HARRY HOLLANDS

CAMBRIDGE, UK • HARRYSJH98@GMAIL.COM

Technical Skills

- **Programming Languages:** C++, C, Java, Lua, C#, GLSL
- **Development Tools:** Git, SVN, JIRA, Hansoft, Confluence, CMake
- **Development Platforms:** Windows, Linux, PlayStation 4, PlayStation 5, Xbox Series X, Nintendo Switch
- **Graphics APIs:** OpenGL, Vulkan
- **Development Frameworks:** Scrum, Code Reviews, Unit Testing, Sprint Planning, Milestone Reviews
- **Foreign Languages:** German (Elementary), Turkish (Elementary)

Work Experience

Frontier Developments (Cambridge, UK)
Full Game Engine Programmer, February 2021-Present

- Extended the proprietary ***Cobra*** engine's asset compression to work for Xbox Series X, Playstation 5 and Nintendo Switch, aswell as maintaining the compression for other shipping platforms.
- Served as a primary contact point between the ***Jurassic World Evolution 2*** team and the engine team. Also worked on integrating smoother, quarterly engine releases for the game as opposed to continuous monthly updates which would often cause friction between the game and engine teams.
- Took over maintenance of the engine's new user interface module, allowing the old module to be wholly replaced, and adding new features requested by game teams, co-operating with the rendering team in the process.

Frontier Developments (Cambridge, UK)
Graduate Game Engine Programmer, June 2019-February 2021

- Added debug tooling to improve the productivity of the localisation QA team for ***Planet Coaster: Console Edition***, mainly by adding debug-only support for changing the language of the game on-the-fly within the ***Cobra*** engine.
- Helped to maintain and improve the underlying custom build system that the engine uses, including helping to support the next-gen platforms, namely Xbox Series X and Playstation 5.
- Maintained a branch of ***Jurassic World Evolution 2*** in its early stages of development, which had access to bleeding-edge engine features. This allowed for a low-risk environment when adopting new engine features within the game, and also serves as a realistic testing environment when testing engine work in development.

Simplay Studio (Nottingham, UK)
Game Development Intern, June 2018-July 2018

Website: https://harrand.github.io/
GitHub: https://github.com/Harrand
LinkedIn: https://www.linkedin.com/in/harrand/

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- Created a proof-of-concept demo game from the ground-up using the Unity engine. This demo was used to help present the applicability of gamification of construction for students.

Education

University of Nottingham (Computer Science BSC Hons, 2016-2019)
First Class

Some of the key modules as part of this course are as follows:

- C++ Programming - consolidated knowledge of advanced C++11 programming and later (93%)
- Software Quality Assurance (77%)
- Software Engineering Group Project - focusing on Unity C# programming (87%)
- Programming and Algorithms - focusing on C programming (94%)
- Mathematics for Computer Scientists - graph theory, logarithms and discrete maths (82%)
- Individual Dissertation - writing a game engine from scratch and using it to contrast occlusion culling techniques on the CPU (75%)

Portsmouth Grammar School (2009-2016)

A-Levels Received: Maths (A), Electronics (A), Physics (B)

GCSEs Received: 1 A*, 1 A, 5 B's, 2 C's. Including Maths: A* and English: B

Additional Experience

Topaz Engine
Custom Graphics Engine, July 2015-Present

- Graphics engine written from scratch. Implementation is configurable via CMake to use either Vulkan 1.2 or OpenGL 4.5 under-the-hood.
- It is richly documented and complete with a testing suite that automatically runs for each commit via Github Actions. It also supports a bespoke build configuration for profiling, using the Tracy profiler.
- Development started in 2015, where it was part of an extended project during sixth-form, acting as a thin wrapper over OpenGL 3.3.
    - Topaz 1.0 shipped formally in September 2020, providing rudimentary engine features.
    - Topaz 2.0 was a complete rewrite, bringing a much improved API, aswell as vast performance optimisations now against OpenGL 4.5. This version shipped May 2021.
    - Vulkan support (version 1.2 with bindless descriptor design) was added in Topaz 3.0, shipping in April 2022.
    - The most recent release was Topaz 3.5, which shipped in September 2022.
- A set of livestreams and development videos have been published on YouTube to an audience of thousands, mostly in an effort to help those wishing to learn about independent game engine development.

Software Engineering Group Leader (Nottingham, UK)
Unity Game, September 2017-May 2018
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- As part of a university course, I led a group of six other computer science students to create a mountain-climbing virtual board game within the Unity engine.
- Utilised scrum, pair-programming, unit-testing and regression test to create a solid, robust project. It scored 87% of the available marks.

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