UJJWAL

(410) 227-8791 | *Baltimore, MD* 21227 | *pf*10610*@umbc.edu* | *LinkedIn* | *Github* | *Portfolio*

Education

University of Maryland, Baltimore County (UMBC), Maryland Dec 2022
Master of Professional Studies in Data Science GPA: **3.967/4.00**
Data Analysis & Machine Learning, Natural Language Processing, Artificial Intelligence, Data Management, Ethical & Legal Issues in Data Science, Platforms Big Data Processing

Punjab Engineering College (PEC), India May 2018
Bachelor of Technology, Mechanical Engineering GPA: **7.19/10.00**

Technical Skills

Languages: Python, SQL, MATLAB, Linux/Unix (shell script), R
Libraries: pandas, NumPy, SciPy, statsmodels, TensorFlow, PyTorch, Keras, NLTK, scikit-learn, PySpark, Plotly, alibi-detect
Tools: Microsoft Azure (ML), Tableau, Streamlit, MS SQL Server Studio, GitLab, Docker, Kubeflow, VSCode
Data Science: Data Modelling, Visualization, Exploratory Data Analysis, Pattern Recognition, Statistical Modeling, Hypothesis Testing, A/B testing, Time-Series, Deep Learning, MLOps

Projects

Twitter Sentiment Analysis & Stock Price Prediction | *Link* Aug 2021 - Dec 2021
- Condensed large 5 years tweets data **(3M+ samples)** and determined sentiment values through VADER & TextBlob; established **significance of correlation (stock values - twitter sentiment values)** via Spearman Coefficient.
- Constructed state-of-the-art **multivariate time-series forecasting model** using LSTM, to estimate next day's price based on prior day's price combined with calculated sentiment values. **Improved prediction error by 25%**.

American Sign Language (ASL) Image Classification | *Link* Aug 2021 - Dec 2021
- **Conducted model performance comparison study** for Convolutional Neural Networks aimed at classifying 87000 images into 29 classes.
- Investigated effects of varying kernel sizes, activation functions (ReLU, Swish, Mish), implementing image augmentation. **Achieved accuracy of 97.23% and 82.44%** in non-augmented and augmented image data.

Drought Determination & Intensity Projection in California | *Link* Feb 2021 - May 2021
- **Examined 21 years meteorological indicators and drought severity data (400K+ instances)**. Remodeled features for drought detection and intensity prediction in 5 severity classes of Palmer Drought Severity Index.
- Led a 5 member team to employ **RandomForests coupled with VotingEnsemble (soft)** for drought detection and achieved 85% accuracy. Classified intensities using **OneVsRestClassifier** (73% f1-score).

Machine Learning Engineer with Microsoft Azure | *Link*1 | *Link*2 | *Link*3 Jul 2021 - Jan 2021
- Inspected hyper-parameter tuned Azure ML pipeline against optimized Azure AutoML module.
- Performed classification on Heart Failure data using **Hyperdrive & AutoML**; Deployed best model (VotingEnsemble, 91.96% AUC weighted) as **Azure Container Instance** and **tested model consumption through JSON request**.

Adblocker threat evaluation (Business Analytics Capstone) | *Link* Mar 2020 - Apr 2020
- **Devised an action plan** for exhaustive analysis of threats posed by adblocker apps to ad-selling digital services; Identified 5 potential risks and proposed adoption of **exploratory, descriptive, & causal research** for strategy formulation.

Work Experience

Data Science Intern, *Atos zData Inc., Baltimore, Maryland* Jun 2022 - Present
- Spearheaded the development of **functional level monitoring framework** for novel NLP based product. Performed data exploration and wrangling to extract 15 features suitable for **drift & outlier detection**.
- Surveyed and summarized 10+ state-of-the-art **unsupervised drift detection papers** to fashion a blueprint for **systematized expansion & transformation** of existing monitoring component.
- **Integrated** monitoring in containerized product pipeline deployed through Kubeflow; **Refactored python scripts** to incorporate Prometheus-Grafana for observing incoming production data.

Mechanical Design Engineer, *Center for Research & Innovation, Havells, India* Jun 2018 - Jun 2019
- **Pioneered upgradation** of engineering designs & drawings of pump components as per GD&T; CAD modeled 150 components used across 20 SKUs, collaborated with cross-functional teams (30+ personnel) for prototyping & production.

Visiting Researcher, *Advanced Vehicle Engineering Center, Cranfield University, U.K.* Feb 2017 - Jul 2017
- **Conceptualized fabrication** of Hardware-In-Loop test rig for Electric Vehicles thermal management system.

Leadership

Graduate Assistant, *Data Science Dept., UMBC* Jan 2022 - Present
- Coordinate with Professors for course material enhancements. Support students (50+) through dedicated online sessions.

Global Ambassador, *Center for Global Engagement, UMBC* May 2021 - Present
- Facilitate academic, social integration of incoming international students via webinars(200+ attendees).

Patents

- "Pump Set Motor Assembly for Preventing Contaminant Ingress", Indian Patent 201911005525, Aug 14, 2020