Indian Institute of Technology , Madras

Mohd Shadab
Master of Technology
in Industrial Mathematics and scientific computing

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Summary

CSIR NET JRF (AIR 66) and GATE qualified (AIR 320) in Mathematics, with a strong foundation in machine learning, data science, and applied mathematics. Demonstrated research aptitude through innovative projects in data analytics and mathematical modeling at IIT Madras

Education

Degree	Institute	University	CGPA/Percentage	Year
M.Tech	Indian Institute of Technology , Madras	IIT Madras	8.39	2024-2026
M.sc	Meerut College , Meerut	CCS University	86.90%	2021-2023
B.sc	Meerut College , Meerut	CCS University	74.15%	2018-2021

Experience

- **Personifwy (Remote)** *Nov 2024 - Dec 2024*
  Data Science Intern Remote
  – Cleaned and preprocessed large datasets to ensure data quality and consistency for credit risk assessment.
  – Delivered actionable insights through advanced data visualization techniques using Python libraries (Pandas, Matplotlib, Seaborn).
- **Chegg India (Remote)** *May 2022 - May 2024*
  Advanced Mathematics Subject Matter Expert Remote
  – Solved advanced mathematics and statistics problems with step-by-step explanations for global academic standards.
  – Provided academic support on data science queries involving statistical analysis and Python-based implementations.

Projects

- **Comparison of SVM Kernels and Fractal Kernel for Credit Card Fraud Detection using GANs** *Jan 2025 - Feb 2025*
  Dr. A.K.B. Chand, IIT Madras **Github**
  – Extended SVM kernel research by designing a novel Fractal RBF kernel using Iterated Function Systems (IFS), addressing class imbalance with CTGAN.
  – Benchmarked FractalRBF against traditional kernels (Linear, Polynomial, Gaussian) using ROC-AUC, F1-score, and confusion matrices.
- **Image Processing Using DFT and FFT** *Sep 2024 - Oct 2024*
  Dr. A.K.B. Chand, IIT Madras **Github**
  – Implemented frequency domain image filtering techniques (Gaussian, Butterworth, Ideal filters) for noise reduction and image enhancement.
  – Analyzed the effect of zero-padding on frequency resolution and visualized magnitude spectra in 2D and 3D using MATLAB.
- **Concrete Strength Prediction using Machine Learning** *Nov 2024 - Dec 2024*
  Dr. Neelesh S Upadhye, IIT Madras **Github**
  – Preprocessed 1,030 concrete mix samples and compared 6 ML models, achieving best results with XGBoost (R2 = 0.92, RMSE = 4.65 MPa).
  – Identified top predictors using SHAP Analysis and deployed a real-time Streamlit web app for strength suggestion.

Technical Skills

- **Programming Languages**: Python, C++, SQL
- **Frameworks & Libraries**: Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, NLTK, CTGAN
- **Analytics & Visualization Tools**: Jupyter Notebook, MATLAB, Streamlit

Key courses taken

- **Industrial Mathematics & Scientific Computing (IIT Madras)**: Data Structures & Algorithms, Object Oriented Programming, Data Analysis & Visualization, Mathematical Modeling, Applied Statistics, Numerical Optimization, Numerical Methods & Scientific Computing, Foundations of Machine Learning (Elective)
- **Mathematics (CCS University)**: Abstract Algebra, Real Analysis, Probability & Statistics, Numerical Analysis, Calculus, Linear Algebra, Numerical Methods, Advanced Numerical Analysis, Advanced Topology, Operation Research

Certifications

- **Supervised Machine Learning and Advanced Learning Algorithms** : Coursera (Andrew Ng)
- **Data Science Hybrid Certification** : 1stop.ai

Achievements

- **Qualified CSIR NET JRF (AIR 66), GATE (AIR 320), and IIT JAM (AIR 1050)**,in Mathematics *dec-2024, 2024, 2022*
- **5-Star Problem Solver on HackerRank**,@ma24m015 *2025*