Jelin Raphael Akkara

Masters in Physics of Data

Contact

Email
jelinraphaelakkara@gmail.com

Personal Site
https://jelinr.github.io

Skills

Programming Languages |

- Proficient: Python, R
- Familiar: C++, HTML, CSS

Frameworks |

- Familiar: SQL, Dask, PySpark

Certificates

2022 | Google Data Analytics Professional Certificate

2021 | Einstein Toolkit Workshop on Numerical Relativity

Extracurriculars

- Member of TEDxCalicut (2018-2021)
- Music Band Member (2018-2020)

Projects

Using Transformers to classify crashes in plasma evolution (Time Series Analysis)

The task was to train a model that predicts the occurrence of a crash (magnetic reconnection) during plasma evolution. With 65 parameters and a largely imbalanced dataset, we utilized several techniques to overcome the high dimensionality of the parameter space and the very less number of crashes to train with. We compared the performance of the transformer model against traditional architectures (CNN, DNN) and found it to be a better and reliable model.

Classifying Fake News using Multinomial Naive Bayes Algorithm

The task was to build a text classification model that recognizes varying degrees of fake news using the multinomial naive bayes algorithm. This was implemented in R, using only a few essential libraries, by following a SQL-based approach for efficiency. Such an approach enabled the model to train and validate on a dataset consisting of 20800 rows, with each row containing an average of 4544 words, in under 30 seconds.

Muon Pair Detection in Drift Tube Chambers

The task was to identify muon pair generation events among all the detections (events) recorded by a system consisting of drift tube detectors. By developing a strategy, along with sufficient geometric analysis, we were able to analyze and visualize the dataset and obtain a detection rate similar to the standard rate.

Approaching Yang-Mills mass gap through Lattice Gauge Theory

Reviewed literature on Hamiltonian formulation of gauge fields, along with methods such as Canonical transformations and Schwinger bosons

Education

Masters in Physics of Data

University of Padua, Italy

2022 - 2024 (Proposed)

GPA: 28.6/30

B.Tech in Engineering Physics

National Institute of Technology, Calicut, India

2018 - 2022

GPA: 8.47 / 10