G. Aravind

aravind.gopal.1998@gmail.com | aravind-gk | aravind-gk | aravind-gk.github.io | G-Aravind

Education

Indian Institute of Science, Bangalore — Oct 2020 – Present
M.Tech in Artificial Intelligence — 8.1/10

Heritage Institute of Technology, Kolkata — Aug 2016 – Jul 2020
B.Tech in Computer Science and Engineering — 8.8 / 10

Relevant Coursework

Foundational Courses: Pattern Recognition and Neural Networks, Data Structures, Computer Vision, Data Analytics
Advanced Courses: Reinforcement Learning, Advanced Deep Learning, Deep Learning for Natural Language Processing
Math Courses: Random Processes, Computational Linear Algebra, Computational Methods of Optimization
Online Courses: Machine Learning with Graphs (Stanford)

Work Experience

Mastercard | Data Scientist Intern — Jun 2021 – Jul 2021

- Interned with AI Garage team at Mastercard, which focuses on designing AI-based solutions for use-cases in payments
- Built models for predicting high-value financial transactions, and time and category of future transactions for customers
- Modeled transactions as Marked Temporal Point Processes and used it to make predictions about future payments

Academic Projects

Adversarial Attacks on Recommendation System Models | *Thesis Project* | *Prof. Shirish Shevade* (ongoing)

- Using hyperparameter tuning techniques to tune the graph data in order to drop the recommender's performance
- Attacking the user-item graph using meta-learning techniques, to reduce performance of collaborative filtering systems

Multimodal Transformers for Image Captioning | *Prof. Sriram Ganapathy* (Sep 2021)

- Image captioning formulated as a multimodal translation task, where input image features are extracted using various encoder models, and fed to deep networks for caption generation
- Used multimodal Transformer to capture both intra-modal and inter-modal interactions in a unified attention block

C-LSTMs vs Transformers for Multi-class Text Classification | *Prof. Shirish Shevade* (Aug 2021)

- Implemented C-LSTM architecture (a combination of CNN and deep LSTMs) for classifying text documents
- Used self-attention mechanism at output, and dynamic meta-embeddings at input to improve C-LSTM performance
- Also used Transformers for document classification, and experimented with encoder blocks and positional embeddings
- Used Deep Averaging Networks (DANs) as baseline and tried different word/bi-gram embeddings

Personal Projects

- Modeling the spread of COVID-19 in Karnataka, India
- Movie recommendation system using graph neural networks and collaborative filtering
- Dynamic meta-embeddings for improved sentence representations
- Duckworth-Lewis method for predicting target runs in cricket matches, using non-linear regression models
- Gradient based optimization of hyperparameters for linear models
- Image compression using principal component analysis

Technical Skills

Languages: Python, C, MATLAB, SQL

Technologies / Frameworks: PyTorch, TensorFlow, Scikit-Learn

Achievements / Extracurricular

- All India Rank 6^{th} in GATE Computer Science exam, out of ~1,00,000 candidates
- Teaching Assistant for E2 202: Random Processes, Fall 2021
- Certified in "CODECHEF Certified Data Structures and Algorithms Programme", Advanced Level (Jan 2018)