

Mingzhe Shi

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EDUCATION

University of Southern California

Aug. 2024 – Dec. 2026

Master of Science in Computer Science, GPA:3.7

Beijing Jiaotong University (BJTU), Lancaster University

Sep. 2020 – Jun. 2024

Bachelor of Engineering in Electrical Engineering, GPA:3.6

SKILLS AND CERTIFICATIONS

- ♦ **Language:** Proficient in C++, C#, Python, Lua, Java, JavaScript, HTML/CSS
- ♦ **Game Engines & Frameworks:** Unreal Engine 5, Unity, Blueprint, Animation State Machine, Behavior Tree, AI Controller, Socket Communication, UMG UI, Common UI, EQS
- ♦ **Graphics & Math:** Shaders, Linear Algebra, 3D Math, Physics Simulation, Camera Frustum Culling
- ♦ **Systems & Tools:** Git, Docker, Linux, Visual Studio, Maya, Perforce, Notion
- ♦ **Databases & Backend:** MySQL, Redis, Supabase, RESTful APIs
- ♦ **Core Coursework:** Computer Graphics, Data Structures & Algorithms, Operating Systems

PROJECTS

USC AGP Lucky Duckie - Co-op Third-Person Puzzle Platformer LuckyDuckie

Aug. 2025 – Present

- Multiplayer puzzle platformer in UE5 where players as two ducks collaborating to solve puzzles, "It Takes Two Ducks"

Responsibilities:

- ♦ Developed NPC **duckling AI** following system using **EQS** (Environment Query System), Behavior Tree, Blackboard, and Boid algorithm for intelligent player tracking
- ♦ Implemented **Inventory UI** system using **Common UI framework** for collecting ducklings, displaying collected ducks in an interactive inventory menu with real-time updates
- ♦ Implemented cooperative gameplay mechanics enabling split-screen **multiplayer** puzzle-solving experiences

Third-Person Unreal Engine Shooting game TPS Shooting Game

May. 2025 – Aug. 2025

- Third-person action shooter prototype focusing on gameplay systems, combat mechanics, and AI behavior

Responsibilities:

- ♦ Implemented **weapon systems** with animation blending and shooting mechanics (recoil, hit reactions, reload)
- ♦ Built inventory system supporting weapon switching, clothing switching and **UI item pickup highlights**.
- ♦ Programmed zombie AI system with **Zombie_AC**, **Zombie_BT**, **Zombie_BP** direct communication, including roaming, perception, chase, and combat responses.

C++ Game Engine Development (USC Game coursework) 522C++GameEngineDev

Aug. 2024 – Jan. 2025

- Extended custom low-level engine (Prime Engine) with gameplay, rendering, and debugging features

Responsibilities:

- ♦ Debug and integrate **bounding volume**, **camera frustum**, **collision detection algorithms**, **function UI menu** features into Prime Engine (low-level game engine based on C++, Python, Lua, Maya)
- ♦ Integrated **UI menu** and **AI enemy gameplay features** into Prime Engine, demonstrating C++/Lua scripting workflow.

WORK EXPERIENCE

Appraise AI

Los Angeles, CA

Associate Software Developer

Mar. 2025 – May. 2025

- ♦ Engineered modular backend systems with RESTful APIs (Node.js + Supabase).
- ♦ Developed interactive mapping UI with **Google Maps API**, reinforcing skills in spatial data visualization and user-driven interactivity.
- ♦ Integrated **OpenGraph preview and data pipelines**, demonstrating cross-system communication.
- ♦ Delivered **rapid feature prototypes** (publishing, mailing, UI enhancements) under agile iterations, strengthening debugging, system design, and deployment skills.