

# Richard Joseph Buturla

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[My Website](#)

## PROFILE

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- Final year student in a BSc in Computer Games Development in SETU Carlow.
- An aspiring and passionate games developer with hands-on experience in designing and implementing games across diverse languages, tools, and platforms.
- Adept in applying programming patterns and algorithms, advanced AI techniques, game engine principles, and gameplay programming experience to create engaging gameplay experiences.
- Familiar with networking, 3D graphics, and with a strong foundation in mathematics and computer science.
- Strong leadership skills and currently **Class Representative** since 2021 for all of my years at university.
- On track to achieve a **First-Class** Honours degree.

## RELEVANT TECHNICAL SKILLS/TOOLS

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**Proficient Languages:** C++, C, C#, Python

### AI Programming:

- Behaviour trees, Neural Networks, Utility AI, MiniMax, FSM,
- Group behaviours: Formations, Flocking, Swarming, etc.

### Data Structures and Algorithms:

- Search Algorithms like A\*, BFS, DFS, and other adapted search algorithms
- Graph theory - Edge list, Adjacency list, Quad Trees, procedural generation, etc.

### Game Engine and 3D Development:

- Learned the structure and workings of game engines with a focus on 3D rendering and lighting.
- Gained experience in the **Unity Engine**, exploring shaders, lighting models (e.g., **Phong Reflection Model**), rasterization, and the pipeline for rendering realistic visuals.

### Networking for Games

- Developed a simple multiplayer tag game in C++ using the **Winsock API**, showing a deep understanding of networking concepts like **sockets**, **client-server architecture**, and **latency handling**.

## EDUCATION

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**Bachelor of Science: (Hons) in Computer Games Development September 2021 - May 2025 SETU, Carlow**

### Relevant Modules:

**Year 4 Modules:** Artificial Intelligence for Games, Games Engineering, Fundamentals of Game Networking, Game Analytics, Cloud Data Centres

**Year 3 Stage GPA: 86.66:** Data Structures and AI Algorithms (95%), 3D Graphics (85%), Gameplay Programming for Mobile Devices (84%)

**Year 2 Stage GPA: 86.83** | Motion Graphics (94%), Gameplay Programming (90%), User Interface Programming (80%), Software Engineering for Games (75%)

**Year 1 Stage GPA: 82.83** | Mathematics (98%), Programming I (84%), Human Computer Interaction (93%), Games Studies (82%)

## PROJECTS

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### Mini RPG – C++, SFML – Windows

This is a single-player, turn-based tactical RPG inspired by *Baldur's Gate 3*, focusing on strategic combat with simplified mechanics. Players control heroes in a party, exploring different environments and battling against different types of enemies, using a combination of movement, attacks, and abilities to outmaneuver and defeat foes. Key features include a custom Utility/Behaviour Tree based AI, Inventory system, Turn based mechanics and a variety of actions, items, multiple interconnected systems and a Level Editor with integrated tile slicing and other tile editor features.

Created a variety of games across different languages and tools:

- **Joint Project Endless Zombie Shooter** Built in **C++ and SFML**, integrating AI behaviours, pathfinding, steering, particle effects and weapon systems with wave based gameplay.
- **Assembly Endless Runner**: Programmed in **68k Assembly**, showcasing low-level programming expertise.
- **Detective Game (PWA)**: Developed a **progressive web app** game in **JavaScript** for a responsive cross-platform experience.
- **Blackjack Game**: Created in **Python**, hosted on [pythonanywhere.com](https://pythonanywhere.com), and integrated with a **MariaDB database** for persistent user data storage.
- **First-Person Arcade Shooter**: Built in **Unity**, demonstrating strong 3D game development and engine skills.

## WORK EXPERIENCE

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### Trustonic, Sophia Antipolis, France Silicon Valley, March 2024 – September 2024 - Erasmus Programme

As a Trainee Engineer in Trustonic, I worked with Trustonic's Trusted Execution Environment (TEE), which allows for the execution of Trusted Applications (TAs) within this secure TEE enclave.

- Redirected TA logs from the Linux kernel to the system's standard logging (syslog).
- Worked on developing a secure and encrypted logging service.
- Created a decryption and parsing tool of secure logs for transmission to OEM servers.
- Created an automated testing tool in the case of updated log formats.
- Gained experience in kernel-level components and embedded C development.
- Collaborate closely with embedded systems and security experts.

### Lennox Carlow, Visual Arts Centre October 2021 – March 2024 Kitchen Porter/Chef Assistant

- Practised proficiency in food preparation by following established recipes and maintaining high-quality standards.
- Played a vital role in maintaining a clean, safe and hygienic work space environment within the restaurant by deep cleaning surfaces, floors, and equipment according to health and safety regulations on a daily basis.
- Displayed a strong work ethic and the ability to work efficiently in a fast-paced, high-pressure work environment.

## ACTIVITIES/INTERESTS

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**Martial Arts/Exercise:** Six years professionally training and competing in Karate, followed by two years of training and competing in Jiu Jitsu. Currently exercise by going to the gym.

**Game Programming:** I enjoy watching game programming videos and learning about new tools and techniques to implement new features in university projects as well participating in Game Jams, where working in a team on a game is super enjoyable.

## ACADEMIC REFERENCES

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- **Name:** Mr Ross Palmer, Computing Lecturer, Department of Computing, SETU Carlow
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