Thomas L. Barber

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Personal Statement

Highly motivated and ambitious Computer Science graduate at the University of Liverpool ready and eager to progress into an industry role in software development to continue learning and developing.

Education

University of Liverpool — Liverpool, UK
BSc Computer Science with Software Development — Sep 2019 - Jun 2022
Grade: First-Class Honours
Modules include: *Computer Systems, Object-oriented Programming, Database Development, Software Engineering I & II, Software Development Tools, App Development, & Games Design & Implementation.*

Blackpool & The Fylde College — Blackpool, UK
Level 3 Extended Diploma in Computing — Sep 2017 - Jun 2019
*Grade: Triple Distinction Star (D*D*D*)*
Modules Include: *Computer Systems, Information Systems, Software Design & Development, Event-driven Programming, Procedural Programming, & Developing Computer Games.*

Awards

Outstanding Achievement — Blackpool & The Fylde College
Received for a sustained level of high performance throughout the duration of College, having achieved the highest attainable grade of Distinction for each one of the eighteen modules across the two years of studying. — Jun 2019

Projects

Twitch Plays (Final Year Project) *Unity, C#, Twitch API, Visual Studio, Search Algorithms, UML, Time Management*
A 2D rogue-like game developed in the **Unity game engine** as the final year project. The game integrates itself with **Twitch.tv**, allowing the player to stream the game to an audience on the site who can then input messages into the chat and actively affect the game environment while they play. The game implements from scratch well known computer science algorithms, such as the **A* search algorithm**, which is used by non-playable characters within the game.

House Helpers (Second Year Group Project) *Java, SQL, MySQL, Spring, JavaFX, Eclipse, Agile & SCRUM, Pair-Programming, Leadership Skills*
Led a group of six to develop a **Java project** aimed at helping students meet potential housemates by acting as a form of social media and meeting new people based on common interests, akin to Discord. **Agile methodologies** were adhered to throughout the development process, with **SCRUM** sprints occurring every two weeks and development being done in groups of two, using **pair-programming.**

Machine Learning Classification Model *Python, Scikit-learn, NumPy, SciPy, Matplotlib, PyCharm, K-Nearest Neighbours Algorithm*
Using **Python**, trained two separate machine learning models, both of which were capable of recognising handwritten digits (0-9) in the MNIST dataset with an accuracy of $\approx 99\%$ One approach used the existing **K-Nearest Neighbour algorithm** within the **scikit-learn** library, whilst the other was implemented wholly from scratch.

Arkanoid *Unity, C#, Visual Studio*
A fully fledged 3D Arkanoid clone created by myself with **Unity** and **C#**, containing a main menu, levels, and failure conditions. Additional features include power ups and a high score system. Further, implemented multiple AI opponents that are capable of both rebuilding any broken bricks and blocking the player.

Machine Learning Pedestrians *Unity, C#, Unity ML-Agents Toolkit, Visual Studio*
Project undertaken during free time that utilised the **ML-Agents Toolkit** available within **Unity** to train a series of pedestrian agents to safely cross a busy simulated road environment without getting hit by vehicles.

Skills

Languages:	Python, Java, C/C++, C#, SQL, UML, Visual Basic, R, Swift, Haskell, PHP, JavaScript, HTML, CSS, XML, XAML, Assembly
Processes:	*SDLC, Agile, SCRUM, Waterfall, XP, Pair-Programming, Test-Driven Development, Iterative/Incremental Development, Defensive Programming*
Frameworks:	.NET, Testing (JUnit, XUnit, MSTest,...), React, WPF, Spring, Flask, NumPy, Matplotlib, SciPy, pandas, PyTorch, Scikit-learn
Software Tools:	*Visual Studio, VS Code, Git, Unity, Unreal Engine, 3DS Max, Maya, Photoshop, Apache Ant, Maven, Gradle, Trello, Word/Excel/PowerPoint/Power BI/Visio*
Miscellaneous:	REST, Node.js, JSON, MVC, GoF Patterns (Creational, Structural, and Behavourial)