

RITESH RANJAN

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Education

Kingston University

September 2024 – September 2025

Masters of Science, Game Development(Programming)

Jagannath International Management School

December 2020 – July 2023

Bachelor of Computer Applications

Relevant Coursework

- VR Game Development
- Game Systems Architecture
- Performance Optimization
- Gameplay Programming
- Procedural Systems
- Reinforcement Learning

Projects

NanoSurge | Unity C#, ML-Agents Plugin

September 2025

- Built a Unity-based simulation where multiple nanobot agents learn to work together (**MARL**) to locate and neutralize infections in a fast-moving bloodstream environment.
- Resolved training instability caused by **GC spikes** by implementing **pre-warmed object pooling** and boundary **leak guards** to recycle drifting agents instead of destroying them.
- Achieved stable performance of **58–62 FPS** with **zero per-frame allocations** after warm-up, preventing memory degradation during long training runs.
- Trained agents using **Unity ML-Agents** with **YAML** configs and added a **player-controllable bot** for an interactive **human-in-the-loop** simulation experience.

WreckFest | Unity C#, NetCode for Game Objects

May 2025

- **Lead Programmer** on a 5-person team building a **multiplayer vehicle combat** game (2v2: driver + gunner).
- Built core gameplay systems: **vehicle controls**, **turret aiming/shooting**, **power-ups**, and a **sandstorm** gameplay effect.
- Implemented **lobby-to-arena flow**, menus, pause screen, and audio; balanced weapons (**turret vs missile cooldown**).
- **Optimised** a heavy arena map by cleaning up colliders, reducing rendering cost, and implementing **LODs**, boosting performance from **45 FPS to 110 FPS**.

The Last Illumination | Unity C#

January 2025

- Designed and implemented the full **game UI** (main menu, pause, settings, death screen) and connected screens with **scene transitions**.
- Built **UI logic** in Unity (button events, navigation flow) and iterated on **layout and usability** with rapid runtime testing.
- Integrated UI and environment assets into Unity, resolving **import/shader/texture issues**; handled **UV/texturing**, **lightmapping**, and **lighting** for the arena.

Endless Cruiser | Unity C#, Unity's XR Interaction Toolkit

December 2024

- Built an endless 3D racing prototype in Unity with **vehicle physics**, **car handling**, and **traffic spawning**.
- Built an **RL-based Q-table** system to procedurally generate traffic on an infinite road.
- Converted the project to **VR** and tested builds on a **Meta Quest 3** using **Meta OpenXR** and Unity XR plugins.

Technical Skills

Languages: C#, C++, PHP, SQL

Technologies: Unity Engine, XR Interaction Toolkit, NetCode for GameObjects, ML-Agents

Leadership

Placement Cell

February 2021 – July 2023

Vice-President

Jagannath International Management School

- Managed recruiter outreach through the college's official LinkedIn, identified genuine hiring leads, and handed them over to the HOD for next steps and interview coordination.
- Organised workshops on LinkedIn and CV building, guiding students on how to showcase projects effectively.
- Designed and ran weekly technical assessments to strengthen core skills and track student progress over time.
- Organised alumni sessions with placed seniors to share interview experience, hiring processes, and career guidance to improve student motivation and readiness.