Ailun Pei

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EDUCATION

Arizona State University, Tempe, AZ   Jan 2024 – May 2025
Master of Science in Computer Science   *GPA: 3.58*

Arizona State University, Tempe, AZ   Aug 2020 – Dec 2023
Bachelor of Science in Computer Science, magna cum laude   *GPA: 3.61*

TECHNICAL SKILLS

Programming Languages: C#, C++, Python, JavaScript, Java, GML, HTML/CSS, Swift, Kotlin
Graphics & Game Development: Unity, Shader Graph, HLSL, WebGL, OpenGL, MonoGame, Three.js
Game Systems: NavMesh AI, Animation Rigging, Particle Systems, Physics Integration, Gameplay Programming
Web & Backend: React, Vue, Flask, RESTful APIs, JSON, XML, MySQL
Tools & Software: Visual Studio, Git, Xcode, Android Studio, VS Code, Adobe Creative Suite, Figma
Data Analysis: pandas, D3.js, matplotlib, Statistical Analysis
CertificationsCertifications: AWS Solutions Architect Associate, Web Development: AWS Solutions Architect Associate, Web Development

EXPERIENCE

Software Engineer Intern   Jun 2024 – Aug 2024
Shandong Zhaojin Group Co., Ltd. via Extreme Trading   *Shanghai, China*

- Contributed to development of **64-bit trading terminal** for China's gold market
- Refactored legacy **APIs** to improve performance and memory efficiency under **real-time data** loads
- Investigated and resolved data inconsistencies, improving **reporting accuracy**
- Collaborated with **backend** and **QA teams** to validate **RESTful API** responses

Teaching Assistant (Undergraduate & Graduate) - 10 hrs/week   Jan 2023 – May 2025
Arizona State University   *Tempe, AZ*

- Supported 250+ students across multiple **game development courses** covering **Game Maker**, **Unity**, and **MonoGame/C# shader programming** from introductory to advanced levels
- Held weekly **office hours** for technical support, delivered guest lectures, and provided detailed feedback on **C programming** and game development assignments to ensure code quality and learning objectives

PROJECTS

MeshCNN Modification for Shape Classification   Fall 2024

- Evaluated and modified **neural network** for **3D mesh classification** by removing pooling layers
- Optimized training with **learning rate scheduling** and **gradient clipping**, improving model stability
- Gained hands-on experience bridging **geometry processing** and **deep learning**

MonoGame 3D Shooter + Shader Integration   Spring 2023

- Built **3D shooting prototype** using **MonoGame**, integrating custom **shaders** from NVIDIA's GPU Gems series
- Implemented **enemy spawning**, **player movement**, and **hit detection** with **C#** for PC platforms
- Created **GPU-based particle systems** for performance testing in **.NET** environments

WebGL Visualization Suite – Skybox & Effects Demos   Spring 2023

- Created interactive **WebGL demos** with **Three.js**, including **skybox rendering** and **kaleidoscopic shaders**
- Implemented **camera controls**, **material blending**, and responsive UI for 3D interaction
- Used Used **fragment fragment shaders** for real-time environmental effects for real-time environmental effects