NIANZHI LI

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PROFESSIONAL SUMMARY

I am a dynamic and versatile Game Developer with a comprehensive background in both independent and collaborative development. I have contributed to a wide range of projects, from building small games as a solo developer to creating large, complex projects as part of a team of programmers, including casual PC games and VR applications. I am enthusiastic about collaborating with teams that value high-quality code and good project architecture. With a strong foundation in Unity and C++, I am now eager to apply my skills and knowledge to other technologies, embracing the challenges and opportunities that come with learning and adapting to different programming environments.

SKILLS

- **Technical Skills:** C++ and C#, Unity, Unreal, AI, LINQ, shader, Math, Networking, Multiplayer, Git, Python, Ability to both rapidly prototype and polish, Third-Party Service Integration
- **Soft Skills:** Love for Video Game, Creative Problem-Solving, Team collaboration and communication, Ability to manage multiple concurrent deadlines, Adaptability and Learning New Technologies
- **Language:** English (fluent), Chinese (Native)

EDUCATION

Sheridan College **January 2024 - April 2025**
Graduate Certification, Machine Learning

Sheridan College **September 2023 - August 2024**
Graduate Certification, Advanced Game Programming

Beijing Film Academy **September 2019 - June 2024**
Bachelor's, Digital Media Technology

EXPERIENCE

Gameplay Programmer **Remote**
Lucid Dream *September 2024 - December 2024*

- Developed diverse Enemy AI behaviors, a level management system, and player progress tracking, enhancing game structure and engagement.
- Engineered advanced gameplay mechanics and interactive systems in Unity, improving immersion and overall player experience.
- Accelerated development cycles by 30% in a high-pressure game jam environment, rapidly iterating on system designs and troubleshooting technical challenges.

Lead Gameplay Developer **Oakville, ON, Canada**
Skylark Studio *March 2024 - August 2024*

- Spearheaded core gameplay systems, including card and character data management (Scriptable Object), battle loop (FSM), scalable Modifier system, and a custom Inspector tool for streamlined debugging.
- Led a team of programmers, managing work planning, technical problem-solving, and cross-department coordination to ensure project goals and deadlines were met.
- Established technical documentation standards and optimized UI/visual effects, enhancing gameplay clarity, and contributing to a successful Steam launch with positive player reception.

Research Assistant **Oakville, ON, Canada**
Center of Mobile Innovation *October 2023 - January 2024*

- Developed a real-time 3D human pose estimation system in Unity, integrating MediaPipe's pose estimation and ONNX models for efficient deployment, achieving 95% accuracy in real-time pose tracking.
- Engineered a Python-Unity bridge, ensuring seamless communication between AI-based pose tracking and Unity's real-time visualization.
- Optimized model deployment using ONNX, enhancing efficiency and real-time processing performance.
- Tackled cross-platform integration challenges, successfully combining AI-driven motion tracking with interactive 3D environments.

- Authored detailed research documentation, outlining technical breakthroughs, implementation strategies, and future development pathways.

PROJECTS

Custom C++ Game Engine with Multiplayer Support
- Collaborated with a team to develop a custom 2D game engine in C++, contributing to core systems such as collision detection, entity-component architecture, and networking functionality for multiplayer support.
- Implemented AABB and BVH algorithms for efficient 3D collision detection, reducing collision computation time and improving overall game performance.
- Designed and implemented the entity-component system, including the Entity class, Component class, and derived components, enabling modular and scalable game object management.

Unannounced Project – Pose Estimation System
- Designed an AI-powered pose estimation system, leveraging MediaPipe for real-time human motion tracking and analysis.
- Built a robust Python-Unity integration pipeline, enabling fluid interaction between AI-based motion capture and 3D environments.
- Contributed to ongoing research and development, shaping future applications of AI-driven human-computer interaction.

AI Systems Development in Unity
- Implemented advanced AI systems in Unity, including dynamic hide-and-seek mechanics, autonomous agent steering behaviors, and complex navigation using Finite State Machines (FSM) and custom A* pathfinding.
- Engineered a type-safe FSM system with compile-time safety and modular steering behaviors (e.g., seek, flee, wander), reducing development time through reusable, extendable code.
- Optimized NPC locomotion with behavior-driven animation systems and blend trees, enhancing realism and responsiveness in dynamic game environments.

Super Ooze ***(Individually Developed)***
- Developed a 2D action roguelike in Unity, featuring a procedurally generated map and adaptive enemy AI using a Finite State Machine (FSM).
- Formulated a rogue-like level generator to create varied gameplay experiences, using cellular automata algorithms to spawn map enemies, traps, and interactive elements.

VOLUNTEER EXPERIENCE

Production Team Member **Beijing, China**
Light Show of 2021 New Year's Eve Gala, Beijing Film Academy *October 2022 -January 2023*
- Assisted in the planning and execution of a large-scale light show.

Vice Department Head **Beijing, China**
The Athletics Department *October 2021 -December 2022*
- Directed and organized athletic events and activities.

Team Leader **Beijing, China**
International Student Film and Video Festival (Subtitle Making Team) *October 2019 -June 2021*
- Managed a team in creating subtitles for international films, ensuring accuracy and synchronization.