ESMERALDA MASON

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WHO AM I?

I am an engine and editor focused programmer with a love of games and their development. I have over four years professional experience, working in C++, Unreal Engine (UE4 and UE5), C# and Unity. I am experienced in developing engine libraries and game editor systems, having designed, created and iterated on a range of complex systems, tools and gameplay features. I have a strong technical background in programming and maths, strengthened by my First-Class Master's degree in Physics. I am passionate about low-level systems, building robust and optimised technology to support my fellow developers. I am eager to further develop my programming skills, design knowledge and learn about new technology.

TECHNICAL SKILLS

Familiar languages and software include:

- C++
- C#
- 3D maths
- Unreal Engine 4 & 5
- Unity
- Python
- Git
- Jira / ClickUp
- Agile
- Fortran
- Typescript
- React

EXPERIENCE

2025 – Current

Game Client Developer — **Push Gaming, London**

This role in the Game Tech team focuses on creating, developing and improving the engine libraries and game editor used by other developers to accelerate their productivity.

- Responsible for developing and maintaining proprietary engine libraries used by fellow developers in creating games on mobile, tablet and desktop browser.
- Designed, built and delivered a visual programming system for the proprietary game engine and editor.
- Built simple solutions to complex problems in proprietary game editor based on developer feedback.
- Created accessible learning resources for engine and editor features used by artists and animators.

2021 – 2025

Programmer — **MXT, London**

In this role my duties involved the research, design, implementation and iteration of user-centred features, systems and artist tools.

- Shipped an immersive VR experience, created in Unreal Engine 5, reproducing the 22km^2 around Stonehenge. This was used by the UK government as the basis of negotiation with the United Nations and World Heritage.
- Shipped a mixed reality driving simulator, built with Unity and a networked Python traffic simulation, using a VR headset and motion rig. This was used for conducting three research studies for National Highways.
- Created a system for efficiently streaming levels in Unreal's World Composition system for supporting two simultaneous large-scale environments, focusing on memory usage, load times and runtime VR performance constraints.
- Designed and implemented a custom C++/Unreal pipeline for converting large-scale 2D traffic simulations into runtime Unreal visualisation, integrating Python tooling with Unreal workflow.

- Implemented multi-threaded code using Unity's Jobs system for execution of traffic simulation rendering in performance sensitive VR game.
- Strengthened communication skills through developer collaboration and discussing technical solutions in accessible manners to clients.
- Maintained, developed, unit tested and debugged an existing large C# codebase for a Unity road building tool with SUMO traffic simulation integration.
- Undertook ad-hoc tasks such as managing and mentoring new programmers joining the team, helping guide them through existing codebases, best practices, projects and tooling.

2020 – 2021 **Computational Researcher** **Soft & Condensed Matter Physics Group, University of Surrey**
In this role I undertook contemporary physics research as part of a small mixed specialism team.

- Created high-quality numerical simulations in Fortran of the theoretical model developed by the group for the stratification of polymer solutions.
- Analysed simulation results and visualised findings using Python for comparison between simulations and practical experiments.
- Collaborated with the experimental team researchers, communicating findings and ideas effectively, to help guide the experimental investigation.

EDUCATION

2017 – 2021 **MPhys, Physics** **University of Surrey**
First-Class Degree, including placement as a Computational Researcher.

2016 – 2017 **A-Levels** **Farlingaye High School**
A · *Mathematics,* B · *Physics,* B · *Chemistry*

2016 **AS-Levels**
C · *Psychology*

2010 – 2016 **GCSE**
11, of which 2 A*, 8 As and 1 B grade

EXTRACURRICULAR ACTIVITIES

I enjoy playing games of all kinds: from tabletop roleplaying games like the regular D&D game, for which I am the Dungeon Master, to finding out the newest developments in video games by participating in early access releases.

In my spare time I am interested personal programming projects in low-level systems and tools. I am learning OpenGL 3D graphics API for creating games from scratch and have created a neural network in C++. I also participate in game jams, with my entry (HADRON) for the Brackeys 2021.1 Game Jam being placed 2^{nd} overall out of 1890 entries. To improve my workflow for projects I have created my own C# Utilites package which can be used for the shared functionality and systems.

Outside of games I also love thrift and charity shopping for sustainable living and fashion. As part of my desire to learn new things, I am also teaching myself Danish.

REFERENCES

Available on request.