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Education

University of Bristol 2021 – 2024

BSc Computer Science – Year 1 (First Class, **GPA 4.0**): Mathematics A (83%), Imperative & Functional Programming (75%), Computer Architecture (73%), OOP & Algorithms (84%), Mathematics B (86%)

University Technical College Norfolk 2019 – 2021

A Levels – 3A* (Computer Science, Mathematics, Physics), Cambridge Technical (Engineering) – Distinction

Aylsham High School 2014 – 2019

GCSEs – 7A*, 3A, 1B (including Computer Science (A*), Maths (A*), English Language and Literature (2A*))

About me

High-achieving University of Bristol Computer Science student, on track for a First Class. Strong background in coding; aspirations as a developer; eager to learn through professional engagement with software & web applications. Seeking to expand my programming/development skills in through an internship during the summer of 2023.

Skills and Proficiencies

Languages Java, JavaScript, TypeScript, HTML, CSS, JSX, C, Haskell, Python
Technologies Linux, ReactJS, ReactTS, FastAPI, Git, GitHub & PRs, AWS, JUnit, npm, GDB

Relevant Coursework

University of Bristol, Object Oriented Programming Final Coursework March – May 2022

- Implemented mechanics in Java of an undirected graph-based board game and an "exemplary" AI; "agonisingly close to near-unbeatable" (quote from marker).
- States of play statically evaluated inside an alpha-beta pruning Minimax algorithm for the AI.
- Static evaluation contained shortest path computation and standard-deviation distances evaluation.
- Design patterns in project include Visitor, Model-View-Controller, Abstract/Factory and Observer.
- Utilised test-driven development with JUnit, creating assertion-based test cases.

University of Bristol, Imperative Programming Final Coursework December 2021

- Produced course-defined-vector-format (*sketch*) image viewer (SDL2) and image converter in C.
- Compression from PGM to *sketch* using rectangle inscription via largest-area-under-histogram algorithm.
- Test-driven development through assert.h and custom assert function.

Technical Work Experience and Personal Projects

Teaching Support Role, University of Bristol September 2022 – Present

- Attending First-Year lab sessions to provide teaching support to students in the year below.
- Prepared adequately by reproducing setups to provide effective help to students with technical issues.
- Took on extra hours; assisted a lab session teaching First-Year students the fundamentals of Linux.

Portfolio Website, ReactJS July 2022

- Produced component-driven portfolio website using Create React App and ReactJS.
- Successfully provides information about me, aspirations, projects and is easy/pleasant to use.
- Used JSX to make reusable class-based & functional components in JavaScript/TypeScript.
- Produced JSON/data-driven components. Project pages also fetch READMEs via GitHub API calls.
- Hosted on GitHub Pages and purchased a custom domain. Set up required DNS rules so the custom domain and subdomain resolve to the GitHub Pages IP(s).

Playlist Copier, Python June 2022

- Attempted to automate copying Spotify playlists in YouTube via CLI app; it was a success.
- Familiarised myself with the Spotify, YouTube, and Invidious APIs. Structured RESTful requests.
- Learnt libraries including Google OAuth, Spotipy (facade for Spotify API), and Requests.

Points to Polynomial, Haskell August 2022

- Sought to implement program which maps sets of points to the polynomial curve that crosses each point.
- Uses Gaussian Elimination to find coefficients of $y = c_0 + c_1x + c_2x^2 + \cdots + c_{n-1}x^{n-1}$; the general polynomial crossing $n - 1$ points.
- Verified correctness via graphing software.

Reverse Polish Notation Logical Expression Parser, Java April 2022

- Successfully created program that takes any logical expression and returns a truth value/table.
- Developed interface-based Tokenizer, turning input string into an array of Nullary (constants), Unary or Binary operations. Array added to a stack while operations executed via visitation.
- Variables can be input to generate truth table of all possible truth values of the statement.

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Raytracing, JavaScript August 2021
- Player navigates Randomized Depth-First search maze from a first-person perspective in pseudo-3D.
- Includes my implementation of sphere tracing, in 2D, with multiple purely defined shapes.
- Learnt low-level graphical rendering method and implemented costless "lighting" effect.

Computer Science Society Game Jam 2022, JavaScript November 2022
- Given approx. 36hrs to produce a game as a team of 4. Assumed the role of lead programmer.
- Planned produced Object-Oriented game engine from the ground up in vanilla JS.
- Made thorough use of Git & GitHub through PRs having broken the project into features.
- Resulted in a visually appealing and mechanically interesting puzzle game we were proud of.

Computer Science Society Game Jam 2021, JavaScript October 2021
- Led a team of 3 which worked to create a Halloween themed game in 24 hours.
- Programmed a 2D object-oriented physics and collision engine in JavaScript with mechanics like a player, smooth camera, damage, and enemies. Accommodated and complemented teammate's work.
- Clearly outlined and delegated tasks to other members of the team.

Hilbert Visualiser, C May 2022
- Became aware of space-filling curves, specifically the Hilbert curve. Felt inspired to find a use for it.
- Developed program that displays draw file data as a PNG, mapping one/three bytes to each pixel.
- Data mapped along a pseudo-Hilbert curve to preserve data locality as well as mathematically possible.
- Challenges included making recursive curve generation iterative and learning stb_image_write library.

Aviva Digital, Shadowing June 2018
- Shadowed employees from all departments including front and back-end development, and UI design.
- Learnt how Aviva uses AWS/cloud integration for data analysis and storage.
- Immersed in Rapid Application Development, Aviva's highly agile development environment.
- Shown how Git and GitHub streamline collaborative software development.

Mountain Warehouse, Sales Assistant June 2022 – September 2022
- Worked as an integral part of a highly functional and energised team delivering excellent customer service at Mountain Warehouse.
- Developed my interpersonal skills, gained great confidence in conversing with/helping with customer queries in a new and challenging environment.
- Able to adapt my service approach depending on the individual, took pride in my work and always accepted extra hours when they were asked of me.