Ayush Porwal

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CAREER OBJECTIVE

As an ardent Mechanical Engineer, I believe in a consistent learning process and skill development in the area of interest with enthusiasm. I am looking for a career opportunity to fully utilize my training and skills in model-based development in Vehicle Dynamics and Controls, Powertrain Development, Autonomous Vehicles and other domains, while making a significant contribution to the success of the company.

ACADEMIC DETAILS

- **Post-Graduation Certification in Hybrid Electric Vehicle Design and Analysis,** Skill-Lync, Bengaluru (2022)
- **B. Tech, Mechanical Engineering**, JECRC Foundation , Jaipur (Raj) | 64% (2018-2021)
- **Diploma, Mechanical Engineering,** GPC, Ajmer (Raj) | **59%** (2017)
- **10th (CBSE)**, Kendriya Vidyalaya, Bhilwara (Raj) | **6.6 GPA** (2013)

TECHNICAL SKILLS

- **Modeling and Simulation :** MATLAB, Simulink, Stateflow, Simscape, AUTOSAR
- **Scripting :** MATLAB, Octave, Embedded C
- **EV:** Electric Powertrain architecture, Battery management, M-scripting, Autocode generation, model based development
- **3D Modelling :** AutoCad, SolidWorks, CATIA V5
- **Others:** MS Office

WORK EXPERIENCE

- INTERNSHIP — SIMPLE ENERGY PRIVATE LTD.
  November 2022 – Till now
  1. VEHICLE DYNAMICS DEPARTMENT
     - Performance Testing.
     - Algorithm Development.
  2. VEHICLE INTEGRATION DEPARTMENT
     - 3D-CAD Modeling
     - Drawing Development

PROJECTS

Adaptive cruise control — **MATLAB | Simulink | Stateflow**

- A MATLAB Simulink model of Adaptive cruise control is developed under MBD guidelines.
- The ACC algorithm is implemented as the state machine logic using conditions from the given requirements.
- The Simulink data dictionary creation, Configuration parameter setting, requirement tagging and traceability, model advisor check and C code generation.

Vehicle direction detection — **MATLAB | Simulink**

- Autonomous vehicles consists of various Advance Driver-Assistance System (ADAS) features. Vehicle Direction Detection is one the features of the vehicle.
- Created a Simulink model of Vehicle Direction Detection as per the Requirement data.
- I performed the Simulink data dictionary creation, requirement tagging, model advisor check and C code generation.
- Additionally, the model in loop and software in loop test are performed.

Highway Assistant-Lane ChangingAssistant — **MATLAB | Simulink | AUTOSAR**

- This model must be developed in MATLAB Simulink per MBD
- guidelines.Code Generation Profile must be Autosar Coder.
- Simulink Data Dictionary must be created for the model & must be linked to the.
- model.All the input & output signals must be mapped into the Autosar Editor.
- Model Advisor Report is mandatory & this will be followed by Code Generation.

Modelling and Simulation of an Electric Vehicle — **MATLAB | Simulink**

- Created a model of an electric vehicle which runs on a BLDC Motor and a battery using Powertrain blockset.
- Used pulse width modulation to power the BLDC motor using the battery.
- Implemented regenerative braking system and tracked the SOC of the battery.

Control System for an Electric Vehicle

MATLAB | Simulink

- Implemented a PID controller for longitudinal control of an electric vehicle.
- Studied the response of the controller to the system and modified the gain values for minimum error.
- Controlled the powertrain input and the brake input using a single PID controller.

TRAININGS AND WORKSHOPS

45 Days of Internship from Maruti Suzuki Workshop, Bhilwara (Raj), India. (05/2016 – 07/2016)

- Hands-on with the process of customization of chassis based on customer requirement.
- Basic Checkup of Vehicle (Wheel balancing, Wheel Alignment, Brakes and calipers).
- Engine Maintenance.

45 Days of Internship from North Western railways, Jaipur, India (06/2019 – 07/2019)

- Maintenance of coaches.
- Operated Lathe and Milling Machine.

COURSES

- Introduction to Model-Based Development using MATLAB and Simulink, Skill-Lync, Bangalore.
- Introduction to Automotive Embedded Systems and AUTOSAR, Skill-Lync, Bangalore Introduction to
- Hybrid Electric Vehicle using MATLAB and Simulink, Skill-Lync, Bangalore.
- Introduction to Battery technology for electric vehicle using MATLAB and Simulink, Skill-Lync, Bangalore.System
- Modelling and Simulation using Simulink and Simscape, Skill-Lync, Bangalore.
- Development of Hybrid Drives using MATLAB & Simulink, Skill-Lync, Bangalore.
- MATLAB for Mechanical Engineer, Skill-Lync, Bangalore.
- Simulink for Mechanical and Electrical Engineer, Skill-Lync, Bangalore. Fundamentals of
- Electrical System and Electrical Architecture, Skill-Lync, Bangalore.Self-Charging Hybrid
- Electric Vehicle, Toyota Quality.
- Automotive Plastic Design Using CATIA V5, Skill-Lync, Bangalore.
- Automotive sheet metal design using CATIA V5, Skill-Lync, Bangalore.
- AUTOCAD, Internshala.
- SOLIDWORKS, Internshala.

ACADEMIC PROJECTS

- Diploma final year project (GO-KART) in 2017
- B. Tech final year project prototype of robotic Arm (3D printer) in 2021

EXTRACURRICULA ACTIVITIES AND ACHIEVEMENTS

- Worked as a Sounds and Stage Coordinator of Renaissance (2018, 2019), a National Techno Cultural Fest of Jaipur Engineering College and Research Center.
- Contributed as a core team member of Renaissance 2k20 a National Techno Cultural Fest of Jaipur Engineering College.
- Got first prize for final year project (GO-KART) in 2017.