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Summary / Profile:

An experienced **Powertrain Engineer** with a proven track record of designing and developing automotive powertrain systems (conventional and electrified). Key strengths include: Broad and varied experience of powertrain systems with a thorough knowledge of cross-functional interactions; extensive experience developing and leading powertrain control system applications, test methodologies, support documentation, analysis scripts and process improvements to increase delivery efficiency for application teams; in-depth understanding of complex system interactions, providing a broad knowledge base for issue investigations; strong technical skills and understanding of business requirements with experience ranging from high volume commercial vehicles through to low volume niche sports car projects; leadership of development activities across a range of newly applied and advanced technologies from concept through to production readiness.

Key Skills:

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| <ul style="list-style-type: none">▪ 20+ years automotive powertrain experience▪ Leading and mentoring development teams▪ Stakeholder management▪ Managing 3rd party suppliers▪ Interfacing with Federal regulators (CARB)▪ Interfacing with board level clients▪ Issue investigation including Global 8D▪ Failure Mode Avoidance (FMA / FMEA)▪ Functional Safety (ISO 26262) | <ul style="list-style-type: none">▪ Agile (Scrum) project management methodology▪ Calibration of conventional & electrified powertrains▪ Calibration of engine & transmission diagnostics▪ Extensive powertrain control software knowledge▪ System Integration▪ Environmental vehicle testing▪ Trained 'High Risk' driver inc. 'Gold' standard RoSPA driving certification. |
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Career Highlights:

- JLR initiated a programme to develop and produce its first fully electrified vehicle (Jaguar I-PACE). Engaged as Lead Calibration Engineer to deliver the calibration attribute. Liaised with system and software developers to enhance requirements with calibration needs; led calibration team; planned and led global testing programme; led integration activities; met all product development gateway requirements; delivered calibration releases for fleet updates and vehicle builds; delivered a validated calibration to enable production delivery. Successfully delivered the calibration for JLR's first fully electrified vehicle.
- JLR required the introduction of Gasoline Direct Injection technology onto its V8 powertrains to meet future market requirements. Engaged as Lead Calibration Engineer to calibrate the fuel path functionality. Characterised and calibrated the injectors and high/low pressure fuel pump hardware; created and optimised software to meet control requirements in conjunction with 3rd party suppliers; utilised AVL CAMEO auto mapping; developed calibration guides and analysis scripts for calibration engineers. Successfully calibrated V8 fuel path, adopted as best practice baseline for supplier comparisons.
- An OEM client was to be investigated by CARB for a suspected on-board diagnostic infringement. Engaged as Lead Calibration Engineer to conduct technical analysis and identify a containment solution. Initiated joint US based issue investigation with California Air Resource Board (CARB); provided SPOC between client and regulator; chaired joint investigation meetings; isolated root cause of on-board diagnostic infringement and proposed containment strategy. In close cooperation with CARB, implemented and demonstrated enhanced control strategy resulting in a significant reduction to the regulators infringement fines.

Career History / Experience:

Company: ZF Group AG
Position: Functional Safety Engineer (contract)
Dates: January 2019 to Present

- Contracted to ZF as a Functional Safety Engineer to ensure ISO 26262 compliance for the Electric Power Steering ECU team.

- Led the ECU compliance activity for multiple client projects (ISO 26262, pt.5), reporting to the Senior Manager of Advanced Engineering.
- Enhanced the existing process and documentation structure to align with the Automotive SPICE (IEC TR15504) documentation quality guidelines.
- Managed all aspects of the workpackage delivery for hardware (ECU) related functional safety compliance (inc. component reliability analysis (using IEC TR62380), hardware fault metric analysis (SPFM, LFM), etc).

Company: Ricardo PLC
Position: Senior Calibration Engineer (contract)
Dates: November 2017 to January 2019

- Contracted to Ricardo as Senior Calibration Engineer to deliver the transmission diagnostics calibration for a client DCT vehicle.
- Led the planning and calibration activity of new software functionality for a vehicle launching into the European and US markets, reporting to the Chief Engineer of Drivelines.
- Enhanced the delivered value of the project by providing on-site mentoring and supporting documentation to client engineers and management throughout the project timeframe.
- Operated within an Agile (Scrum) framework of project delivery using EASY REDMINE toolset.
- Managed all aspects of the calibration database using AVL CRETA including maturity status reporting to senior client management.
- Led calibration issue investigation activities within the UK and Sweden. Regarded as the subject matter expert for diagnostics calibration (including Bosch DSM).
- Led the integration of Failure Mode Avoidance strategies into the project to ensure robust delivery of features between the systems engineering, software and calibration stakeholders across multiple client and Tier 1 test locations.

Company: Jaguar Land Rover Ltd
Position: Lead Calibration Engineer (contract)
Dates: May 2014 to November 2017

- Contracted to JLR as Lead Calibration Engineer to deliver the calibration attribute for the JLR's first fully electrified vehicle (Jaguar I-PACE).
- Responsible for the activity planning and delivery of the powertrain calibration from concept to production readiness.
- Reported to the Electrified Powertrain Manager, leading a team of four Calibration Engineers.
- Planned and coordinated all activities required for overseas environmental testing including financial, logistical and legal requirements.
- Led inter-departmental integration activities for fleet updates and prototype build phases, providing the primary contact for powertrain calibration.
- Managed all aspects of the calibration database using AVL CRETA including weekly reviews / builds, definition of target growth curves and reporting maturity status to senior management.
- Provided technical lead support for cross-functional investigation of issues.
- Created bespoke calibrations for individual prototype vehicle users to meet their specialised testing requirements.
- Applied Agile principles and practices to deliver flexible and value biased calibrations.
- Mentored a Junior Calibration Engineer to Lead Calibration status.
- Successfully delivered the calibration attribute for JLR's first fully electrified vehicle, led all global testing and integration activities to enable the release of the final calibration to launch the vehicle.
- Created new processes to enable the electrified powertrain controls team to transition from being a research based team to a product delivery team.

