NAMAN CHOUDHARY

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OBJECTIVE

Detail-oriented Data Scientist with 2 years of experience specializing in Artificial Intelligence, Machine Learning, Deep Learning, NLP, LLMs, Data Visualization, and data-centric decision making seeking full time roles starting May 2025

EDUCATION

Carnegie Mellon University Pittsburgh, PA
Master of Science in Mechanical Engineering (Artificial Intelligence focus), **GPA: 3.96/4.0** Aug 2023 - May 2025

- <u>Relevant Coursework:</u> Mathematical Foundations for ML, Computational Foundations for ML, ML and AI for Engineers (Teaching Assistant), Engineering Computation (C++), Deep Learning, Advanced NLP, Generative AI

Delhi Technological University Delhi, India
Bachelor of Technology in Mechanical Engineering, **GPA: 8.75/10** Aug 2017 - Jul 2021

EXPERIENCE

O-I Glass Pittsburgh, PA
Data Science Intern May 2024 - Present

- Transformed a 25-sheet Excel model into a 3000-line Python code, achieving a 90% improvement in processing time
- Developed an end-to-end data pipeline using SAP HANA and Microsoft Fabric, integrated with Microsoft Azure ML, automating data updates and saving over 300 hours of manual effort annually
- Conducted exploratory data analysis to identify key statistical correlations, and leveraged machine learning models to predict CO_2 emissions, optimizing reduction pathways and identifying the most cost-effective strategies

ICF Consulting Delhi, India
Energy Analyst Nov 2021 - Jun 2023

- Developed models showing pathways to reduce import bill by \$20B & CO_2 emissions by 60 MTPA via hydrogen adoption
- Collaborated across 3 teams: hydrogen, oil & gas, and power & RE, delivering more than 10 diverse client assignments
- Received the 'Bronze Award' due to contributions to a critical assignment for developing expertise in Hydrogen

SKILLS

Languages: Python, C and C++, OpenGL, LaTeX, SQL
Machine Learning & Deep Learning: Scikit-learn, Pandas, Numpy, Pytorch, SciPy, TensorFlow, CUDA, Azure ML
Natural Language Processing: Hugging Face Transformers, LangChain
Other tools: Excel, PowerPoint, PowerBI (Data Visualization), Cloud Environments (AWS, GCP), Weights & Biases (wandb)

PROJECTS

Enhancing Diffusion Models with Physics-Informed Constraints Jun 2024 - Present
Key Skills: Machine Learning, Physics Informed Models, Denoising Diffusion Models, Python

- Integrated physical constraints into denoising diffusion models improving sample adherence to governing equation by 20%
- Implemented recent algorithms to enhance model performance, achieving a 15% increase in sample generation accuracy
- Developed datasets that respect underlying physical principles, reducing deviation in generated samples by 25%

Reinforcement Learning Framework for Financial Portfolio Management Mar 2024 - Present
Key Skills: Deep Learning, Reinforcement Learning, Python, Financial Modeling, Time Series Forecasting, GCP, CUDA

- Assessed financial prediction accuracy using Adversarial Attention-based LSTM to establish a performance benchmark
- Integrated OneNet, an online ensembling method, to explore adaptive solutions for concept drift in financial data
- Engineering a reinforcement learning framework to manage financial portfolios using market data, to assess P&L

Leveraging LLMs for Advanced Time Series Forecasting and Scientific Understanding Feb 2024 - Jun 2024
Key Skills: Deep Learning, Large Language Models (LLMs), Time Series Forecasting, Python, Reinforcement Learning

- Developed a TimeLLM-based model for pendulum systems, reducing MSE by 10% compared to ARIMA & LSTM models
- Achieved 15% better performance in predicting non-linear & chaotic systems compared with RL based OneNet framework
- Integrated differential equations for pendulum dynamics, reducing MAE by 20% for long-term forecasts

Retrieval Augmented Generation (RAG) & LLM Integration for Q&A Systems Jan 2024 - May 2024
Key Skills: Python, LangChain, Hugging Face Transformers, Streamlit, Large Language Models (LLMs), RAG System

- Orchestrated RAG & LLM integration, advancing accuracy in AI-driven Q&A, minimizing response hallucination
- Investigating Self-RAG to optimize adaptive retrieval and self-critique, enhancing generation factuality
- Devised interactive user interface with Streamlit, promoting user engagement through query processing

PUBLICATIONS

- Co-authored **8 publications** in reputed journals & international conferences on optimization of process parameters, numerical analysis & computational fluid dynamics (CFD), achieving **26 citations** | [Google Scholar Link](#)