Zhehao Cai

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EDUCATION

University of California, Santa Cruz, *Baskin School of Engineering*   **Expected June 2026**
- **Major:** Computer Science: Computer Game Design (GPA:3.86/4.0)
- **Relevant Courses:** Games & Technology Cultures; Foundations of Game Design; UI/UX Design; Data Structures & Algorithms

Irvine Valley College   **Aug 2021 - June 2024**
- **Major:** Computer Science

WORK EXPERIENCE

Field AI | Intern   **July 2023 - Apr 2025**
- Led the Southern California deployment team in a high-profile data collection project utilizing advanced robotics (**Aliengo, Spot**) and precision surveying equipment (**Leica BLK360, Leica BLK ARC**).
- Assisted with the **user testing** of autonomous robots, focusing on automated data collection and the refinement of robot odometry for enhanced precision and reliability.
- Mastered the post-processing of collected data using **Leica Cyclone Register 360**, ensuring the accuracy and usability of data for customers.
- Analyzed 360° images alongside robot odometry using **Python and RViz**, and produced detailed spatial insights and robust visualizations.
- Utilized **Selenium** to summarize data collected with 360-camera and accomplished auto-upload to StructionSite after auto-filtered blurry images

Global Technology Specialists Partners | Full Stack Intern   **June 2023 - September 2023**
- Upgraded a **Unity** mobile game from 2017 to 2022.3.2, and refactored **10,000+ lines of C#** code and replacing deprecated libraries to meet modern engine and Android requirements.
- Rebuilt core UI/UX flows using Unity UI Toolkit, improving navigation clarity and onboarding tutorial design.
- Optimized the asset pipeline, reducing APK size by **18%** with no loss of visual quality.
- Resolved compatibility issues between the updated Unity Gradle system and Android Text Service, boosting APK build efficiency by 30%.
- Collaborated through **GitHub in an agile workflow**, managing version control, code reviews, and cross-team integration.

PROJECT EXPERIENCE

TapTap Game Creation Contest (Unity) | Game Designer & Gameplay Programmer
- Designed a 2D pixel-art exploration game themed around "glitch-creature collecting," building seven distinct environments with unique interaction patterns.
- Implemented a global Press E to Interact system using an **interface-based architecture** (*IInteractable*, *InteractionPrompt*), enabling scalable interaction logic across all scenes.
- Developed a random event system, including snow-field bush searches and a flower-offering mermaid encounter, to enhance replayability and narrative depth.

- Built the item and creature-collection systems, integrating UI prompts, inventory flow, and compendium updates to deliver cohesive progression feedback.
- Collaborated closely with art and audio teams to align scene tone and pacing, strengthening the overarching theme of *discovering beauty within glitches*.

GDC26 Alt Ctrl Game Project (Unity) | Gameplay & Systems Programmer
- Led a 6-member cross-functional team to design and develop an innovative Alt Ctrl game combining **Unity 6.1 and Arduino BLE** sensors for physical interaction.
- Supervised the **entire game development lifecycle**,from concept design to UI/UX, sensor integration, and expo preparation, delivering a **Vertical Slice Demo in 3 months**.
- Engineered the two-player cooperative system, synchronizing real-world knife-shaving and pot-catching motions with in-game physics; optimized the interaction pipeline to reduce latency **by ~30% compared to early prototypes.**
- Advanced hardware–software integration by resolving Bluetooth communication delays and sensor instability issues, **achieving 95% interaction accuracy during playtests.**

Arkdig (Love2D) | Game Designer & Gameplay Developer
- Led the design of the game's core systems, **blending stage-based progression** with auto-battler mechanics, including shop flow, economy loops, unit placement rules, and combat/round structure.
- Built all non-combat systems, including UI information layout, stat display, visual hierarchy, and resource structure, to ensure clear interaction flow and readable feedback.
- Developed the hex-grid board interaction system supporting selection, unit dragging/placement, and real-time state feedback to strengthen strategic play.
- Optimized cross-platform performance by reorganizing assets and resolving Web loading, audio, and memory issues, enabling stable deployment via **LoveWebBuilder**.

SKILLS
- **Programming Language:** Java, C++, SQL, C, C#, HTML/CSS, Python
- **Game Engine**: Unity, Twine, GDevelop
- **Tools and Frameworks:** Spring Boot, Flask, Bootstrap, React, Docker, AWS, GitHub, Git
- **Certificates**: AWS certified cloud practitioner (March 2023)

GAME EXPERIENCE
Shooting Games: Valorant (Over 1000 Hrs, Platinum 1), Overwatch 1/2, CrossFire (Mobile, Over 1000 Hrs), PUBG, CS:GO/CS2, Metro: Last Night, NIKKE, Strinova.
ACT Games: Black Myth: Wukong, NieR: Automata, Naraka: Bladepoint.
ARPG: Genshin Impact (Over 4 Years, Spend over $3000), Honkai Impact 3rd (Over 3 Years, Spend over $4000), Honkai Starrail (Over 2 Years, Spend over $1000).
Party Games: Among Us, Goose Goose Duck, Liar's Bar, Rubber Bandits, Human Fall Flat, Ultimate Chicken Horse, Cuphead, Lethal Company, Overcooked! 2, Content Warning, Fall Guys, Pico Park, Super Bunny Man.
Puzzle Games: Paper Please, It Takes Two, Operation Tango, Escape the Backrooms, Plants vs. Zombies, Escape Simulator.
Other Games: Minecraft (Over 2000 Hrs), Forza Horizon 5 (Over 500 Hrs), Split Fiction, Arknight.