Om Prabhu

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Further details are available at https://omprabhu31.github.io/cv.

Education

2019 – 2024 **Indian Institute of Technology Bombay, India** 8.13/10 GPA

2017 – 2019 **Sathaye College of Science, Commerce and Arts** 89.23%

2017 **Ajmera Global School** 95.38%

Work Experience

2022 **Research & Development Intern**
Supervisor: Prajesh Pandey | R&D Engineer, SEDEMAC Mechatronics Pvt Ltd
Completed a project involving extensive review of standard manufacturing guidelines & material selection criteria, and carried out stress analysis of fastening joints in non-standard geometries.

Research Projects

2023 **Image Search & Localization Algorithms for Underwater Autonomous Vehicles**
(Dual Degree Thesis Project in the Department of Mechanical Engineering, IIT Bombay)
Guide: Prof. Leena Vachhani | Systems & Controls Engineering, IIT Bombay
Co-Guide: Prof. Abhishek Gupta | Mechanical Engineering, IIT Bombay
Studied hydrodynamic derivative determination for underwater vehicles using computational fluid dynamics and optimized a motion simulation algorithm for an autonomous underwater tow-fish vehicle.

Technical Projects

2023 **Model Regression Networks for Easy Small Sample Learning**
Guide: Prof. Balamurugan Palaniappan | Industrial Engineering & Operations Research, IIT Bombay
Implemented various CNN architectures to train transfer learning algorithms for image classification tasks on multi-label datasets, and carried out a comparison against existing deep learning models.

2022 **Operations Research in Air Traffic Flow Management Systems**
Guide: Prof. Avinash Bhardwaj | Mechanical Engineering, IIT Bombay
Performed an extensive literature review of current air traffic control algorithms, and formulated & implemented a binary mixed-integer linear program for a small-scale aircraft scheduling problem.

2021 **Humor Detection using BERT Sentence Embedding**
Guide: Prof. Balamurugan Palaniappan | Industrial Engineering & Operations Research, IIT Bombay
Analyzed, replicated and validated pre-existing models in literature on BERT sentence embeddings, and formulated our own neural net architecture which achieved over 90% test accuracy for several datasets.

LU Decomposition: A Timing Study using OpenMP and CUDA
Guide: Prof. Shivasubramanian Gopalakrishnan | Mechanical Engineering, IIT Bombay
Parallelized several algorithms for LU matrix decomposition using the OpenMP & CUDA frameworks, and performed a timing study by varying the matrix order and number of CPU threads.

Teaching and Mentorship

2022 Teaching Assistant for ME 308: Industrial Engineering & Operations Research

2021 Teaching Assistant for ME 119: Engineering Graphics & Drawing

Academic Achievements

2020 Secured a change of branch (**top 11% students**) to Mechanical Engineering.

2019 AIR **1670** out of 169,000 students in **JEE (Advanced) 2019**.

2017 Awarded the **World Topper** certificate in Mathematics in the Cambridge IGCSE examinations.

Technical Skills

Languages Python, R, C#, C++, Sage

Tools MATLAB, Visual Studio, ANSYS, AutoCAD, AMPL, GitHub