Ashis Kumar Pal

Data Scientist || Data Analyst || Industrial Engineer

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EDUCATION

MS in Civil and Environmental Engineering (Major: Data and Systems)

Northeastern University, Boston, MA.   **Sep 2020 - June 2024 (Expected)**

- CGPA 3.92 / 4.0

B.Sc. in Industrial and Production Engineering

Bangladesh University of Engineering and Technology (BUET)   **May 2012 - Feb 2017**

- CGPA 3.32 / 4.0

EMPLOYMENT HISTORY

Research Assistant, Sustainability and Data Sciences Lab.

Boston, MA.   **Sep 2020 - Present**

Role Focus:
- Analyzed climate (CMIP6) data with data science and machine learning tools to understand the trend and impact.
- Executed a complete ETL process to extract, clean, and transform data from a website's HTML source into a structured network dataset, enabling 'what-if' scenario analysis for urban rail network resilience.
- Developed an interactive ArcGIS dashboard visualizing the exposure of Department of Defense installations and rail networks to climate hazards across the US, incorporating FEMA's quantitative National Risk Index.
- Analyzed NASDAQ stock data using Python libraries like yfinance for extraction, matplotlib for visualizing volatility, and applied LSTM models to predict future stock prices.
- Authored a paper published in ACM SIGKDD 2022 (Fragile Earth), co-invented a patent application, and currently working on two research papers.

Production and Inventory Manager, Twice Group Ltd.

Dhaka, Bangladesh.   **July 2019 - Sep 2020**

Role Focus:
- Performed inventory analysis and forecasting to maintain optimal safety stock levels, minimizing stock-outs while reducing carrying costs.
- Conducted capacity analysis which identified the need for additional production shifts; implemented dual-shift operations to increase output by over 40% and meet surging product demand resulting from successful marketing campaigns.

Master Production Scheduler, Partex Star Group.

Dhaka, Bangladesh.   **Dec 2018 - Jun 2019**

Role Focus:
- Implemented a machine-level waste tracking and reduction program for injection molding operations, fostering friendly competition among operators, which decreased overall wastage by 15%.
- Other duties included Demand forecasting, production scheduling, inventory management, supply and operations planning execution.

Planning and Coordination Executive, Fakir Apparels Ltd.

Narayanganj, Bangladesh.   **Mar 2017 - Sep 2018**

Role Focus:
- Designed and implemented a guide vane attachment for Sclavos fabric dyeing machines, reducing fabric unloading time by 50% and enhancing productivity.
- Other duties were Production planning, capacity analysis, lean Manufacturing, co-ordination and plan execution, waste reduction.

TECHNICAL SKILLS

- **Programming:** Python, MATLAB, R, SQL.
- **Python Libraries:** Pandas, scikit-learn, TensorFlow, Keras, NumPy, seaborn, matplotlib, PyTorch, XGBoost, Xarray, NetworkX, GeoPandas, netCDF4.
- **Machine Learning, Deep Learning, AI:** Regression, Decision Trees, SVM, CNNs, LSTM, Reinforcement Learning (Gymnasium), FaceNet, YOLOv4.
- **Data Visualization:** Power BI, Tableau, ArcGIS Dashboard, Gephi.
- **Database/Data Warehouse:** Snowflake, PostgreSQL.
- **Design:** AUTOCAD, Autodesk Civil 3D.
- **Web Design:** HTML, CSS, JS.
- **Office Suite:** Microsoft Office Package, Google Suite.
- **Hydrologic Modeling:** HEC-RAS, HEC-HMS.
- **Business Planning:** ERP, SAP.

RESEARCH PUBLICATIONS

Network Science-Based Resilience Analysis of Urban Rail Transportation Systems.
[COMPLEX NETWORKS]   **Sep 2021**
An extended abstract got accepted in the 10th International Conference on Complex Networks and their Applications.

Robustness of Urban Coastal Rail Network under Projected Future Floods.
[SIGKDD Fragile Earth]   **July 2022**
Paper got accepted in the ACM SIGKDD 2022 (Fragile Earth Workshop).

PROFESSIONAL DEVELOPMENT & CERTIFICATIONS

DATACAMP: Introduction to SQL   **Mar 2023**
Key Learnings: Relational Databases, creating SQL queries, PostgreSQL, and SQL Server

COURSERA: GOOGLE: Google Data Analytics Specialization   **Mar 2022**
Key Learnings: Data driven decision making, SQL, Phases of data analysis.

DATACAMP: Supervised Learning with scikit-learn   **May 2020**
Key Learnings: Classification and Regression models, ROC, AUC, Data preprocessing.

ACADEMIC PROJECTS

- Networked Infrastructures under Compound Extremes   **DOD SERDP Funded**
- Predictive Modeling of Climate Trends with Machine Learning   **DS 5220**
- Designing Detention Basin Satisfying Massachusetts Stormwater Standard   **CIVE 5536**
- Data-Driven Robustness of Transportation Networks   **CIVE 7110**
- Optimization of Two Telecommunication Network Design Problem   **OR 7310**

TEACHING EXPERIENCE

CIVE 7110 – Critical Infrastructure Resilience.   **Fall 2021**
CIVE 3464 – Probability and Engineering Economy for Civil Engineering.   **Spr 2022**