NIANZHI LI

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PROFESSIONAL SUMMARY

I am a passionate and adaptable Game Developer with extensive experience in both solo and team-based projects, ranging from small-scale indie games to intricate PC and VR applications. My expertise spans Unity and C++, where I've delivered high-quality code, robust project architectures, and innovative gameplay systems. I excel in cross-functional teams that focus on innovation and technical expertise, continuously driving innovative player experience through AI, multiplayer capabilities, and performance improvements. Being always scouting for new technologies and challenges, I look forward to driving my skill set beyond Unity, with a strong foundation and aggressive learning plan to other programming disciplines.

TECHNICAL SKILLS

- **Technical Skills:** C++ and C#, Unity, Unreal, HLSL, Math, Android, IOS, Netcode, Render Pipeline, Git, NGUI, UGUI, Python, Unity Profiler, Game Framework, IK Animation, Shader Graph, MongoDB

- **Soft Skills:** Passion for video game development, Creative problem-solving, Team collaboration and leadership, Effective communication across technical and creative teams, Ability to manage multiple concurrent deadlines, Adaptability and rapid learning of new technologies

EDUCATION

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

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

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

EXPERIENCE

Lead Gameplay Developer   *March 2024 - August 2024*
Sheridan Game Lab, Oakville, ON, Canada
- Led a team of developers to design and complete Dungeon CEO, a management-sim dungeon game, within three months, winning "Best Student Game Art" at the Canadian National Exhibition.
- Oversaw a rapid development cycle, integrating high-quality art assets and gameplay systems, resulting in 35,000 free licenses issued, a 1,000+ player waitlist, and an 82% positive rating from players.
- Coordinated cross-functional efforts, leveraging Unity and agile workflows to deliver a polished, award-winning student project under tight deadlines.

Coding, Physics, and Math Tutor   January *2024 - April 2024*
BrightSparkz Tutors, Oakville, ON, Canada
- Provided personalized tutoring in coding/programming (C++, C#, Python), physics, and mathematics to students of varying skill levels, fostering problem-solving skills and conceptual understanding.
- Developed tailored lesson plans and coding exercises to reinforce algorithmic thinking, game development concepts, and mathematical foundations, improving student performance and confidence.
- Leveraged real-world examples from game development (e.g., physics simulations, optimization techniques) to make abstract concepts accessible and engaging.

Research Assistant   *October 2023 - January 2024*
Center of Mobile Innovation, Oakville, ON, Canada
- Pioneered a cutting-edge real-time 3D human pose estimation system in Unity, integrating MediaPipe and ONNX models to push the boundaries of motion-tracking accuracy and efficiency (95% real-time precision).
- Bridged AI and interactive technologies by engineering a Python-Unity communication pipeline, enabling seamless real-time visualization and setting a foundation for scalable cross-platform innovation.
- Delivered actionable research insights through comprehensive documentation, influencing future mobile interaction advancements and enhancing user experiences in dynamic 3D environments.

PROJECTS

[Dungeon CEO](#) – Award-Winning Game Development   *April 2024 -August 2024*
- Designed and implemented a data-driven architecture using Scriptable Objects for card and character data management, a turn-based battle system with Finite State Machines (FSM), and a scalable Modifier system for dynamic character effects, ensuring flexibility and maintainability.
- Created a custom Unity Inspector tool for real-time debugging and managed team collaboration through Git-based version control strategies, enhancing development efficiency.
- Established technical documentation standards, optimized UI and visual effects for clarity and performance, and conducted usability testing to enhance gameplay clarity, contributing to positive player reception on Steam.

[Lucid Dream](#)   *September 2024 - December 2024*
- Led the development of a light detection system using Unity's Physics. Raycast for dynamic environmental interactions, and designed NPC AI using FSM with A*pathfinding for realistic behavior.
- Customized the rendering pipeline with Unity's Standard Shaders and integrated post-processing effects for a visually rich experience; streamlined 3D art workflows to optimize the development cycle.
- Streamlined workflows and implemented agile practices to achieve a 30% faster development cycle, ensuring efficient team collaboration under game jam constraints, which led to securing Top 5% in the TAP TAP competition.

[Custom C++ Game Engine with Multiplayer Support](#)   *October 2023 - March 2024*
- 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   *October 2023 - January 2024*
- Solved complex motion-tracking challenges by designing an AI-driven pose estimation system with MediaPipe, achieving robust real-time analysis for diverse applications in gaming and beyond.
- Fostered interdisciplinary synergy by integrating Python-based AI with Unity's 3D rendering, creating a flexible pipeline that streamlined development and collaboration across technical domains.
- Laid groundwork for next-gen human-computer interaction, contributing to ongoing research with potential to transform interactive media and accessibility solutions.

[AI Systems Development in Unity](#) *(Individually Developed)*   *January 2024 - April 2024*
- 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.

[Interactive Building Mapping](#)   *October 2022 - January 2023*
- Developed a real-time interactive projection system using TouchDesigner's visual programming for graphics and Python scripting for control, processing real-time input to dynamically adjust visual effects based on audience interaction.
- Synchronized the projection's visuals with the performance's music by analyzing audio data in Python and triggering corresponding visual elements through API, ensuring a cohesive and immersive experience.

VOLUNTEER EXPERIENCE

Vice Department Head   **Beijing, China**
The Athletics Department   *October 2021 -December 2022*
- Directed and organized athletic events and activities.
- Facilitated the integration of digital tools—such as shared calendars and real-time communication platforms—to streamline scheduling and improve team coordination.
- Collaborated with tech-savvy volunteers to implement basic automation (using programming scripts and spreadsheet formulas) for administrative tasks, reducing manual workload and optimizing resource management.

Team Leader   **Beijing, China**
International Student Film and Video Festival (Subtitle Making Team)   *October 2019 -June 2021*
- Managed a team in creating subtitles for 20 international films, ensuring accuracy and synchronization.
- Engineered a custom Python-based tool to automate subtitle synchronization and quality checks, significantly reducing manual workload.
- Mentored and guided a diverse team of subtitle editors and technical contributors, establishing clear communication channels and a collaborative workflow to meet tight deadlines.