Chai-Rex Lin {

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// Skills ----------

Languages: C++, C#, C, Java Script, HTML, CSS, JSON, LUA, GLSL, HLSL

Frameworks: React, Three.js

Patterns: Object Oriented, ECS, Command, Flyweight, Singleton, State, Object Pool, Observer, Subclass Sandbox

Engines: Unity, Unreal Engine 5

Programming: 2D, 3D, Networking, Multiplayer, AI, Designer Tools, Alternate Controls, Rapid Prototyping

Version Control: Git, Perforce, SVN

// Projects ----------

Echo Rift (September 2024 - May 2025) {

/// <summary> C#, Unity, 3D, Team, AI, Designer Tools

- Systems Engineering — Architected and refactored the core combat framework, improving efficiency, readability, and long-term flexibility for designers and engineers.
- Designer Tools — Built custom Unity editor tools and Scriptable Object workflows (patterns, pools, sequences) to streamline iteration and empower non-programmers.
- Gameplay Features — Developed complex boss mechanics (laser system, delivery actions, walls, wind, phase transitions) and integrated tutorial + environmental interactions.
- Optimization — Diagnosed and resolved performance issues on Nintendo Switch, including garbage collection and memory management fixes.
- Collaboration — Engaged in extensive peer programming, bug fixing, and cross-discipline teamwork.

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C++ Game Engine (September 2024 - November 2024) {

/// <summary> C++, OpenGL, Direct3D, Lua, GLSL, HLSL, 2D, 3D, Networking

- Animation System — Built a sprite sheet animation framework in C++/OpenGL supporting frame slicing, UV-based animation, runtime color changes, one-shot animations, and sprite flipping.
- Multiplayer Gameplay — Delivered a 2D fencing game supporting up to 6 players, synchronizing animations, collisions, and networking through my custom engine framework.
- Performance Optimization — Reduced runtime overhead by moving frame logic into shaders, minimizing texture rebinds, and converting Lua mesh files into binary formats (46% smaller).
- Content Pipeline — Extended the engine with a Maya mesh exporter, Lua data loader, and asset builder to streamline importing and testing content.
- Systems Integration — Integrated and debugged networking, collision, and input from classmates' systems.

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// Work Experience ----------

Research Assistant University of Utah (February 2025 - August 2025) {

- Guest Lecture — Delivered a guest lecture on Arduino–Unity integration with additional support to students.
- Young Architects Project — an interactive exhibit at the Carnegie Mellon Art Museum:
  - Built a Unity client-server system handling webcam input, Arduino button presses, and audio sync.
  - Implemented save/load functionality for on-site adjustments, with folder structures for content moderation.

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Teaching Assistant University of Utah (May 2024 - May 2025) {

- Rapid Prototyping (Graduate) — Hosted workshops, provided technical support, and consulted on scope.
- Alternate Controllers (Graduate) — 〃 assisted in prototyping and debugging custom controller projects.
- Traditional Game Design (Undergraduate) — Delivered 2 lectures, graded assignments, and mentored teams.

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// Education ----------

University of Utah (Master's of Entertainment Arts Engineering, August 2023 - May 2025)

Relevant Coursework: Game Engine Engineering, AI for Games, Rapid Prototyping, Systems Design Programming Patterns, Combat Design, Game Design

Kent State University (Bachelor's of Computer Science, August 2018 - May 2022)

Relevant Coursework: AI Algorithms, Object Oriented Programming, Procedural Programming, Computer Graphics, Computer Network Security, Game Engine Concepts

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