Himanshu Pankhaniya

✉ himanshu.pankhaniya25@gmail.com | 📱 +91 97252 20662
github.com/am19s014 | in linkedin.com/in/himanshu25

Skills

Languages: Python, MATLAB, C/C++, MYSQL

Technologies & Tools: Dymola, GT, STAR CCM+, Simulink, ANSYS, NX-CAD

Work Experience

Mercedes-Benz Research and Development India, Bengaluru Aug 2022 - Present

CAE Analyst

- Designed and developed an in-house cabin FMU within the team, eliminating the need for outsourcing and achieving significant cost savings. significantly reducing operational costs.
- Established a system-level validation framework to ensure compatibility and optimize cabin performance, and developed a JavaScript tool to visualize and enhance the accuracy of CAD geometry discretization.
- Performed complete vehicle system simulations to analyze HVAC efficiency and cabin comfort targets, providing critical performance insights essential for manufacturing readiness.
- Dymola, MATLAB, Simulink, GT-SUITE, Python, Star CCM+, JavaScript, Excel Score-sheet

Data Science

- Achieved highly accurate predictions without running simulations, saving 1 GB of storage by utilizing minimal kilobytes and reducing computational time by 2.5 days using Random Forest Regressor for a DPT project.
- Developed an artificial neural network (ANN) model to replace the cabin FMU in the testbench, eliminating the need for dSPACE hardware and enabling virtual ECU testing with fast, accurate execution while significantly reducing computational cost, time, and storage space.
- Designed and implemented a Data Lake Framework in MATLAB to store and manage simulation data efficiently, achieving a 93% reduction in overall storage space and enhancing data accessibility for analysis.
- Python, MATLAB, TensorFlow, Keras, Pandas, Numpy, Seaborn, Matplotlib

Amenity Technologies - An AI Company, Rajkot Jan 2021 - June 2021

Internship

- Acquired advanced Python skills to design, build, and evaluate machine learning models for predictive analysis.
- Implemented YOLOv3 for fire detection and achieved the best results compared to Sliding Window Object Detection, RCNN, Fast RCNN, and Faster RCNN.
- Python, Pytorch, Keras, scikit-learn

Jyoti CNC Automation Ltd., Rajkot July 2016

Internship

- Designed various mechanical components, including Cope and Drag in the casting shop using NX-CAD, and analyzed forging scratches, suggesting alternative patterns to reduce them.

Education

Indian Institute of Technology Madras (IIT Madras) Aug 2019 - April 2023
MS in Applied Mechanics (Fluid Mechanics) *CGPA: 8.60/10*
Relevant Coursework: Computational Fluid Mechanics, Advanced Fluid Mechanics, Introduction to Turbulence and Turbulence Modeling, Data Structures and Algorithms, Introduction to Machine Learning

V.V.P. Engineering College, Rajkot Aug 2013 - April 2017
B.E. in Mechanical Engineering *CGPA: 9.54/10*
Relevant Coursework: Heat and Mass Transfer, MATLAB

Project Work

- **A Numerical Study on Heat Transfer and Flow Structure with Aerofoil dimple in enhanced tube (2022):** Utilized the k-epsilon Turbulence Model to compare performance between conventional and ellipsoidal dimple tubes, achieving 20-30% heat augmentation and improving the Nusselt number while reducing the pressure penalty.
- **Netflix - Movie Recommendation System (2022):** Performed EDA of Kaggle data and generated top 10 movie recommendations based on highest correlations of Pearson's correlation
- **Sentimental Analysis by NLP (2022):** Demonstrated proficiency in processes such as tokenization, lemmatization, bags of words, TF-IDF, Word2Vec, and more.
- **Testing and Analysis of Nano TiO2 based coolant for Automobile (2017):** Enhanced the overall efficiency of an automobile engine by achieving a 3% improvement in thermal conductivity and a 10% increase in convective heat transfer at a 1.0 wt% concentration compared to conventional coolant, while also providing effective corrosion protection.

Awards and Certificates

- Introduction to Machine Learning by Andrew NG, Stanford University, Coursera
- 2021 Complete Python Bootcamp from Zero to Hero in Python by Jose Portilla, Udemy
- National Volleyball Player for Gujarat State and 3-Years consecutively champions of Khelmahakumbh (2016-2018).