Nick McCleery

An autonomous, action-oriented, and highly adaptable engineer and technical leader, with more than a decade of experience across both technical software development and advanced mechanical engineering—including seven seasons in Formula One.

Removed | Removed | nickmccleery.github.io | nick-mccleery | Belfast, N. Ireland | British, Irish

Education

Queen's University Belfast
Mechanical Engineering

Sep 2010 – Jun 2014

BEng, 1st Class Honours

Royal Belfast Academical Institution
Sep 2003 – Jun 2010

A-Level:
- Mathematics
- Physics
- French

AS-Level:
- Further Mathematics

Awards

IMechE Institution Project Award
2014

Awarded by The Institution of Mechanical Engineers for the development of an electric vehicle battery management system protocol and software simulation suite.

2014 & 2015 Formula One World Championships
2014 – 2015

Part of the wider 2014 & 2015 winning Mercedes team.

Various Business Awards
2021 – 2023

NI's 30 Under 30, Ulster Business 'Ones to Watch', Catalyst Best Business Software Start-Up, Business Post's Start-Up of the Month etc.

Languages

English

Native language.

French

CEFR B2 *(A-Level)*
Some conversational/professional proficiency.

Italian

CEFR A2
Limited conversational/professional proficiency.

German

CEFR A1
Basic proficiency.

Employment History

Anneal | www.getanneal.com
Founder & 'CEO' |

Jan 2021 – Present — Belfast, UK

In 2021, I started Anneal—a software company specialising in the development of a *System of Engagement* for the advanced engineering sector. In a role that spans both technical and commercial functions, I have been responsible for the development of a complex, vertical-specific collaboration platform that improves engineering operations—with centralised, traceable, 'multiplayer' CAD and drawing reviews, modern task and workflow management, and advanced search functionality. Responsibilities have included:

- Architecting a multi-tenant web application built on Vue, Flask, and PostgreSQL, and deployed via AWS.
- Product roadmap definition and management, and all initial technical development: front-end, back-end, database design, release strategy, CI/CD etc.
- Business development, including customer discovery, sales, content marketing, digital marketing etc.
- All branding design and website development, including visual asset design and copywriting.
- Recruitment and team management, building to a team of five at our largest.
- Budgeting, financial modelling and management, and fundraising.
- Assembling furniture, sweeping floors, cleaning desks, managing servers, and refilling coffee machines.

Quant Insight
Backend Engineer & Lead Developer |

Nov 2019 – Jan 2021 | *Consultant: Jan 2021 – Jan 2022* — Belfast/London, UK

At Qi—providers of a complex quantitative financial analytics software platform—I was responsible for the development of the back-end application. Providing cloud-based tools for the large-scale computation and delivery of asset value modelling and macroeconomic analytics/sensitivity data, my responsibilities spanned:

- Contribution to core PCA-based algorithm research and development, including working in concert with renowned professors from the Department of Physics at the University of Cambridge and the Computer Science Department at Princeton.
- Implementation and development/'productionisation' of algorithmic methods, including extensive performance optimisation.
- Delivering a core data provider migration on a highly compressed timeline—including the development of multiple interface libraries, a systematic method for comparing data across providers, and relevant reporting on data comparability between providers across a universe of approximately 6000 instruments on a 10 year horizon.
- Development of a data ingestion pipeline and data provider abstraction layer.
- Relational and non-relational database development and administration with MySQL and DynamoDB.
- Microservice design and development via AWS Lambda, and API development via AWS Chalice and API Gateway.
- Customer support: helping facilitate API access through corporate IT systems, and supporting mathematically oriented queries about underlying algorithm methodology.

B-Secur
Senior Algorithm Engineer |

Jan 2019 – Nov 2019 — Belfast, UK

Reporting to the Head of Algorithms, my responsibilities at B-Secur were based around the development of novel algorithmic methods for processing and analysing electrocardiogram data. In this role, my primary focus was the development of complex digital signal processing and signal analysis methods. Responsibilities included:

- Acting as the primary developer of all ECG signal conditioning strategies, including the development of novel filter design and signal analysis methods.
- Acting as project maintainer, responsible for managing release milestones, code reviews, and providing guidance and recommendations to other team members.
- Guiding algorithm development software architecture and advising on data architecture.
- Driving improvements to working methods/operations, e.g. expanding and improving CI/CD processes, developing tools for static code analysis, and implementing improvements to internally and externally targeted reporting.
- Producing and delivering formal internal training on signal processing and computation.

Skills

CAD | CI/CD | Cloud Architecture | Data Acquisition | Data Analysis | Data Visualisation | Database Design | Digital Signal Processing | Engine Development | Financial Modelling | GD&T | Instrumentation | R&D | Reporting | Signal Analysis | Simulation | Software Developent | Team Management | Vehicle Dynamics

Tools & Technologies

ATLAS | Auth0 | AWS | Bash | C# | CATIA V5 | CSS | Eigen | Excel | Flask | Git | GitHub | GitLab | HTML | JavaScript | MATLAB | MySQL | PostgreSQL | PSPDFKit | Python 2.7 | Python 3.6+ | SQL | SQLAlchemy | System Monitor | Three.js | TypeScript | Visual Basic | VSCode | Vue 2 | Vue 3

+ some AutoCAD, C, C++, Docker, Docker Compose, Julia, Photoshop, Simulink, SolidWorks, SQLite, SVN, WinTAX etc.

