Sanjana **Rahman**

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Objective

Data-driven researcher with a Master of Science in Computational Science, specializing in statistical analysis, machine learning, and data visualization using Python and R. Experienced in developing predictive models and analyzing complex geophysical and environmental datasets to support data-driven scientific discovery. Seeking to apply analytical and computational expertise to advance research in seismology, geoscience, and interdisciplinary data science.

Academic Record

M.S. (2025) — **University of Texas at El Paso, El Paso, Texas**
- Major : Computational Science
- CGPA : 3.85/4.0

B.S. (2020) — **Southeast University, Dhaka, Bangladesh**
- Major : Computer Science and Engineering
- CGPA : 3.81/4.0

Competences

Programming	**R**, **Python**, Matlab, Bash, **C**, **C++**, Java, Javascript, HTML, PHP, CSS
ML & AI Libraries	tidyverse, Pandas, NumPy, SciPy, Matplotlib, GGPlot2, Scikit-Learn, PyTorch, TensorFlow, Shiny, Dash, survey, srvyr
Software & Tools	**LaTeX**, **Git**, **Jupyter Notebook**, **RStudio**, R Markdown, Quarto, Overleaf, SPSS (familiar), MS Excel, MS PowerPoint, MS Word
OS & HPC	**Linux** (Ubuntu/CentOS), Unix, **Windows**, Mac OS, Windows Subsystem for Linux (WSL), **Shell/Bash Scripting**, High-Performance Computing (HPC)

Graduate Coursework

- Machine Learning
- Data Visualization
- Statistical Programming
- Advanced Scientific Computing
- Numerical Analysis
- Applied Regression Analysis
- Multivariate Data Analysis
- Statistical Analysis
- Intro to Computational Science
- Math and Computational Modeling

Research Experience

Graduate (2023) — **Pacific Northwest National Laboratory (PNNL), Richland, Washington**
- Conducted aerosol mass spectrometry data analysis in the Atmospheric Aerosol Research Group under Dr. Laura Fierce.
- Processed NOAA datasets using Python, miniSPLAT, and ClusterSculptor ; applied PCA and clustering to classify atmospheric particles (including black carbon) for environmental impact assessment.
- Collaborated with chemists, statisticians, and earth scientists to integrate computational methods into environmental research.

Graduate (2024 - 2025) — **University of Texas at El Paso (UTEP), El Paso, Texas**
- Developed deep learning models (PyTorch, TensorFlow) integrated with numerical optimization for fMRI data analysis.
- Enhanced neuroimaging accuracy for cognitive neuroscience applications by implementing advanced ML workflows in HPC environments.

Undergrad. (2019 – 2020)

Southeast University, Dhaka, Bangladesh

- Conducted a comparative study of symmetric vs. asymmetric encryption algorithms for data encryption and decryption.
- Performed algorithmic efficiency analysis and security evaluation to inform cryptographic best practices.

Network Security | Symmetric Algorithms | Asymmetric Algorithms | Data Encryption | Data Decryption | Data Analysis

Work Experience

Aug. 2022 – Aug. 2025

Graduate Research & Teaching Assistant, University of Texas at El Paso (UTEP), El Paso, TX

- Developed deep learning models (PyTorch, TensorFlow) with numerical optimization for fMRI data analysis, improving neuroimaging accuracy in cognitive neuroscience research.
- Utilized HPC environments to process large-scale neuroimaging datasets and optimize model training efficiency.
- Led lab sessions, graded assignments, and tutored students in Math for Social Sciences, College Algebra, and Precalculus at the Math Resource Center for Students (MARCS).

Jul. 2023 – Sep. 2023

Summer Intern, Pacific Northwest National Laboratory (PNNL), Richland, WA

- Applied Python-based data analysis workflows to aerosol mass spectrometry datasets, using PCA and clustering to classify atmospheric particles (including black carbon).
- Collaborated with an interdisciplinary team of chemists, statisticians, and environmental scientists to integrate computational methods into large-scale environmental research.

Jan. 2021 – Dec. 2021

Faculty, Scholastica, Dhaka, Bangladesh

- Designed and delivered courses in Computer Programming, Robotics, Science, and Math, incorporating interactive projects to enhance student engagement.

Mar. 2021 – Oct. 2021

Undergraduate Teaching Assistant, Southeast University, Dept. of Computer Science and Engineering, Dhaka, Bangladesh

- Assisted in teaching and grading for courses in Programming (C), Computing Concepts, and Data Structures, providing tutoring support to students.

Languages

Bangla	●●●●●
English	●●●●●
German	●●●○○
Hindi	●●○○○

Strengths

- Analytical and detail-oriented
- Strong communicator and collaborator
- Persistent and results-driven
- Adaptable in dynamic environments

Hobbies/Interests

- Reading and technical writing
- Cooking and baking
- Traveling and cultural exploration
- Psychology and self-development
- Technology trends and history