|  |  |  |
| --- | --- | --- |
|  | **GIRIDHARAN PV** | |
| **Powertrain Systems Engineer – Mathematical Modelling – Multidomain Simulation & Model-Based Design, Multibody Simulation - Vehicle Dynamics, Powertrain Dynamics, CAE Engineer** | |
| 268 Longfellow Road, Coventry, CV2 5HJ United Kingdom | | Mobile: **+44-7424470136**  E-mail: [**p.v.giridharan@gmail.com**](mailto:p.v.giridharan@gmail.com) |
| Right to work in the UK: **Indefinite Leave to Remain** (ILR) Visa | | |

**Project Portfolio:**

|  |  |
| --- | --- |
| Mathematical Modelling and Simulation, MATLAB/SIMULINK | <https://github.com/PVGiridharan/Padfolio/blob/main/P.V.Giridharan-Project%20Portfolio-Mathematical%20Modelling-MBSE.txt> |
| Vehicle Dynamics Simulation  - SIMPACK/MSC Adams/Motion View | <https://github.com/PVGiridharan/Padfolio/blob/main/P.V.Giridharan-Project%20Portfolio-Vehicle%20Dynamics-MultibodySimulation.txt> |
| Python – Mathematical Modelling | <https://github.com/PVGiridharan/Mathematical-Modeling-using-Python> |

**PROFILE:**

Experienced and highly motivated product development and dynamic CAE professional with technical expertise in areas of using Matlab/Simulink, SIMPACK, MSC Adams to develop mathematical, computational models of real-world systems, model based design, powertrain selection, energy consumption, control engineering, vehicle dynamics simulation, suspension optimization and active controls system of the vehicle, powertrain and driveline dynamics. Impressive background of product development from conceptual to final product by providing analysis and technical support for various cross-functional attribute teams..

**Multi Domain Summary:**

***1. Mathematical Modelling - Multidomain Simulation & Model Based Design***

* ***Simple to complex/advanced Mathematical modelling*** *and also empirical (data driven) modelling for real time systems - Fuel Cell, Battery, Traction Motor, Cooling circuit, Battery management system*
* ***Powertrain component & systems selection*** *- based on application, packaging/Sizing requirements, functional requirements and performance requirements*
* ***Calculation & Simulation*** *- Plant model Sanity check, Duty Cycle Analysis, Vehicle Performance Analysis, Multivariate Analysis, DOE Analysis, Corner cases, Edge Cases*
* ***Verification and Validation*** *- Correlation with test data*
* ***Detailed - Component level and System level modelling*** *– Fuel Cell BOL vs EOL, Battery SOC & SOH Estimation, Battery management system (BMS)*
* ***Control Algorithm*** *- Develop, Verify, Validate and Calibrate - Accelerator Pedal vs Traction motor Torque request map, Regen Map – single pedal module, FCEV hybrid Power balancing function (FCEV)*
* ***Control Model Integration*** *- Re - verify & validate the final version control model*
* ***Data Processing*** *- GPS, Test data*
* ***Matlab Scripting*** *- automation, Report generation*
* ***Version Control*** *- git/Redmine*

***2. Multibody Dynamics Simulations - Vehicle Dynamics & Powertrain NVH***

* ***Elastokinematics*** *– Kinematic and compliance testing (K & C) - Design and optimization of passive and active suspension*
* ***Vehicle Dynamics (Ride, Comfort and Handling) -*** *Steady-State Cornering & Transient Direction Stability Response (Lane change, Rollover, Steering frequency response, Step Steer, Brake or Accelerate on Curve. etc.) - ISO 3888-2, Open Loop and Closed Loop simulation*
* ***Chassis and Powertrain Control System*** *- Active Safety systems: ABS, TCS, ESC, Torque vectoring (Co-Simulation), Hill Descent Control, Active Driveline etc.*
* ***Tyre dynamics*** *- Tire slip, traction control, tire contact patch, Durability, Handling & Ride using F–Tire, MF-Tire, 2D road, 3d Road Open CRG road profiles*
* ***Powertrain Dynamics*** *– IC, Hybrid (MHEV, PHEV) and Electric (BEV) powertrain layouts*
* ***Engine Dynamics*** *– Balancing, vibration analysis and optimization*
* ***Driveline NVH*** *– Gear Rattle, Axle Whine, Gear Shift Quality, Vehicle NVH – Boom, Tip In/Out, Runout, Shuffle, Clutch Judder, Shudder*

