

AVIRAL AGRAWAL

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EDUCATION

Georgia Institute of Technology, Atlanta GA

Master's of Science in Computer Science

August 2022 - May 2024 (Expected)

GPA: 3.85 / 4

BITS Pilani K.K. Birla Goa Campus, India

B.E. in Computer Science and MSc. in Mathematics

August 2015 - May 2020

GPA: 9.12 / 10

WORK EXPERIENCE

Roadie, Atlanta | Data Science Intern

May 2023 - August 2023

- Developing a robust probability model for the dynamic driver pricing system, enabling Roadie to estimate the probability of successful driver assignment based on various route and environmental characteristics
- Developing SQL queries to extract and manipulate relevant data from the company's databases to train different machine learning models

Microsoft, Noida | Software Engineer

July 2020 - August 2022

- Automated compliance checks during code deployment in Azure Devops
- Designing and integrating Attribute Based Access Control by making changes in the exchange powershell commandlets
- Built the frontend UI using ReactJs, Typescript etc. to allow company admins to manage attributes for their employees across the organization

Macquarie University, Sydney and CSIRO's Data61, Sydney | Visiting Scholar

August 2019 - June 2020

- Implementing multiple machine learning models on various datasets to do a thorough analysis of membership inference attacks, and then extended it to attribute inference attacks
- Formulating the right mathematical definitions around these inference attacks

Amazon, Hyderabad | SDE Intern

May 2019 - July 2019

- Integrating a visual tool for showing preview to find any anomaly before making any rules between services and products
- Used various AWS cloud Services like Simple Queue Service, Lambda, Neptune and Simple Email Service to accomplish this

PROJECTS

Visualizing and Optimizing Ambulance Planning in Atlanta

- Successfully applied Variable Neighborhood Search algorithm to optimize the response time for Grady EMS, reducing the average response time from 10.5 minutes to 8 minutes.
- Developed a user-friendly UI to visualize hospital locations and ambulance placements, enhancing accessibility and ease of use for stakeholders.

Detection of Sexism through Hybrid Approach of Transformers, Data Augmentation, and Domain Adaptation

- Developed a system for the detection of online sexism, addressing the SemEval-2023 Task 10, which encompasses three subtasks: Binary Sexism Detection, Category of Sexism, and Fine-Grained Sexism Vectors.
- Implemented data augmentation techniques like Synonym Replacement and Contextual Word Embeddings by EDA and NLPAug, and employed domain adaptation by pretraining the model on the provided unlabeled dataset, effectively adapting the model to the specific task requirements.

Fake News Detection using CNN and M-GCNs

- Conducted research on false information detection using the Liar dataset, reproducing two powerful techniques: a CNN with 38.1% test accuracy and a multi-depth GCN achieving 46% test accuracy.
- Implemented the GCN model using a graph representation that linked nodes based on shared speaker attributes, running multiple GCNs at varying levels of depth for the adjacency matrix and combining their results to obtain final class probabilities.

PUBLICATION

- "On the (In)Feasibility of Attribute Inference Attacks on Machine Learning Models, IEEE Euro S&P 2021"

SKILLS

Languages: C, C++, C#, Java, Python, Typescript, SQL

Tools & Frameworks: HTML, CSS, React.js, LaTeX, Github, Numpy, Pandas, Pytorch, Tensorflow, Keras, Matplotlib, Android Studio

Relevant Coursework: Deep Learning, Computer Vision, Natural Language Processing, Machine Learning, Optimization, Data Mining, Web Search and Text Mining, Data Structure and Algorithms, Cryptography, Blockchain and Cryptocurrencies, Graph and Network

EXTRACURRICULARS

- **Workshop & Certificate in Networking Management Course** : Secured rank in top 10 among 142 participants organized by Nettech
- **Deputy Election Commissioner** : Conducted hostel representative elections in 14 hostels, held debates at auditorium and conducted general elections for president, vice-president and treasurer during which managed a crowd of over 1500 students who came to vote..
- **Teaching Assistant** of the following courses: Online Machine Learning, Mathematical Methods, Optimization, Object Oriented Programming and Differential Geometry