Thomas Chernaik

Computer science undergraduate (BSc, Meng)

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Summary

Third year computer science undergraduate at the University of Leeds, expected to achieve a First Class BSc in 2024 and graduate with a MEng in 2025. Team player in group projects and for a university hockey team. Experience with personal and educational projects in Python since 2018, C# since 2020 and C++ since 2022. Aspiring to work as a Game Developer.

Projects

OpenGL Rocket Game/ University Coursework

NOVEMBER 2023 - DECEMBER 2023

- Implemented a rocket launch scene with OpenGL and C++, and GLSL shaders
- Wrote GLSL shaders to render the world, rocket, and launchpads
- Developed a particle system for the rocket boost
- Managed loading OBJs and drawing their vertices every frame with different materials
- Added a split-screen system using two camera perspectives to view the rocket
- Implemented a modular UI system to display text to the screen and add buttons with functionality to launch and reset the rocket
- Implemented a simple animation system for the rocket's flight

Scribbles web game / Hobby project

JUNE 2023 - AUGUST 2023

- Solo project showcasing web development skills
- Created multiplayer system which could serve one or more user created games containing three or more users each on one server
- Provided a synchronised gameplay experience to players using websockets
- Deployed to cloud services using a Docker container
- Developed a responsive and mobile first frontend user interface utilising Bootstrap and Javascript

Chess desktop app / Hobby project

JULY 2023 - AUGUST 2023

- Developed a standalone chess application using C++ and SDL2 library
- Implemented core chess logic, including legal moves and check conditions
- Applied knowledge learned in university such as OOP and dynamic memory management

Sports centre booking system / University coursework

JANUARY 2023 - MAY 2023

- Collaborated with a large team using Git, and acted as a scrum master during crucial sprints
- Developed systems using Python, SQLite, and JavaScript including a calendar booking system
- Managed version control and contributions using branches and issues to allow concurrent work between different members of the team

Unity Delivery Game / Ludum Dare (Game Jam)
MAY 2023

- Partnered to rapidly develop a 3D game using Unity and C#
- Designed and implemented core gameplay mechanics, including package collection and delivery
- Engineered a custom physics system for van collisions with buildings and world borders

AI flashcard web app / Great Uni Hack (Hackathon); Ongoing hobby project
DECEMBER 2022, AUGUST 2023 - PRESENT

- Part of a small hackathon team that prototyped a full-stack application within 24 hours
- Developed back-end functionality using Python and managed the SQLite database
- Currently exploring noSQL queries, Python services, and researching payment system integration
- Undertook requirements analysis for integrating a paid subscription system

Various Unity projects / Hobby projects
SEPTEMBER 2021 - PRESENT

- Created 5+ hobby projects exploring Unity
- Developed a FABRIK implementation for procedural character animation with C#
- Crafted a slime mould simulation using HLSL compute shaders for real time simulation of hundreds of thousands of agents
- Designed procedural grass using batching and shaders and used optimisation methods to allow rendering of millions of blades of grass in real time, with wind and object interaction animations
- Implemented a peer-to-peer multiplayer system utilising UDP to provide real time updates between two game clients

Education

University of Leeds/ Computer science with High Performance Graphics and Games Engineering (BSc, MEng)
SEPTEMBER 2021 - JUNE 2025

- Predicted First-Class Honours
- Year 1: 76% overall
- Year 2: 73% overall
- Relevant modules: Algorithms and data structures, Software engineering, Networks, AI, Computer Graphics
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- Languages studied: C, C++, Java, Python

Dame Alice Owen's school / A-levels
SEPTEMBER 2019 - JUNE 2021

- Computer science **A***
- Mathematics **A***
- Physics **A***
- Further Mathematics **A**

Ashmole Academy / GCSEs
SEPTEMBER 2014 - JUNE 2019

10 GCSEs at grades 9-6 (including Mathematics and English)

Skills

Programming languages:

- Python
- C
- C++
- GLSL
- Java
- Javascript
- C#

Software skills:

- Git
- Bootstrap
- HTML
- SQL
- Unity
- Flask
- Debugging with GDB and IDEs
- OOP principles
- Websockets