Charlotte Mackay

Game Developer / Designer

https://charlottem7.github.io/Portfolio/
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Profile

Game Developer and Level Designer with a strong technical background and a focus on building mechanics, spaces, and interactions that feel good to play. I specialise in UE5, PCG, puzzle design, and level greyboxing, backed by a Distinction MSc and First-Class BSc in game development. I enjoy turning ideas into something you can walk around in, test, break, and refine. Looking for a junior gameplay or design role where I can keep creating thoughtful, player-centred experiences.

Technical Skills

Game Development

Unreal Engine 5 (Blueprints & C++), Gameplay Framework, Behaviour Trees, Animation Blueprints, Level Design, Greyboxing, World Partition, PCG, UI/UMG.

Programming

C++, C#, Python, JavaScript/TypeScript, Java, Algorithms, data structures, optimisation, multi-threading, networking fundamentals.

Tools

Git, Perforce, Jira, Notion, Visual Studio, VS Code, Blender, CMake.

Current Projects

Game / Level Designer – War of Being
DM TesseracT Ltd | 2025–Present (NDA)
Working on new content for War of Being, a commercial UE5 title.

- Designing and greyboxing new level spaces using UE5 blockout workflows
- Implementing interactive elements and prototype gameplay in Blueprints
- Developing encounter flow, pacing, and player-readable navigation
- Collaborating within a small development team using Perforce
- Following iterative design and internal playtesting cycles

Previous Projects

Educational Cryptography Puzzle Game (MSc Dissertation)
UE5 • C++ • Blueprints • Systems & Puzzle Design
A third-person puzzle game teaching cryptography concepts through clue-based progression.

- Designed and implemented modular puzzle systems (substitution, patterns, decoding)
- Built quest and interaction systems in Blueprints + C++
- Developed data-driven puzzle logic for flexible tuning
- Implemented UI feedback, hint systems, and accessibility adjustments

Procedural World Generation System (BSc Dissertation)
UE5 • C++ • PCG Tools • Terrain/LOD Systems
A runtime procedural generation system for large, varied terrain. Achieved stable performance during runtime mesh generation using LOD and async updates.

- Implemented Perlin-noise terrain generation with biome rules
- Added asynchronous chunk streaming with LOD optimisation
- Generated foliage dynamically from terrain metadata
- Integrated world partition workflows to support large environments

Multiplayer Pong

SDL2 • C++ • Java TCP Server
A twist on classic Pong with multiplayer networking and expanded gameplay.

- Implemented full client/server communication with Java sockets
- Added client-side prediction for smooth play
- Developed power-ups, particles, and extended game modes
- Built full UI menus and replayable game loops

Experience

Data Access & Commissions Advisor | Santander Consumer Finance UK   **Jan 2023 to Mar 2025**

Worked with complex data systems and regulatory processes, ensuring accuracy, compliance, and clear communication. I quickly learned new tools, analysed, and resolved cases within strict timeframes, demonstrating my reliability and attention to detail.

Technical Admin Advisor | Santander Consumer Finance UK   **Aug 2021 to Jan 2023**

Handled technical queries, database lookups, and system-driven investigations. Developed analytical skills, identified process issues, and maintained high productivity and accuracy. Regularly distilled complex information into clear explanations for customers and internal teams.

PSA Finance | Training and Projects Manager   **Apr 2019 to Aug 2021**

Delivered training, documentation, and workflow improvements across the customer services department. Worked on multiple digital projects, contributing to QA testing, CRM system adoption, and user-journey improvements. Experience managing requirements, onboarding teams, and supporting system rollouts. Skills that translate directly into working on software teams.

Customer Services Call Centre Manager | PSA Finance   **Apr 2017 to Apr 2019**

Led a team in a high-volume environment, analysing data, improving processes, and making informed decisions quickly. Strengthened communication, leadership, and operational problem-solving; valuable for collaborative development work.

Various admin and leadership roles | Santander Consumer Finance UK   **Jan 2011 to Apr 2017**

Held multiple positions with increasing responsibility. Quickly learned new systems, adapted to changes, and improved processes where possible.

Education

MSc Advanced Computer Science - Distinction
University of Sussex (2024-2025)

BSc Computer Science for Games – First Class Honours
University of Brighton (2021-2024)

Other Qualifications:
Diploma of Higher Education – Business Management (Open University, 2016–2018)
PRINCE2 Foundation & Practitioner (2014)