AWS Services

API Gateway | CloudFormation | CloudFront | CloudWatch | DynamoDB | EC2 | Elastic Beanstalk | IAM | Lambda | RDS Aurora | RDS | Route53 | S3 | Secrets Manager | SQS | VPC

Operating Systems

Amazon Linux | MacOS | Ubuntu & WSL2 | Ubuntu | Windows

Interests

- Motorcycles; road and track.
- Running.
- Computing.
- Foreign languages.
- Cooking.
- Music production.

Force India/Racing Point Formula One Team

Vehicle Science Engineer |

Jan 2017 – Jan 2019 — Silverstone, UK

In this engaging and highly dynamic position, I was responsible for the development and management of both on-car mechanical and off-car software systems—while also handling a significant body of traditional vehicle dynamics workload. This included:

- Novel suspension system development, including concept generation, simulation development, design space exploration, development testing, and event support for production systems.
- Suspension system specification, including specification of heave and roll rates, setup options, setup procedures etc.
- Bump rubber development, including characterisation process and processing software overhaul.
- The completion of a wide range of studies and all relevant reporting: aerodynamic efficiency, powertrain strategy, suspension system configuration, competitor performance, FIA-requested regulation studies etc.
- Planning and overseeing annual pre-season full-car rig testing: managing the late delivery of parts, adapting test plans to suit component availability, handling physical car setup, data logging configuration etc.
- Regular event support: analysing car performance, providing suspension setup guidance, performing fault investigations, producing reports etc.
- Complete redevelopment of the Vehicle Dynamics Team's analysis software. This involved the development of an advanced MATLAB program with significant scope, including quantitative performance analysis method development, GUI development, and data architecture development. Additionally, automated data-processing tools were added through C# and .NET 4.6.

Junior Strategy & Performance Engineer |

Jan 2016 – Jan 2017 — Silverstone, UK

Reporting to the Chief Race Engineer, in this role I contributed to both vehicle performance optimisation and optimal race strategy determination. My contribution served primarily to improve working methods and operational efficiency, and responsibilities included:

- Supporting each event throughout the season, gathering strategic parameters, performing strategy oriented simulations, analysing pit-stop practice and driver pit-stop performance, performing cross-car performance and driver comparisons etc.
- Development of new techniques for the assessment of pit-stop performance, including sensor installation specification and clean-sheet development of a data-processing tool set. This encompassed development of novel processing methods, performance metrics, and automated reporting tools.
- Development of new Performance group tools and methods to aid with in-event driver performance analysis, including processing of logged car data and the generation of data visualisations and reports.
- Performing critical analysis of a range of tools and working methods, then designing and implementing improved products. This covered several of the group's tools for analysis of race data, and included ground-up redevelopment of the Strategy group's reporting methods, ultimately drastically improving both reporting robustness and speed of delivery.

Mercedes AMG High Performance Powertrains

Mechanical Engineer, Graduate |

Sep 2014 – Jan 2016 — Brixworth, UK

As a graduate engineer, I had the opportunity to work across multiple engineering departments, spending time based within Mechatronics, Test Operations, Build Support, and Mechanical Engineering. This provided experience of mechanical design and manufacturing methods, with the majority of my time having been spent within the Mechatronics group. Higher value projects included:

- The redesign of powertrain cooling systems for the delivery of significantly improved efficiency.
- The design and development of a methodology for assessing the interchangeability of specific powertrain components which were subject to a highly complex manufacturing process.
- The development of a CATIA V5 macro for the in-model creation of text, enabling straightforward part marking of additively manufactured components.
- The development of a CATIA V5 macro for the accurate in-DMU positioning of camshafts according to specified timing.
- The adaptation and development of a recent paper-derived method for modelling the physical properties of a particular fluid, enabling higher accuracy simulation and increased confidence in design direction.

Performance Development Engineer, Intern |

Sep 2012 – Sep 2013 — Brixworth, UK

Based within Mercedes HPP's V8 Performance Application team, my responsibilities included:

- Regular dynamometer based engine development testing.
- Regular flowbench work for exhaust development and lifecycle analysis.
- Creation of regular and widely distributed post-race event reports, describing and analysing vehicle and powertrain performance.
- Development and maintenance of several data analysis tools based around F1's telemetry/data acquisition systems and MATLAB/Simulink.
- Development of combined simulation/analysis software aimed at providing an effective measure of on-track performance relative to potential vehicle performance.
- Development of a calibration management software package, designed to facilitate version control and provide a reliable method for distributing, visualising, and deploying calibration items.

Around six months into the twelve month internship, Mercedes also invited me to rejoin the company on graduation as part of their graduate engineer scheme.