Aisha Kwatra

aishakwatra3@gmail.com (+66)86-392-4183 github.com/aishakwatra linkedin.com/in/aisha-kwatra
linktr.ee/aishakwatra

Education

Aug 2022 – Present

King Mongkut's University of Technology Thonburi
Bachelor of Science Program in Creative Technology
Major: Interactive Simulations
GPA: 3.86/4.0

Skills

Technical Skills: C++, C#, OpenGL, CUDA, Game Engine Development, XR Development, Python, TypeScript
Tools: Unity, Git

Experience

Sept 2024 – August 2025

Web Developer (Part-Time), CollegeApply Company Limited

- Built an automation system that synchronized incoming leads with the CRM, removing manual data entry and improving workflow efficiency.
- Helped develop a custom WordPress e-commerce platform, contributing to core site functionality and performance.
- Developed custom plugins that optimized bulk product imports and improved stability during large catalog updates.

Relevant Coursework

Course: Advanced Computer Graphics

Racing Simulation

- Developed a 3D physics-based racing simulation using C++ and OpenGL with a full PBR rendering pipeline.
- Implemented custom collision detection (ray–triangle + AABB–triangle) and integrated a spatial grid accelerator for fast, stable vehicle–track interaction.
- Built a centralized audio system and a real-time UI for lap timing, best-lap tracking, and car selection.

Course: Research Internship

HMD Navigator

- Prototyped marker detection using Meta Quest 3's new passthrough and depth APIs to map markers into world space.
- Implemented a depth-based positioning system using raycasts to estimate the physical location of detected markers.
- Developed a user–marker calibration method enabling alignment with a virtual navigation graph.
- Conducted technical experimentation to evaluate the accuracy, stability, and limitations of camera access and marker detection.

Course: Animation and Modeling

Flour Sifting Simulation

- Built a GPU-based particle simulation in C++/OpenGL compute shaders simulating flour falling, colliding, and accumulating in real time.
- Implemented a heightmap system to track and update flour deposition, along with a collision system for a moving sieve.
- Simulated over one million particles entirely on the GPU with no CPU readback for high-performance rendering.

Course: Low-Level Programming

CUDA Ray Tracing

- Extended a CUDA ray tracing engine to support triangle meshes and physically accurate sphere–sphere and sphere–triangle interactions.
- Designed a multi-room WASD experience, including an “Infinity Mirrors” area leveraging reflective and refractive materials as well as collisions between spheres as well as spheres and triangles.
- Added procedural material generation and real-time dynamic color/material changes based on user input.

Course: 3rd year Project Course

SoteriaXR - Fire Escape Training Tool, XR Developer

- Developed an MR fire safety training application for Meta Quest 3 that blends virtual hazards with the user’s real physical environment for highly personalized, practical training.
- Built the scene manager (MRUK) for spatial scanning and room validation, ensuring accurate mixed-reality placement.
- Implemented a voxel-based fire simulation using scene spatial data with raycast-driven ignition, spread, and extinguishing behavior involving fire extinguishers and sprinklers.
- Created a scoring system that evaluates protocol adherence and generates a detailed performance report.

Course: 2nd year Project Course

Ticking Tea Time, Custom 2D Engine Developer (C++)

- Implemented input, UI, and core systems for a custom C++ point-and-click engine.
- Developed gameplay systems including a dynamic journal, interactable objects, and a flexible dialogue-triggering framework.
- Built the kitchen interaction and food-creation system, enabling multi-step recipe logic and item state changes.
- Gained over 700 downloads and received two awards: the BIDC Rising Star Award and the Play Prime Award for Best Narrative at the Thailand International Game Showcase 2024.

Course: 1st year Project Course

Chrono Escape, Unity 2D Game Developer

- Implemented puzzle logic and interaction behavior for a 2D Unity point-and-click adventure.
- Translated design concepts into functional gameplay systems to enhance player engagement.