Company: SAIC UK Technical Centre
Position: Systems Integration and Calibration Engineer (contract)
Dates: October 2012 to May 2014

- Contracted to SAIC UK Technical Centre to lead the activity planning and delivery of a new powertrain control module for a new UK vehicle programme, including the test and validation of supporting sensors and actuators.
- Responsible for the activity planning and integration testing of new functionality into a model for launch into the UK market, reporting to the Vice Director of Powertrain.
- Planned and coordinated European environmental sign-off testing to validate calibration for UK vehicle introduction.
- Mentored Junior Calibration Engineers in the UK and China.
- Led calibration issue investigation activities in UK and China as primary contact for powertrain calibration.
- Managed all aspects of the calibration database using Influx LogiProject software including weekly calibration reviews, calibration builds and definition / reporting of target growth curves to senior management.
- Calibrated multiple functions including cruise control and various on-board diagnostics including misfire and stop/start, using UAES/Bosch ME9 software and INCA toolset.
- Completed powertrain CAN network fault insertion testing using CANalyser toolset.
- Managed calibration build and delivery for fleet updates and manufacturing build phases for UK and China based programmes.
- Led a Chinese based team to deliver a vehicle performance improvement which included engine and transmission calibration optimisation.
- Successfully introduced Influx LogiProject toolset into the UK calibration team, following a demonstration of the efficiency improvements the toolset was also rolled out to China based team.
- Improved the UK / China working relationship by providing on-site mentoring during issue investigation exercises.

Employer: Jaguar Land Rover Ltd
Position: Principal Engineer / Feature Leader, OBD Calibration
Dates: April 2010 to September 2012

- Engaged to lead the activity planning, calibration, sign off and certification of misfire, purge and DMTL (evaporative system leak check) diagnostic monitors using Bosch ME17 software and INCA toolset.
- Reported to the Calibration Manager and led a team of four OBD Calibration Engineers.
- Planned and coordinated overseas European and Federal environmental testing including financial, logistical and legal requirements.
- Led standardisation and efficiency improvement activities for faster, more robust calibration deliveries to the vehicle fleet.
- Created automated Matlab analysis scripts to process and evaluate data for OBD monitors, increased the re-use of existing data sets and reduced in-vehicle testing requirements.
- Delivered a reduction in misfire calibration delivery time from 9 to 6 months by restructuring the responsibilities and commonising activities across the team.
- Utilised Mathworks MBC and CAGE toolsets for modelling diagnostic characteristics and optimised breakpoint selection of key calibration parameters leading to increased diagnostic accuracy.
- Created calibration 'work packs' to standardise the core diagnostic delivery activities, improving robustness and engineering throughput.
- Successfully delivered efficient and robust 'End of Line' processes including automated conformity checks following handover to manufacturing.
- Provided technical support for homologation and certification for California Air Resource Board.

Relevant Earlier Career:

- 10/2008 to 04/2010: Aston Martin Lagonda Ltd: System Integration Engineer (contract)
- 11/2001 to 10/2008: Jaguar Land Rover Ltd: Functional Leader: OBD and Fuel Path Calibration (contract)
- 12/1998 to 11/2001: Lotus Engineering: Senior Calibration Engineer
- 03/1998 to 12/1998: Land Rover: Gasoline Calibration Engineer
- 07/1996 to 03/1998: Lotus Engineering: Graduate Engineer

Education / Qualifications / Certifications:

- BEng (Hons) – Electronic Engineering (Specialisation: Avionics) – University of York – 1996
- Trained 'High Risk' driver including Gold RoSPA Certification
- Trained in high voltage competent working
- Trained in Ford R-202 vehicle evaluation techniques
- Driving Permit Holder for MIRA, Millbrook, Idiada and Nardo proving grounds

Personal Details:

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- Driving Licence: Full UK (clean)
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Technical Appendix:

Engine Management: Bosch ME7 / ME9 / ME17, UAES, Denso, Siemens, Delphi and Ford EEC V / Black Oak.

Development Toolsets: ETAS (INCA), ATi Vision, Siemens (SAM 2000), Vector (CANalyser), AVL (CRETA and CAMEO), Matlab and Simulink (MBC and CAGE).

Calibration Functional Development: EOBD / OBD2 [Diagnostic monitors for Misfire, Catalyst efficiency, HEGO, Evaporative emissions (inc. purge flow and DMTL), Secondary air, purge flow, driveability / torque path, fuel path / base engine mapping (inc. PFI and GDI), fuel pump control (low and high-pressure systems), VVT, idle speed control / auxiliary load compensation, cold start / warm up and catalyst light-off, cruise control, general PID controllers, electrification and hybridisation, transmission diagnostics.

Other: Global 8D, AIMS, FMA / FMEA, eTrackers, Agile / SCRUM, Functional Safety (ISO 26262), System Integration, Environmental vehicle testing (hot / cold / altitude).

Recommendations:

"I have worked with Sam for a number of years while at Jaguar Land Rover. Sam usually gets picked to work on the difficult problems because he gets the job done well and is 'unflappable'. I would unreservedly recommend Sam's expertise in EMS calibration to anyone."

Steve Jeffries – Jaguar Land Rover Ltd – Emissions Calibration Manager

"Sam is a valued member of the engineering team at Jaguar Cars with a thorough understanding of fuel systems, calibration and driveability as well as the total vehicle system. I would certainly recommend him as highly versatile, resourceful and competent member of any engineering or management team."

Paul Bromnick – AVL – Calibration Technical Specialist