Karuna K Chandra

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Education

12/2020 – 05/2024 **B.Tech. in Computer Science and Engineering**, *PES University*
CGPA: 9.24/10
Undergraduate Research: "Detection and Analysis of Cryptocurrency Scams on Twitter"

06/2018 – 03/2020 **Senior Secondary**, *Sri Kumarans Children's Home Educational Council*
Grade: 93.2%

06/2008 – 03/2018 **High School**, *Clarence Public School*
Grade: 92%

Work Experience

10/2023 - ongoing **Research Associate**, *Precog, International Institute of Information Technology, Hyderabad*

- Advised by Prof. Ponnurangam Kumaraguru
- **Identifying controversial posts on Reddit in the Indian political context**
  - We find that supplementing the GNNs with specific topological encodings (Persistent Homology) to model the temporal evolution of the post-comment hierarchy improves their performance
  - We also find that benchmarks in this domain are not representative of real-world imbalanced class statistics
  - Accepted at **BeyondFacts@WWW'25**
- **Using Laplacian Methods for long-ranged predictions of node attributes**
  - Utilizing Laplacian and steady-state assumption in an Opinion Dynamics Equation to predict the node attributes of nodes using information of stubborn actors (nodes whose attributes do not change over time)
- **Great Models Think Alike and this Undermines AI Oversight**
  - We find that LLM-as-a-judge scores favor models similar to the judge, generalizing recent self-preference results.
  - We study training on LM annotations, and find complementary knowledge between the weak supervisor and strong student model plays a crucial role in gains from weak-to-strong generalization.
  - We study how model mistakes are becoming more similar with increasing capabilities
  - Accepted at **SSI-FM@ICLR'25**.
  - Spotlight poster at **ICML'25**

06/2024 – 10/2024 **Teaching Assistant**, *NPTEL*

- TA for Responsible and Safe AI course taught by Prof. Ponnurangam Kumaraguru, Prof. Balaraman Ravindran, and Prof. Arun Rajkumar
- Responsible for designing all assignments and question papers part of the course and reviewing the course content
- Course was taken by around 11,000 people all over India

08/2023 – 12/2023 **Teaching Assistant**, *PES University, Bangalore*

- TA for the courses Machine Intelligence and Big Data
- Responsible for designing and grading the assignments.
- Conduct hands-on tutorials and mentored projects for over 120 students.

02/2023 - 05/2024 **Undergraduate Researcher**, *PES University, Bangalore*

- **Detection and Analysis of Cryptocurrency Scams on Twitter**
- Advised by Dr. Sudeepa Roy Dey
  - Created a cryptocurrency-centric Twitter dataset with tweet content and metadata.
  - Identified potential scam tweets that propagate various kinds of scams.
  - Analyzed the community of users involved in these scams and identified key characteristics of the communities.
  - Work accepted at 18th International Conference on Algorithmic Aspects in Information and Management (**AAIM 2024**)

06/2023 – 08/2023 **Data Engineering Intern**, *Bosch Global Software Technologies, Bangalore*

- Contributed to enhancing the company's ETL data pipeline.
- Added several additional functionalities, such as a generalized API and Kafka data extraction, integrating with their existing data pipeline
- Skills: Azure frameworks, Kafka, API, Databricks

Projects

Big Data **Yet another Kafka**

- A Big Data course project that emulates the basic functions and features of the Kafka publisher-subscriber model.
- The project supports several features of Kafka, such as support to multiple publishers and subscribers for a particular topic, logging, data replication among 3 brokers, broker leader, and partitioning.
- Tools & technologies used: Python, Socket Programming.

Machine Intelligence **Using Q-routing for finding the best path in a congested network**

- A machine intelligence course project combined with computer networks concept.
- The project simulated a packet traversal in a network with features such as packet dropping when traversing between nodes. Using Q-learning to give reward points in case of successful transmission and quadratic penalty when packets were dropped, the best paths were found to minimize packet dropping.
- Tools & technologies used: Python, Reinforcement Learning, Q-learning.

Skills and Interests

Areas of Interest: Model Robustness, Data-centric AI Safety

Languages & Framework: Python, Tensorflow, Keras, Pytorch, NLTK

Relevant Coursework: Calculus I, Calculus II, Statistics for data science, Linear Algebra, Machine Intelligence, Topics in Deep Learning, Natural Language Processing, Data Analytics, Research Methodology, Reinforcement Learning

Achievements and Extracurricular

Academic **Scholarships and Awards**

- Received MRD Scholarship every semester for being in the top 20%.
- Received an award in grade 10 for scoring 100 in Computer Science.

Music **Extracurricular**

- Passed the Karnataka Music (vocal) Junior Grade Examination