LILY YANG

Berkeley, CA | lily.m.yang@berkeley.edu | 5105704274 | linkedin.com/in/your-profile | github.com/ReneesmeS | reneesmes.github.io/portfolio

SUMMARY

Curious and hands-on engineering student passionate about game systems, algorithms, and building tools that make learning easier. Experienced in full-stack game and web development, applied algorithm research, and end-to-end project ownership. Strong foundation in C++, Python, and JavaScript; actively exploring web security and CTF challenges.

EDUCATION

University of California, Berkeley — College of Engineering
Bachelor of Science, Engineering Mathematics & Statistics · Expected May 2029

Shanghai World Foreign Language Academy
International Baccalaureate (IB) Diploma · Graduated May 2025

TECHNICAL SKILLS

- **Languages:** C++, Python, C#, JavaScript, SQL
- **Frameworks & Tools:** Unity, Node.js, Socket.IO, Flask, HTML5 Canvas
- **Concepts:** Algorithm design, optimization, machine learning, data analysis, OCR/ETL pipelines
- **Languages (spoken):** English (Fluent), Mandarin (Native), Spanish (Intermediate)

SELECTED PROJECTS

Gridfall — Tactical Roguelike Card Game · JavaScript, HTML5 Canvas

- Built core gameplay loop, deck-building mechanics, and modular card-effect system.
- Implemented A* pathfinding and personality-driven enemy AI for varied encounters.
- Designed performance optimizations to keep rendering smooth during complex animations.

Ultra Ordem — Multiplayer Card Game Platform · Node.js, Socket.IO, JavaScript

- Developed server-authoritative real-time multiplayer backend with persistent rooms and event-driven state synchronization.
- Managed concurrency and state integrity to prevent cheating and enable consistent gameplay across clients.

Toolbox — Ebook & Math OCR Web Service · Python, Flask, OCR, TTS

- Evolved personal CLI utilities into a deployed web service: TXT→EPUB conversion, long-form text → audiobook, and math OCR → LaTeX.
- Built preprocessing and symbol-mapping pipelines to improve formula recognition accuracy; deployed on Render.

Book Recommendation System (Naïve Bayes) · Python, Data Analysis

- First-author research project implementing and comparing content-based and collaborative filtering approaches; evaluated tradeoffs and model performance.

3D Bin Packing — Optimization Research · SMT solvers, algorithm design

- Research assistant role developing an SMT-based 3D bin packing solver for express delivery; achieved ~5% average improvement in space utilization vs. heuristics.

Route Optimization (TSP) — Local Logistics · Python, graph algorithms

- Optimized delivery routing for a local bakery during COVID lockdown using branch-and-bound with greedy heuristics to reduce route time.

C++ RPG/Strategy Game (WIP — 50k+ LOC) · C++, SQL

- Large systems project modeling spells, attributes, progression, and combat mechanics; focused on math-based balancing and engine-less systems design.

Other work & experimentation

- Early web game (first project in junior high) and multiple browser game prototypes.
- Ongoing Unity/C# mobile game in development.
- Built personal data-collection scripts for research/utility purposes; exploring web security and have participated in CTF events to learn defensive/offensive web techniques.

LEADERSHIP & ACTIVITIES

Pie Queen Ultimate Frisbee, UC Berkeley — Team Member · Sep 2025 – Present
Be My Eyes — Sighted Volunteer · Jun 2019 – Present
Varsity Track & Field (Captain) — Shanghai, CN · Sep 2021 – May 2025

AWARDS & HONORS

- AIME Qualifier (2022, 2023)
- International Linguistics Olympiad — National Team Trials (2023, 2024)
- HiMCM Honorable Mention (2022)