Abdullah Al Imran

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LinkedIn Profile

Professional Summary

Computational data scientist and data engineer with expertise in machine learning, statistical modeling, and high-performance computing. Skilled in Python, R, and advanced data visualization, I specialize in building analytical frameworks for large-scale scientific and biomedical datasets. Passionate about contributing to the Institute for Health Informatics at the University of Minnesota by developing computational methods for causal discovery and predictive modeling in health and biomedical research, and by advancing reproducible, data-driven solutions that support interdisciplinary collaboration and innovation.

Education

2025 **M.S.**, *Statistics and Data Science*, University of Texas at El Paso, CGPA: 3.64/4.0.

2020 **M.S.**, *Computational Science*, University of Texas at El Paso, CGPA: 4.0/4.0.

2013 **B.Sc.**, *Electrical and Electronic Engineering*, North South University, Dhaka, CGPA: 3.81/4.0.

Technical Skills

Programming	Python, R, MATLAB, C/C++, SQL, Bash, Java, JavaScript, PHP, HTML
Libraries	Numpy, Pandas, Scikit-learn, TensorFlow, OpenMP, MPI, CUDA, RealPaver
Tools	LaTeX, Git, Docker, VS Code, Jupyter, Power BI, Tableau
Cloud & Data	Azure, Hadoop, Spark, Vector Databases
Visualization	Python (Matplotlib, Seaborn, Shiny), R (ggplot2, Dash)
Other	Statistical modeling, Machine learning, Big data processing, LLMs

Projects and Research

2025 - pres. **WaveQLab3D**, *University of Texas at El Paso*, El Paso, TX.
- Simulated 3D seismic wave propagation and earthquake rupture dynamics using high-performance computing and MPI-based parallelization.
- Developed visualization tools for rupture simulation data in Python and R to support scientific interpretation and performance analysis.

2023 - 2024 **Atmospheric Physics Lab**, *University of Texas at El Paso*, El Paso, TX.
- Led aerosol mass composition analysis in collaboration with PNNL using Python and R, employing PCA and clustering to advance environmental research.
- Enhanced particle identification accuracy by applying machine learning models (K-means, Decision Trees) to NOAA mass spectrometry datasets.

2021 - 2023 **Edge Computing Lab**, *University of Texas at El Paso*, El Paso, TX.
- Utilized machine learning (Random Forest, Neural Networks) for anomaly detection in Industry 4.0 datasets, improving predictive maintenance efficiency.
- Developed air quality prediction models using low-cost sensors and environmental parameters (temperature, humidity) to improve model accuracy.
- Analyzed LiDAR data for vehicle-pedestrian near-miss detection, identifying collision hotspots to enhance urban traffic safety.

2017 - 2020	**Constraint Research and Reading Group**, *University of Texas at El Paso*, El Paso, TX.
	○ Applied interval computation and uncertainty quantification methods to simulate dynamic systems, improving robustness in scientific decision-making frameworks.
2012 - 2013	**Undergraduate Thesis**, *North South University*, Dhaka, Bangladesh.
	○ Designed a real-time electrical load classification system using K-means and Hidden Markov Models to optimize energy management with smart meter data.

Work Experience

Jan 2025 – pres.	**Graduate Research Assistant**, *Mathematical Sciences*, University of Texas at El Paso.
	○ Developed Dynamic Earthquake Rupture Simulation visualization tool and dashboard using Python and R.
	○ Developed Fortran-MPI code of WaveQLab3d software suite.
Jan 2021 – May 2023	**Graduate Research Associate**, *Computer Science*, University of Texas at El Paso.
	○ Developed machine learning models for edge computing systems, optimizing performance in distributed computing environments.
	○ Contributed to IoT projects by processing real-time sensor data, driving system improvements through statistical analysis and anomaly detection.
Sep 2016 – Dec 2018	**Graduate Teaching Assistant**, *Computational Science*, University of Texas at El Paso.
	○ Delivered lectures and supported over 100 students in Calculus, Numerical Analysis, and Electrical Project Lab, offering targeted academic support.
	○ Ensured consistency and fairness in grading across assignments, projects, and exams.
Jun 2013 - Aug 2016	**Laboratory Instructor**, *Electrical and Computer Engineering*, North South University, Dhaka.
	○ Instructed laboratory courses, facilitating hands-on learning for students in alignment with industry standards.
	○ Supervised student projects, guiding the practical application of electrical and computer engineering concepts.
Jan 2011 - May 2013	**Undergraduate Assistant**, *Electrical and Computer Engineering*, North South University, Dhaka.
	○ Assisted in teaching and grading undergraduate courses, providing tutoring and support to students in Electrical Engineering and Computer Science.

Awards

2019	**Participant Award**, Computer Science, University of Texas at El Paso
2019	**Summer Research Grant**, Graduate School, University of Texas at El Paso
2013	**Summa Cum Laude**, North South University, Dhaka
	Merit Scholarship, North South University, Dhaka

Publications and Talks

2019	A. Imran, M. Ceberio (2019), "Prediction and Optimization of Dynamic Systems under Temporal Uncertainty," *23rd Joint UTEP/NMSU Workshop*. (abstract.pdf)
2016	A. Imran, M. A. Syrus, H. A. Rahman (2016), "Improved Event Detection Algorithm for Non-Intrusive Load Monitoring," *3rd Int. Workshop Non-Intrusive Load Monitoring*. (pdf)

References

Kenneth Duru	**Assistant Professor**, *Mathematical Sciences*, University of Texas at El Paso. kduru@utep.edu, +1 (915) 747-5761
Feng Yu	**Assistat Professor**, *Mathematical Sciences*, University of Texas at El Paso. fyu@utep.edu, +1 (915) 747-5761
Michael Pokojovy	**Associate Professor**, *Data Sciences*, Old Dominion University. mpokojovy@odu.edu, +1 (757) 683-5699