Databases & Tools:** MongoDB, MySQL, Supabase, Git, Docker, Vercel, JUnit

**Additional Skills:** Technical Documentation (Notion, LaTeX), Project Management, Figma Design, Analytical Writing

**Languages:** English (native), Cantonese (native), Mandarin (intermediate proficiency)