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WORK EXPERIENCE

- *Data Scientist at Afiniti (Sep 2024-Now):*
  - Enhanced the call center experience of **150,000+ customers per week** by optimizing agent-customer pairings.
  - Consistently achieved **1.5x-2x target gains**, directly impacting customer retention and sales.
  - Led **migration from R to Python for product pipelines**, significantly improving efficiency and enabling use of more advanced machine learning models.
  - Built **production monitoring systems with custom alerts and dashboards** to track real-time model performance, minimizing potential revenue loss by proactively identifying and addressing issues.
  - Led **ONNX pipeline development** to further enhance model performance and scalability.
  - Collaborated with **cross-functional teams** to adapt theoretical models to real-world challenges in CX optimization.
- *Research Assistant at Lahore University of Management Sciences (LUMS) (Jun 2024-Now):* Conducted research under Dr. Hassan Mohy Ud Din, proposing **advanced computer vision methods for medical image segmentation** inspired by diffusion models and variational autoencoders, achieving state-of-the-art results and leading to a **submission at ICASSP 2026**.
- *Teaching Assistant at LUMS (Jan 2024-Jun 2024):* Co-instructed a **graduate-level course on Convex Optimization** with Dr. Hassan Mohy Ud Din.

PROJECTS

- **Unrolled Optimization and Matrix Completion**

  Summary: Initially refined an unrolled optimization algorithm for vanilla matrix completion (MC) problem (see: convmc-net) and improved upon it by unrolling an existing iterative optimization algorithm into a neural network, eventually proposing a potentially faster and more accurate novel algorithm that does not only work for the standard problem, but also for cases involving GMM noise (see: ConvHuberMC-Net). The results for these two algorithms were compared against existing state-of-the-art MC algorithms by replicating their results (see: report).

- **Speech Recognition and Translation System For Medical Communication**

  Summary: Combined speech recognition, machine translation, and TTS functionality, selecting relevant vector databases, fine-tuning large language models (LLMs), and employing RAG pipelines to enable users to receive real-time state-of-the-art medical advice and information (see: repository).

- **Panel Data and Tobit Analysis on Health Care Dataset**

  Summary: Analyzed healthcare service utilization in Germany employing tobit, fixed effects, and random effects models on a unique panel data set spanning from 1984 to 1995 (see: data), while focusing on socio-economic disparities in healthcare access and hence contributing critical insights to health-care economics. (see: PDF).

- **Air Pollution & Academic Performance**

  Summary: Explored the relationship between air pollution and academic performance in Pakistan to know whether there exists any relationship between the two and to predict academic performance scores based on a customized synthesis of ASER (education) and NASA (climate) data (see: blog).

EDUCATION	BSc in Economics-Mathematics with a minor in Computer Science from LUMS.
COURSEWORK	Dynamic Programming and Reinforcement Learning, Machine Learning, Generative AI for Speech and Language Processing, Deep Learning, Econometrics II, Convex Optimization, Principles and Techniques of Data Science, Introduction to Artificial Intelligence, Probability.
HONORS	Placed four times on Dean's Honor List for excellent academic performance and ultimately graduated with distinction (3.72/4 CGPA) from LUMS.
SKILLS	Programming languages (C++, Python, R, SQL), data analysis (MATLAB, RStudio, Stata, Superset), and others (Canva, GitHub, LaTeX, Linux, Microsoft 365 Suite, Visual Studio Code).