

JELIN RAPHAEL AKKARA

MASTERS IN PHYSICS OF DATA

Email: jelinraphaelakkara@gmail.com

Portfolio: <https://jelinr.github.io/>

LinkedIn: [linkedin.com/in/jelin-raphael-akkara](https://www.linkedin.com/in/jelin-raphael-akkara)

GitHub: <https://github.com/JelinR>

PROJECTS

Lightweight CNN for Speech Keyword Spotting

Developed a lightweight CNN (32k parameters) to classify keywords with 89% accuracy, 37ms (avg) inference time, and 90KB memory load. Competes with SoTA models like TDNN (250k parameters, 94% accuracy).

YOLOv8n Object Detection using Blob Enhancers

Improved YOLOv8n for small human (far away or occluded persons) detection by 1.1% by enhancing regions of interest, at the small cost of increase in preprocessing speed by 2 ms (from 7 ms to 9 ms).

Efficient Fake News Recognition with Naive Bayes

Built an efficient fake news classifier using Multinomial Naive Bayes. A SQL-based approach enabled handling term-context matrices efficiently, training on 20,800 rows (average 4,544 words) in under 30 seconds.

Learning Immanuel Kant using LLM and RAG

Tested RAG's capability using Llama-2 as the chatbot LLM, FAISS as the vector store, and HuggingFace for the pipeline on four influential works of Immanuel Kant, optimizing prompts and parameters for best results.

Audio Generation using Variational Autoencoders

Generated speech keyword audio samples using VAE, optimizing latent dimension, experimenting with symmetric and asymmetric architectures and ensuring presence of a continuously varying latent space.

EDUCATION

Masters in Physics of Data

University of Padua, Italy

GPA (Tentative) : 28.27 / 30

2022 - 2024

Relevant Coursework: Natural Language Processing, Vision and Cognitive Systems, Human Data Analytics, Advanced Statistics, Machine Learning

B.Tech in Engineering Physics

National Institute of Technology, Calicut, India

GPA : 8.43 / 10

2018 - 2022

First Class with Distinction

CERTIFICATIONS

- **Google Data Analytics Professional Certificate** (2022): Analyzing data with SQL, R and Tableau
- **Language Proficiency in English:** IELTS Band 8, CEFR Level C1 (2022)
- **Co-Organized Venice International Workshop, 'Physics of Data'** (Held on 23-24 May, 2024)

SKILLS

- **Languages:** English (native), Malayalam (native), Hindi (intermediate), Italian (beginner)
- **Programming Languages:** Python, R, SQL
- **Programming Frameworks:** Dask, PySpark, Docker, HTML, CSS, Bootstrap, LATEX
- **Programming Libraries:** TensorFlow, Keras, PyTorch, Scikit-Learn, Pandas, NumPy, SciPy, Seaborn, Matplotlib