NAMAN PESRICHA

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Education

M.Tech in Computational and Data Science   **2024 – 2026**
Indian Institute of Science, Bangalore   *CGPA: 9.7/10*

B.Tech in Mechanical Engineering   **2019 – 2023**
Indian Institute of Technology, Roorkee   *CGPA: 8.6/10*

Relevant Coursework

- Numerical Linear Algebra   (A+)
- Intro to Scalable Systems   (A+)
- Natural Language Processing   (A+)
- Parallel Programming   (A+)
- Machine Learning for DS   (A+)
- Tensor Computations for DS   (A+)

Projects

Parallel Hybrid Optimal N-Way Tensor SVD, *Argonne National Laboratory, Illinois, USA*   **Apr 2025 – Ongoing**
- Designed **cache-friendly** parallel tensor-based compression algorithms using **MPI**, **OpenMP**, and **GPU** acceleration.
- Achieved up to $35\times$ speedup on hybrid **distributed CPU-GPU setups** and $25\times$ with OpenMP, while provably outperforming matricization-based PCA in reconstruction quality.

Mixed Precision Two-Level Chebyshev Filter Based Eigensolver *Dr Phani M, IISc Bangalore* **Apr 2025 – Ongoing**
- Designing **mixed-precision** techniques for **CPU+GPU hybrid exascale systems** using two-level **Chebyshev filtering** to efficiently solve large-scale eigenvalue problems.
- Conducted scalability studies on top-tier supercomputers **Frontier** (#2), **Aurora** (#3), **Fugaku** (#7), and **Eos** (#16).

Indian Name Generator and English-to-Hindi Name Translator   **Apr 2025**
- Trained Neural N-gram and **RNN**-based language models on an Indian names dataset to generate Indian names.
- Implemented a **Seq2Seq** model using **LSTM**-based encoder-decoder architecture with **attention** mechanism and **Byte-Pair Encoding** tokenizer to translate names from English to Hindi.

Unified ML Model for Diversity, *Dr. D.K. Saxena, IIT Roorkee*   **Jun 2023 – Oct 2023**
- Built an ML-based approach to improve diversity in reference vector-driven Multi-Objective Evolutionary Algorithm.
- Integrated ML techniques to accelerate convergence while maintaining diverse solutions in the objective space.

Credit Card Fraud Detection   **Mar 2025**
- Performed Exploratory Data Analysis, Explored Undersampling and **SMOTE** to handle problem of class imbalance.
- Compared performance of **Logistic Regression, KNN classifier, SVM, Random Forest** and **XGBoost**.

Work Experience

Software Development Engineer, *Truminds Software Systems*   **Sep 2023 – Jul 2024**
- Built and maintained **Flask** backend features and internal automation tools using **Python**.
- Refactored legacy codebase with generalized retry logic, reducing redundancy by over **90%**.
- Developed robust **Python** scripts and **Pytest** test cases to automate and validate internal workflows.

Research and Analytics Intern, *Leap Wallet*   **Jan 2023 – Feb 2023**
- Benchmarked **10+** projects on the NEAR chain to evaluate integration potential with the company's product.
- Built a token-wise standardization using **SQL** to parse and unify public blockchain data with **95%** coverage.
- Designed and automated small-scale product testing methodology and streamlined **5+** business workflows.

Technical Skills

Programming Languages:	Python, C++
Tools:	PyTorch, LibTorch (C++), NumPy, Scikit-learn, CUDA, MPI, OpenMP, MKL
Technical:	Machine Learning, NLP, Parallel Programming, High Performance Computing

Academic Accomplishments and Involvements

- **Ranked 1st** among all Master's students in the Computational and Data Sciences department, based on CGPA.
- Secured top national ranks: **AIR 43 (99.89%)** in GATE DA'24, **AIR 2250 (99.82%)** in JEE Mains'19, and **AIR 2718** in JEE ADV'19.
- **TA** for graduate-level course **DS284: Numerical Linear Algebra**; upcoming **TA DS207: Introduction to NLP**.
- **Department Curriculum Committee** Student Representative; Representative for CDS in the **Students' Council**.
- Contributed to the overhaul of study material for **DS216: ML for DS**, for PCA and the **bias-variance tradeoff**.