**Product Design (CAD) & Lifecycle Management:**

Catia, AUTOCAD, Teamcenter, DVP, V-cycle, FMEA

**Project Management:**

AIMS, ETracker

Define road maps & set goals

Budget Planning

Client & Supplier facing

Software & IT equipment procurement

**WORK EXPERIENCE**

#### Powertrain Systems Engineer @ Ballard Motive Solutions (Formerly Arcola Energy), Coventry, United Kingdom

August 2021 – present

* Development of the Matlab/Simulink based computational powertrain model to improve range of vehicle and system architectures. And simulate/evaluate different hydrogen fuel cell electric drivetrain architectures under different duty cycles.
* Validating component selection, architecture design and control strategy.
* Develop component models to add to model (battery systems, motors, fuel cell modules, power electronics)
* Continuously improving the accuracy of the model through validation, working with the Test and Development team
* Development and optimisation of drivetrain control strategies in simulation
* Develop and improve the usability of the model, moderate the version control using Redmine/git

#### Product Development Engineer @ Affluent Technology, Coventry, United Kingdom

March 2014– Aug 2021

* Deputed as CAE Engineer to **Jaguar Land Rover, UK.** Involved in the product development of ***Sports Car***: F-Type(X152), ***SUV***: Discovery Sport (L550), Range Rover & Sport (L460, 461), Range Rover Evoque (L551), ***Off-roads vehicle***: Defender (L663) and ***Sedan:*** XJ(X360), XF(X260) and Modular Longitudinal Architecture (MLA), Premium Transverse Architecture (PTA) and Hybrid (MHEV, PHEV), BEV and ICE powertrains.
* Work with client and supplier to resolve the technical problem and design challenges in the area of vehicle dynamics and powertrain attributes development
* Conduct design concept evaluation, feasibility study in the early phases of product development.
* Assure the powertrain attributes such as engine, torque converter, transmission, and driveline are optimized for noise, vibration, and shock loads, durability and load transfer to chassis.

#### Manager L6 Grade C @ Daimler India Commercial Vehicles, Chennai, India

July 2012–Feb 2014

* Involved in product development of Light Duty 4x2: (714R 1214R), Medium Duty 6x2, 6x4 (2523R, 2528C) and Heavy Duty (48t) commercial vehicles.
* Deliver optimal vehicle attributes: chassis, suspension, powertrain etc.
* Lead the budget planning, procurement of software, IT equipment, define road maps and set goals, deliverables.
* Define targets as per market requirements and conduct vehicle objective and subject assessment, and support in achieve the targets

#### Senior Project Engineer @ Altair Engineering, Bangalore, India

July 2010 – July 2012

* Deputed as Project Engineer to **Daimler India Commercial Vehicle, India.**
* Headed the projects at the client location to enhance the simulation capabilities of the team, succeeded in secured multiple vehicle development projects
* Assure vehicle attributes are optimized for vehicle dynamics (handling, ride and steering) performance.

#### CAE Engineer @ Hinode Technologies, Chennai, India

Sep 2008 – June 2010

* Providing engineering consulting for various clients: Honda (Japan), JCB (India), ARAI, TVS motors, Tata Motors, Mahindra & Mahindra**.**
* Assist in product design CAD CAE, process management, and manufacturing feasibility.

**Software and Tools:**

Model based Design & Control: MATLAB, Simulink

Multibody Simulation: MSC Adams, Simpack, Motion View/Solve

Durability Analysis: Altair Hypermesh, Optistruct and Radioss

Data Management: Configuration Management tool (SVN, TCM)

Scripting & Programming: C++, Python, VBA, macros

Test Data: Measure Data Analyzer [INCA], LMS test Lab, nCode

Office Productivity: Ms Office – Powerpoint, Word, Excel, Outlook

**Education**

**Bachelor of Automobile Technology (2008)**

* First Class with 78%
* Bharathidasan University, Trichy

**Schooling**

* Maths, Physics, Chemistry & Biology
* First Class with 88.4%

**Personal Information:**

**DOB:** 08 Nov 1985

**Surname:** Pichamuthu Vairaperumal

**First Name:** Giridharan

**Driving License:** Full UK Driving License 7+ years - Clean driving record

Yours sincerely

P.V.Giridharan