

Employment

Mercedes-AMG Petronas Formula One Team

Performance and Simulation Engineer

*Brackley, England
July 2024 - Present*

- I spearhead the Pre-Event Simulation process during assigned race weekends within a rotating three-person team. I lead the creation and distribution of detailed Pre-Event reports, interacting directly with race engineers and senior management to address performance concerns, and coordinate cross-departmental efforts to ensure timely completion and resolve any bottlenecks.
- Streamlined the pre-event workflow by automating routine processes in MATLAB and Python, and consolidating multiple analyses, helping to cut overall lead time of the report by 50% to date and enhancing operational efficiency team-wide.
- I propose setup enhancements to maximise the risk-reward ratio for each track by conducting extensive analysis from simulation data. I also provide comprehensive risk assessments for each event, outlining clear mitigation strategies.
- I deliver ride analysis live during practice sessions, quickly identifying key performance issues and recommending appropriate setup changes from the pre-event report, demonstrating a strong capability of decision-making under pressure.
- Reduced the mean squared error between forecasted and actual car balance KPIs by 80% by engineering a predictive model for balance targets.
- Engineered novel visualisation techniques to better make decisions on heave spring choices for a given race weekend, with the work leading to a potential laptime compromise of ride, which could significantly simplify setup decisions over the weekend.

Quasiscience (Technical consultancy startup focused on bespoke AI based solutions)

Lead Engineer

*London, England
Nov 2022 – July 2024*

- Created an application to analyse price trends of second-hand luxury items across 30 websites, collecting data on over 100 brands for the MVP, and generated key performance indicators (KPIs), including market volatility, price forecasts, and brand market share analysis. These efforts aimed to provide brands with deeper, actionable insights into their performance in secondary luxury markets.
- Initiated discussions with leading fashion brands to offer the tool as a B2B solution, as well as with Bloomberg to explore the potential for selling the data streams directly.

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Vehicle Dynamics Work Placement

*Brackley, England
July 2021 - September 2022*

- In charge of finding the theoretical optimum aerodynamic setup prior to each race weekend, by running advanced simulations and analysing results in MATLAB.
- Enhanced the modelling capabilities of simulation tools and automate key cross-departmental tasks by collaborating cross-functionally with multiple departments.
- Earned high praise and an extension of the internship to further maximize contributions to the team, as a result of excellent problem-solving under pressure and consistently delivering high-quality work.

Education

University of Cambridge – Clare College

MEng in Manufacturing and Management Engineering (First Class with Distinction)

*Cambridge, England
2019-2024*

Relevant Modules: Mechanics and Vibrations, Mathematics and Computing, Data and Decision Science

Relevant Coursework

- **Python Major Project:** Developed a flood warning system that integrates live data from weather stations across the UK to alert citizens in flood-risk areas.
- **3rd Year Major Project Lead:** Directed both the engineering and financial aspects of developing a robotic pipe sealing device, taking it from concept to market. Delivered a fully functional prototype capable of autonomously moving and sealing cracks in pipes. Produced a detailed design portfolio, a comprehensive business plan, and financial projections for the company's first three years.
- **Industrial Placement Project Lead:** Directed development of an AI-based fault detection system that improved client product yields by 30%, leading to an additional £100,000 in revenue. Utilized Python to build a vision system that identified defect patterns.

City of London School, London

A-Level: **3 A***: Maths, Further Maths, Physics, **1 A**: Economics | EPQ: **A***

2018-2019

Skills

- **Technical Skills:** Excel, PowerPoint, MATLAB, Python, AWS, Azure DevOps, Machine Learning (TensorFlow), Vehicle Dynamics
- **Core Competencies:** Data Analysis, Risk Management, Problem-Solving Under Pressure, Team Leadership, Simulation & Predictive Modeling

Extra-curricular

- President, Clare College Tennis Society *2023-2024*
- Head of Lighting, Tech team, City of London School, London and Cambridge *2015-2020*
- Corporal, RAF Cadets *2015-2017*