Adam **Biggs**

COMPUTER SCIENCE STUDENT

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Introduction

I currently study at the University of Nottingham on the Computer Science (Artificial Intelligence) MSc course. My career aspiration is to work in the field of Computer Graphics and Visualisation. I am particularly interested in pursuing programming for 2D and 3D modelling.

Education

MSc in Computing Science (Artificial Intelligence) — **The University of Nottingham**

2022 – Present

- **Modules include**: **Mixed Reality**, **Human-AI Interaction**, Advanced Algorithms & Data Structures, Games.

BSc (Hons) in Computing Science with a Year in Industry — **The University of East Anglia**

2017 – 2022

- **First Class Honours**.
- Final Year Project **(75%)**: *An application to convert map data from the OpenStreetMap API into Dungeons & Dragons battle maps, for use in Virtual Table Top Games*.
- **Modules include**: **Graphics 1 & 2**, **Machine Learning**, **Computer Vision**, **Information Retrieval**, Data Structures & Algorithms, Software Engineering, Web-Based Programming, Database Systems.

A Level and GCSE — **The Bishop's Stortford High School**

2009 - 2017

- **A Levels**: Maths, Computing incl. Project **(94%)**, Art, Physics.
- Computer Science Project: *Real time Maze Generator & Solver (C#, WPF) with unit testing.*
- *A Pastel artwork inspired from Sir Edwin Landseer's The Monarch of the Glen, which was selected for display in a park in Bishop's Stortford.*
- **GCSE**: 3A*'s 3A's 6B's — including Mathematics (A*).

Research Projects

Dungeonify: Generating Dungeons & Dragons Battle Maps from OpenStreetMap — **The University of East Anglia**

FINAL YEAR PROJECT (75%)

- The generation of battle maps for role-playing games is time consuming and difficult. Dungeonify aimed to solve this problem by using real-world map data to generate fully textured battle maps for the *Dungeons & Dragons* system.
- The project was built in Python 3, using the Pycairo graphics library and the OpenStreetMap (OSM) API and library.
- The solution enabled a user to select a number of real-world structures from the OSM and generate a correctly positioned battle map using changeable artists' textures and automatically generate a Virtual Table Top compatible file to enable its fast import into an online game.
- The greatest difficulty in the project was correctly orientating each structure such that all walls followed the strict 90 degree lines of the inch square grid.

Mazer: Evaluating Algorithms for Generating & Solving Mazes in Real-Time — **The Bishop's Stortford High School**

THE COMPUTER SCIENCE PROJECT (95%)

- A project designed to compare various algorithms for generating and solving mazes visually.
- The .NET Framework C# Project utilises Windows Presentation Foundation (WPF) controls, which visually show the steps it completes in real-time, enabling the instant updating of visual settings while the generator or solver is running.
- Algorithms were compared for running time and maze complexity. The results were automatically displayed as a table and histogram.
- A total of twelve generating and solving algorithms were implemented for comparison, from the simple 'Drunkard's Walk' to the much more complex 'A*'. To ensure the solution met the requirements, it's core functionality was unit-tested.

Industrial Experience

Software Engineer (Paid Intern) — **School of Computing Sciences (UEA), Norwich**

Jun. 2022 - Jul. 2022

- A system for automated module feedback for all faculties at The University of East Anglia, with weekly sprint meetings.
- Researched and developed a Power Automate solution enabling the automated generation and collection of template-based feedback forms. The system was also designed to create reports of feedback data which were sent to each head of faculty.
- Presented the project to the Associate Dean of Science at UEA (Simon Lancaster).

