

Mingzhe Shi

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EDUCATION

University of Southern California

M.S. in Computer Science, GPA: 3.7/4.0

Los Angeles, CA

Aug. 2024 – Expected Dec. 2026

Beijing Jiaotong University & Lancaster University

B.Eng. in Electrical Engineering, GPA: 3.6/4.0

Beijing, China

Sep. 2020 – Jun. 2024

WORK EXPERIENCE

Tencent Games - Delta Force

May 2026 – Aug. 2026

Game Client Engineer Intern, TiMi Studio, Large-Scale Multiplayer FPS

Shanghai, China

- Delivered **map setup** and **system configuration** for a new **Search & Destroy game mode**, configuring battlefield maps and disabling non-applicable gameplay systems in a large production codebase.
- Prototyped multi-legged character locomotion with **procedural animation** (Full Body IK), then built **physics-based multi-legged locomotion** system in UE5 using PD-controlled joints to track reference animations.
- Implemented a **Reinforcement Learning** pipeline (PPO) adapting natural **locomotion** to uneven terrain; performance profiled with Unreal Insights and optimized policy inference to sub-1ms for 20 concurrent NPC characters.
- Created in-engine **debugging tools** for real-time inspection of policy behavior and reward signals; monitored training dynamics (reward curves, policy entropy) via TensorBoard, accelerating training iteration.

Appraise AI

Mar. 2025 – May 2025

Associate Software Engineer, Full-Stack

Los Angeles, CA

- Owned features **end-to-end across the stack**: built RESTful APIs (Node.js/Express, Supabase/PostgreSQL) and React front ends, including an interactive Google Maps page with location-based search.
- Shipped a news publishing and mailing-list system with OpenGraph link previews, taking features from design to **deployment** in rapid agile iterations.

GAME PROJECTS

Lucky Duckies | UE5, Perforce | Team Size: 40

Aug. 2025 – Aug. 2026

Gameplay Engineer, Online Co-op Third-Person Platformer, USC AGP Project

Los Angeles, CA

- Implemented gameplay abilities based on **GAS** (Gameplay Ability System), including dash, water spray, and double jump, with **networked replication** for online co-op.
- Developed an **NPC herding system** (EQS, Behavior Trees, Boid algorithm) and an **enemy AI system** with patrol, perception, chase, and flee behaviors.
- Independently owned a **boss combat encounter**, implementing attack patterns, hit reactions, and the cutscene pipeline in close collaboration with designers and artists; iterated on the fight through playtest feedback.

Cemented Dreams | UE5, Perforce | Team Size: 20

Aug. 2025 – May. 2026

Gameplay Engineer, Third-Person Stealth Action, USC MFA Project

Los Angeles, CA

- Extended the **motion matching** locomotion system with a power-slide **combat mechanic**, integrating damage calculation, particle effects, and surface-scorch decals.
- Designed and built a **multi-state drone** driven by Behavior Trees and an animation state machine, with SpringArm-based obstacle avoidance, dynamic interactable detection, and orbit hints.

Game Engine Development | C++, Lua, Python

Aug. 2024 – Jan. 2025

Engine Programmer, USC Coursework

Los Angeles, CA

- Implemented **bounding volumes**, **camera frustum culling**, and **collision detection** in Prime Engine, a low-level C++ engine with a Python/Lua/Maya asset pipeline.
- Added **navigation mesh pathfinding (A*)** and **NPC enemy AI gameplay** via a C++/Lua scripting workflow.

TECHNICAL SKILLS

Languages: C++, C#, Blueprints, Python, Lua, Java, Bash, SQL

Unreal Engine: GAS, Network Replication, Learning Agents, Behavior Trees, EQS, Motion Matching, Animation State Machines, World Partition, Physics Simulation, Common UI/UMG, Unreal Insights

Gameplay: Anim Montage & anim notify, hit detection & damage pipelines, hit reactions, boss encounters & phase transitions, character movement & locomotion, NPC perception & navigation, NavMesh, cutscene & cinematic sequencing

Graphics & Math: Linear Algebra, 3D Math, Vector Math, Quaternions, Shaders, Frustum Culling, Collision Detection

Tools: Perforce, Git/Git LFS, Unity, Docker, Maya, Notion, Figma, Technical Document