

HYESEUNG LEE

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Education

Master of Software Engineering, Real-Time Software and Game Systems

Expected May 2026

DePaul University, College of Computing

Chicago, IL

- Focused on Real-time & Performance-critical systems; Concurrent programming; and Large-scale software architecture with strong emphasis on reliability, encapsulation, and maintainability.
- Coursework includes API design; Multithreading; Memory tracking; and System design emphasizing secure data access, strong encapsulation, and maintainable interfaces for large-scale systems.

Work Experience

Software Engineer

Jun 2025 – Sep 2025

2389 Research

Chicago, IL

- Pitched and led full-cycle development of user-facing features, architecting core chat-bot systems across frontend logic and backend-style services with a focus on performance, maintainability, and scalability, in collaboration with product and research stakeholders.
- Streamlined cross-functional collaboration using GitHub-based workflows to enable rapid iteration, reliable integration, and high-quality feature delivery across Windows and macOS.
- Designed features with diagnosability and failure scenarios in mind, incorporating logging and validation to support operational debugging and reliability.
- Decomposed high-level project goals into actionable milestones aligned with delivery timelines to support iterative development and timely execution.

Graduate Assistant - Game Programmer

Sep 2025 – Present

DePaul University

Chicago, IL

- Architected backend systems to improve maintainability and scalability by evaluating design approaches, while documenting key decisions & dependencies, and reusing existing system components where appropriate.
- Contributed to the development of an educational, user-facing product, iterating on features with a focus on stability, usability, and overall product quality.
- Collaborated cross-functionally with designers, researchers, and developers to ensure a cohesive user experience and smooth onboarding.

Project Manager/ Programmer

Jul 2024 – Dec 2024

IndieCade Climate Jam

Remote

- Led a 12-person, cross-functional team through agile, sprint-based development, owning sprint planning, task breakdown, and GitHub-based workflows to coordinate parallel work and deliver a production-quality prototype under tight timelines.
- Developed and shipped a user-facing software prototype in C# using Godot Engine, implementing core systems, UI, and asset integration with a focus on stability, usability, and rapid iteration.

Technical Skills

- **Systems & Software Engineering:** Real-time systems, Multithreading, Performance optimization, Modular architecture, API design, Backend & control-plane style systems, Service-oriented design, and Reliability-focused development, debugging, memory-conscious development
- **Programming Languages:** C++, C#, Java, HTML, CSS, Python
- **AI & Applied ML Systems:** AI-assisted development workflows for architecture planning, code review, refactoring, and debugging; Familiarity with large language models and their practical application in software engineering
- **Tools & Platforms:** Visual Studio, Visual Studio Code, GitHub, Perforce, Godot Engine, Unreal Engine
- **Additional:** HLSL, OpenGL, DirectX 11, English (fluent), Mandarin Chinese (fluent), Korean (native)

Projects

Concurrent Maze Solver & Performance Analysis

Oct 2025

CSC 462: Optimized C++ Multithreading

C++, Multithreading

- Designed and refactored a scalable, multi-threaded solver by parallelizing single-threaded BFS & DFS algorithms to improve execution time on large-scale inputs (up to $20k \times 20k$).
- Coordinated concurrent execution using atomics and synchronization primitives (mutexes, futures/promises, condition variables, etc.) to ensure correctness and thread-safe access to shared state.
- Analyzed performance, memory usage, and execution stability across Debug and Release configurations, documenting design tradeoffs and concurrency behavior.

Animation Converter & Runtime Playback System

Nov 2025

SE 585: Real-Time Software Development II

C++, Protobuf

- Designed and implemented an offline animation conversion pipeline using Protocol Buffers to transform GLTF animation data into a custom, runtime-optimized binary format for real-time playback.
- Designed the runtime architecture to model hierarchical relationships and time-based state with clear separation between offline tooling and execution layers, using memory-tracking tools to prevent leaks.
- Built a data-driven runtime system supporting multiple animation clip behaviors while enforcing strict encapsulation and clean API boundaries to prevent misuse of internal state and ensure long-term maintainability.