

Dharmik Patel

Address: Zellescher Weg 41, WNr. D103 | 01217 Dresden
Date of birth: 10.10.1997
Phone number: (+49)-179 4135973
Email: dharmik.patel101097@gmail.com
Nationality: Indian



Professional Experience

04/2022 – 01/2023

volytica diagnostics GmbH | Dresden, Germany

Working Student – Battery Data Engineering

- Algorithm development for battery state estimation.
- Research on machine learning models suitable to characterize battery dynamics.
- Developed tool for estimating battery health degradation.

05/2022 – 10/2022

Technische Universität Dresden | Germany

Student Research Assistant – Data Analysis

- Modeling of memristor devices.
- Variability fitting of the JART memristor model using a simplified equation.

09/2021 – 02/2022

Technische Universität Dresden | Germany

Student Research Assistant – Machine Learning

- Developed a sequential multigrid model for material characterization and reconstruction.
- Built a framework to speed up the process of MCR.

07/2019 – 09/2020

Praj Industries Limited | Pune, India

Design Engineer – Pressure vessels, piping engineering, and R&D on biofuels

- Design and analysis of Pressure Vessels, Columns, Heat Exchangers & Tanks in alignment with ASME Section VIII Division I.
- Piping Design as per ASME B31.3.
- Research on biofuels generation technologies (2nd generation biofuels).
- Coined the idea of Recycled fuel gas (RFG) for combustion vehicles.

Education and Training

10/2020 – 01/2023

Technische Universität Dresden | Germany

Master of Science in Computational Modeling and Simulation – Computational Engineering

- **Focus:** Machine Learning, Multibody Systems, Artificial Intelligence, High-Performance Computing, FEA, Multifield Problems, Coupled Simulations & Applied Bioinformatics.

07/2015 – 05/2019

Dr. D. Y. Patil Institute of Technology | Pune, India

Bachelor of Engineering – Mechanical Engineering

- **Major:** Automotive Engineering, FEM, Mathematics, Computer Science, Material Science, Mechanics, Manufacturing, Industrial Engineering.
- **Training:** Body panel manufacturing using composite materials at Mahindra CIE.
- **Training:** Industrial Automation by Educate & Automate, Pune.
- Member of the Society of Automotive Engineers (SAE).

The Interceptors | Formula Student Team**Head of Powertrain and Marketing department**

- **Focus:** Design of intake and exhaust manifold, planning and execution of marketing strategies.

Projects and Publications

01/2023

Master's Thesis | MSc. CMS**Development of Digital Battery Twin using physics-informed machine learning methods**

Different machine-learning models and hybrid models were developed to create a digital battery twin (DBT) based on the actual field data. DBT is further used to estimate battery health.

03/2022

Research Project | MSc. CMS**Accelerating microstructure reconstruction using PD-Hybrid GAN**

Built a hybrid framework for microstructure reconstruction using sequential multigrid methods and machine-learning techniques.

05/2019

Undergraduate Project | B.E. Mechanical Engineering**Design & Optimization in Volumetric Efficiency of Intake Manifold**

Analyzing the impacts of different design parameters on the volumetric efficiency of intake manifold for a formula race car.

04/2019

IRJET Research Paper Publications [\[link\]](#)**Design of Integrated Intake Manifold for Formula Race Car**

Combining different materials for designing the intake manifold to improve the performance of the formula race car.

Technical Skills

Programming Languages: Python (Advanced), C++**Tools:** Git, TensorFlow, PyTorch**Software:** Origin (Data Analysis & Visualization), CATIA, NX (3D modeling), ANSYS & MATLAB (Simulation)**Achievements**

1st Prize - Intrapreneurial Performance Award | Praj Industries Ltd.

06/2020

An innovative concept to maximize IC engine efficiency by utilizing heat and carbon emissions to produce recyclable fuel gas.

Personal Skills & Others

Languages

- English – Level **C1**
- German – Level **A2**
- Hindi, Gujarati – Native

Managerial Skills

- Head of powertrain & marketing department of team - The Interceptors (Formula student team).
- Good organizational skills developed being a core member of the team - NAAD URJA (Event management team of Praj Industries Limited).

Hobbies

- Cricket (Member of Dresden Cricket Club | RCD), chess, and table tennis
- Economics and Personal Finance