Joshua Fitzmaurice

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Education

University of Warwick   Oct. 2020 - Jul. 2025
MEng in Computer Science   **Classification:** 1st

Relevant Courses: Operating Systems & Computer Networks (**C**), Database Systems (**Java**, **PostgreSQL**),
                  Algorithms, Software Engineering, Compiler Design (**C++**), Project Management

Sharnbrook Academy   Sep. 2018 - Jul. 2020
A Levels | Mathematics: A∗, Further Mathematics: A∗, Computer Science: A∗

Experience

Aston Martin Formula 1 Team   Aug. 2023 - Jul. 2024
Race Strategy Placement Engineer   *Python, Plotly, Mongo, SQL, Docker, Multi-threading, Git, Azure*

- Refactored and modularised legacy code to **improve performance and readability**.
- Established systems to automate manual tasks saving the team **10+ hours of work a week**.
- Designed, developed, and tested a system to transcribe the audio from all drivers during a Formula One event live, **reducing the time it takes to get important information to strategists.** The development of the system required the use of Transformer models, multi-threading, and inter-process communication.
- Developed a dashboard, using Plotly Dash, that uses historic data to **help predict likely strategies other teams** will use at upcoming events.
- Designed a python package that **allowed for deeper analysis** of monte carlo simulation results to help aid strategy decisions.
- Regularly **worked in high pressure environments** requiring **quick decision making and clear** to aid with strategy decision making.

Optiver   Jul. 2022 - Aug. 2022
Software Engineer Intern   *C++, CMake, XML/XSD, Git*

- Designed and developed a system that **synced multiple data streams** to calculate the market's believed option price.
- Ensured the project seamlessly could **handle the large amount of trade data** emitted from exchanges.
- **Worked closely with traders and other stakeholders**; Organising and leading meetings to discuss project requirements.
- This system allowed for more accurate option pricing, Improving their returns in the market.
- Completed a course on the fundamentals of market-making, trading, and option pricing.

Projects

3rd Year Dissertation - github.com/jfitz02/3yp-diss   Sep. 2022 - Dec. 2022
Detecting Interests in Social Media   *Python, Git, GitHub, NLP, Machine Learning,*

- Compared multiple NLP models (**RNN**, **LSTM**, **Transformers**, etc.) for use as a topic detection model. Evaluating both execution time and accuracy to pick the best model for the project.
- Used PCA to **perform in-depth analysis and visualisation** of the features provided by RoBERTa to identify similarities between topics. Later, similarities were identified using distance metrics on the vector outputs to better cluster topics.
- Researched how context can provide further insight to a social media post to accurately classify the post. Made use of context (media, comments, etc.) **improve the models accuracy by 10%**.

MiniC   Sep. 2022 - Dec. 2022
A compiler for a C-like language   *C++, LLVM, Git, GitHub*

- Used Automata theory to generate rules for a recursive-descent parser.
- Optimised boolean expression evaluation by utilising Phi nodes to perform lazy evaluation.
- Integrated a custom Scope Manager to identify improper use of variables.
- Used Semantic analysis techniques to perform type checking and type-widening when necessary.

Leadership and Volunteering

University of Warwick Computing Society - uwcs.co.uk   Apr. 2023 - Ongoing
Treasurer

- Manage the relationship between the society and **14** different sponsors throughout my term as Treasurer.
- Organised **10+** talks, workshops, and coding competitions that invited external speakers to improve the academic output of our society.
- Working on the Lead Organiser Committee of our society ran Hackathon. Raising over **£9,000** to go towards prizes, food, and other necessities to run the event.