HARISANKAR K | MM20B022 | PR/11/MM/24/022

EDUCATION AND SCHOLASTIC ACHIEVEMENTS

PROGRAM	INSTITUTION	CGPA/%	YEAR OF GRADUATION
Metallurgical and Materials Engineering	Indian Institute of Technology, Madras	8.26	2024
XII (CBSE)	Placid Vidya Vihar, Kottayam	94.8%	2020
X (CBSE)	Sree Narayana Public School, Kollam	93.2%	2018

- Achieved a distinguished rank in the **top 3.32 percent** out of **1.5 lakh candidates** in **JEE Advanced 2020**, conducted by IIT Delhi
- Attained a remarkable position within the **top 1.39 percentile** among **0.87 million candidates** in **JEE Mains 2020**
- Secured a notable score of **851 out of 960** in the **Kerala Engineering, Agricultural, and Medical Entrance Exam (KEAM) 2020**

PROFESSIONAL EXPERIENCE

Predicting Transition Temperature in FSMAs[1]
(Feb 2023-present)

B.Tech Project Guide: Prof. Rohit Batra | Department of Metallurgical and Materials Engineering
- Employed **Gaussian Process Regression** to predict martensitic transition temperature in shape memory alloys
- Achieved a substantial **R2 score of 0.88** through normalization and hyperparameter optimisation techniques
- Enhanced model performance by implementing **Recursive Feature Elimination** achieving notable **R2 score of 0.92**
- Applied **Linear Regression** with hyperparameter tuning and normalization yielding an impressive **R2 score of 0.56**

Strategic Officer Intern
Ozibook Tech Solutions
(Dec'22 - Feb'22)
- Executed **profit and cost analysis** across all departments, giving financial insights, enhanced resource allocation
- Used financial data for decision-making, leading to **streamlined budgeting** and heightened **operational efficiency**
- Devised a comprehensive **5-year profit projection model,** charting key milestones for startup's break-even point
- Applied financial expertise to shape an **educational platform** and received **a Letter of Recommendation**

Foetal Head Segmentation in Ultrasound Scan
(Course Project: ID5030)
- **Collaborated** within a **4-member** project group to achieve foetal head segmentation from Ultrasound scans
- Implemented **CNN Models** using **PyTorch** framework to outline the boundaries of foetal head in ultrasound scans
- Developed encoder-decoder algorithm mimicking **SegNet** and optimised it to reduce channels for GPU efficiency
- Produced a **UNet** model with 512 channels to improve **Dice Score** from **0.71 to 0.90**, enhancing performance

PROJECTS

Sports Celebrity Image Classification
- Built end-to-end ML project using **OpenCV** and **Haar Cascade** for image processing and face and eye detection
- Developed machine learning models with **SVM, logistic regression, and random forest** for classification tasks
- Attained a prediction score of 91% and an f1 score of **0.88** for SVM model after regularizing hyperparameters
- Created UI with **HTML, CSS, and JavaScript** to interact with a machine learning model loaded on a **Flask server**

Spam Prediction using NLP
- Developed a classifier for **spam prediction** and **text analysis** using NLP techniques and classification algorithms
- Implemented **TF-IDF vectorizer technique** for extracting the features by encoding words as numerical vectors
- Achieved accuracy of **95 % using SVM classifier** on encoded vectors and **97% using Random Forest** on UCI dataset

Residential Real Estate Analytics
- Built a linear regression model that can predict the real estate price and achieved a prediction score of **86%**
- Conducted **outlier removal** using standard deviation and business logic; employed **one-hot encoding** for location
- Implemented a **Python Flask server** utilizing a pre-trained machine learning model to serve **HTTP** requests

Stock Value Forecasting
- Created a **comprehensive stock analyzing system** by preprocessing data sourced from the Yahoo Finance API
- Employed preprocessing techniques for handling missing values, ensuring data integrity, and normalizing features
- Developed sequential deep learning model featuring **unidirectional LSTM[3]** layers (50 units each) and a dense layer
- Optimized the prediction model using the **Adam optimizer,** achieving a remarkable RMSE loss of **235** on test data

POSITIONS OF RESPONSIBILITY

Public Relations and Outreach Manager (Enactus IITM)
Aug 2022 - Jan 2023
- Spearheaded a **5-membered** team contributing to the socio-economic upliftment of local artisans in Chennai
- Cultivated livelihoods for potters, enhancing self-sufficiency & income stability through strategic collaborations
- Orchestrated a successful pottery painting competition, amplifying the social impact and student involvement
- Elevated Enactus' online presence and project outreach by creating and managing an impactful Instagram page

COURSES

Machine Learning (Andrew NG)	Python for Data Science and Machine Learning	Probability, Statistics and Stochastic Processes
Linear Algebra and Numerical Analysis	ML for Engineering and Science Applications	Accounting and Finance for Engineers*

SKILLS

Programming	Frameworks	Tools	Languages
C, C++, Python, HTML, CSS, SQL	NumPy, Pandas, Scikit-Learn, Seaborn, Matplotlib, PyTorch, OpenCV	AutoCAD, MATLAB, Excel, GitHub	English, Hindi, Malayalam, Japanese

EXTRA-CURRICULAR ACTIVITIES

Sports	• **Led** the institute **NSO Fitness team** of 35 members showcasing exceptional leadership and team-building skills • Participated in **Institute sports meet** for **athletics 100m race** reflecting unwavering determination and excellence • Engaged in **Inter-Hostel Schroeter water polo** competition, highlighting strategic thinking and effective teamwork
Social	• Executed and led a 50-membered Bus Stand cleaning drive initiative in Kottayam during Republic Day 2019
Music	• Trained in Violin (Carnatic) & Keyboard (Western) for 5 years and performed in various live music events

* Ongoing Course [1]-Ferromagnetic Shape Memory Alloys [2]-term frequency-inverse document frequency [3]-Long short-term memory