Assistant Developer (Paid Year in Industry) — **ProspectSoft Ltd, Oxford**

Nov. 2020 - Aug. 2021

- Placement as an Assistant Software Developer at ProspectSoft; a business creating Customer Relationship Management (CRM) Software. Worked in the DevOps team fulfilling tickets as part of the tri-weekly Agile Scrum sprints and experienced full-stack development.
- Created and tested code written in typescript, SQL and C# (.NET framework) using Visual Studio Code, Sybase Central and Visual Studio. Jira Software for sprint planning, also Microsoft Azure Pipelines and Azure DevOps for Git Source Control.
- Implemented a main dashboard window, using front-end Typescript and HTML. Reports were displayed through back-end SQL. The daily stand-up meetings aided development throughout the task. Clear recorded evidence was required for each code modification.
- Created a Report Builder page which presented all of the reports in a more readable and accessible manner, which allowed them to be 'favourited' by the user. UI elements were coded to respond to the user's mouse movements. This front-end task was testing for use on mobile devices.
- Implemented a workflow enabling customers to verify a domain's ownership themselves, bypassing the Service Desk department.
- Created a function to automatically generate instruction emails to an API email endpoint using Full-stack development: The front-end for the UI setting, the back-end by adding a system option to the database and the API Layer by adding the API endpoint in OData (Open Data Protocol).
- Experience as a member of the agile team working on all aspects of the system and conducting rigorous testing throughout.

Software Engineer (Paid Intern) — **Faculty of Environmental Sciences (UEA), Norwich**

Jun. 2019 - Sept. 2019

- Relational Database and Interactive Website Designer in a NEXUSS Research Experience Placement at the UEA. Worked with Prof. A. Manning on the Atmospheric Greenhouse Gas Measurement Project. Gained experience of using Agile development techniques (series of 2-week sprints).
- Analysed the existing data, gathering requirements for a new system. Designed and created a MySQL database, migrating the existing Excel data. Implemented an Apache Server hosted web site using PHP7, HTML5/CSS and JavaScript.
- Created a .NET Framework C# utility to ensure data consistency and enable the automatic generation of the SQL, DDL and DML database scripts.
- Implemented a library of reusable PHP7 functions for consistent generation of repeating HTML5 blocks.
- Secured the solution against SQL Injection attacks.
- Source Code Management using GitHub having initially been handled using Dropbox.

Software Engineer (Work Experience) — **GlaxoSmithKline, Ware & Stevenage**

Mar. 2016

- Work experience as a Trainee Software Engineer at GlaxoSmithKline Ware and Stevenage for 2 weeks. Worked alongside Application Development Engineers in the highly regulated pharmaceutical industry.
- Completed a training course covering Good Regulatory Practice (GxP) and its application to R&D laboratories. Completed several Project Euler tasks and a Game of Life exercise in C# (.NET Framework).

Technical Skills

Software Development

- Desktop GUI Object-Orientated design using **C#**, **C++**, C, Visual Basic, **Python**, Java and TypeScript. (incl. WPF, Infragistics and Office Add-Ins).
- Knowledge of generics, interfaces, data structures, bitwise logic operations and unit testing.
- Experience developing AI Chat Bot systems and machine learning techniques (incl. NLTK, scikit-learn and Weka) and using MATLAB.
- Web development in Python using Flask, psycopg2, Django, PHP & HTML5, TypeScript, JavaScript, CSS.
- Relational database design: PGAdmin3 using PostgreSQL, Apache web server, HTML5, PHP7 and MySQL.
- Experience with RESTful APIs.
- Proactively explored Robotic Process Automation (RPA).

IDE's & Frameworks

- Microsoft Visual Studio Code & Visual Studio Enterprise Edition.
- Microsoft .NET Framework (WPF including XAML & WinForms).
- NetBeans IDE (Java), Spyder (Python), CLion (C).
- Unity specialising in Unity 3D packages. C++ OpenGL for 2D and 3D applications.
- Insomnia & Postman for APIs.
- Sybase Central, MySQL Workbench, Microsoft Azure and Power Automate.

Professional Skills

- Experience with **Git** based version control systems (incl. GitHub, GitLab & Azure DevOps)
- Experience using **Agile methodologies** (incl. test driven development) in teams ranging from 1 to 15 people.
- Microsoft Office suite and the **LaTeX** markup language.
- Full UK Driving Licence Holder.

Extracurricular Activities

I am an active member of the Board Games and *Dungeons & Dragons* societies; often organising sessions. Acting as a Dungeon Master has allowed me to develop my time management, public speaking and team interaction skills. I am a talented artist and a keen reader of fantasy novels. I am also a member of the Badminton Club and enjoy cycling to keep fit.

References

References are available on request.