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Daniel Safavi

My Linkedin
My GitHub

Areas of expertise: Data Science, MLOps, Optimization, Numerical Approximation and Econometrics.

Work Experience

Teaching Assistant of Survey of Calculus | Ohio University **Aug 2023 - May 2024**

- Assisted in delivering lectures and tutorials to undergraduate students, clarifying complex calculus concepts and ensuring students' understanding of fundamental and advanced topics such as derivatives, integrals, and limits. Organized and led weekly problem-solving sessions that focused on applying calculus principles to practical problems, increasing student engagement and academic performance.

Data Analyst Intern | Rabobank **May 2023 - July 2023**

- Conducted comprehensive procedure report for processing financial statements (T24), and transferring critical data to loan quality assurance system. Conducted data extraction from secure internal services and databases.

Data Scientist Intern | ABD Group **May 2022 - Aug 2022**

- Conducted data pre-processing pipelines, including data cleaning, feature engineering and data transformation on tabular, time series, text and image data using Numpy, Pandas, SpaCy and Keras. Utilized PySpark and PostgreSQL to query data from data lake and feature store. Developed ARIMA, Prophet and LSTM models and utilized MLflow to track experiments and register models. Communicated findings using creative Plotly dashboards and influenced key business decisions.Utilized Flask and Docker to containerize models and deployed on managed Kubernetes services like EKS and GKE.

Academic Project

Image Segmentation via U-Net **Spring 2024**

- Utilized the VOC 2007 dataset for advanced image segmentation using U-Net, a convolutional network tailored for precise pixel-level segmentation. Enhanced image preparation with resizing to 224x224 pixels, normalization, labeling for 22 classes, and augmentation to improve model training. Optimized U-Net by adjusting hyperparameters and modifying the encoder-decoder architecture to achieve improved accuracy.
- Link to final project repository, link to other projects like lane line detection repository

Graph Analytics and Clustering of 3D Genomics **Spring 2024**

- Focused on algorithmic techniques for data science, involving data cleaning, preprocessing, and exploration. Led projects on unsupervised learning and graph analytics, applying models to real-world datasets to uncover patterns and relationships. Delivered a comprehensive final project, enhancing and analyzing a scholarly article with advanced data visualization and statistical methods. Gained skills in implementing clustering algorithms, graph analytics, and effectively communicating complex data insights.
- Link to final project repository

Efficient Barycentric Trigonometric Hermite Interpolation **Spring 2024**

- Successfully reproduced and verified the results and proofs of the paper titled "A Barycentric Trigonometric Hermite Interpolation via an Iterative Approach" using Python. Utilized advanced Python libraries to implement and test interpolation algorithms, demonstrating proficiency in numerical analysis and software development. Conducted a thorough verification of the paper's proofs and numerical results, ensuring accuracy and reliability in computational reproduction.
- Link to final project repository

ML-Driven Diagnosis of Diseases from Genetic Mutations **Fall 2023**

- Implemented, employed, and evaluated machine learning methods, including decision tree, random forest, information gain, entropy, n-fold cross-validation, and bootstrapping. Applied data mining processes (involving data cleaning, exploratory data analysis, feature extraction, pattern discovery, and classification) to discover new knowledge from real-world data sets. Gained experience in bioinformatics, computational genomics, and cancer informatics.
- Link to project repository

Education

Master of Science, Computational Mathematics, Ohio University (GPA: 3.89) **Dec 2024 (Expected)**

Relevant Courses: Data Mining, Data Science, Design and Analysis of Algorithms, Numerical Analysis, Linear and Non-linear Optimization, Medical Image Processing, Data Structures

Bachelor of Science, Process Engineering, Minor in Computer Science,University of Tehran (GPA: 3.72)

Skills

Software Development: Python, R, C++, Git, GitLab CICD, Docker, Kubernetes, Agile (Scrum and Kanban)
Data Engineering: Spark, PostgreSQL, Airflow, MLflow
Data Science & ML: Pandas, NumPy, SciPy, Keras, Torch, TensorFlow, Scikit-Learn, Matplotlib, Seaborn, Plotly