Apurva Kokate

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Personal Profile

I like creating and understanding algorithms. I transitioned to Machine Learning with a focus on Explanations to increased informed decision making in AI assistance systems . Current Status: F1

Publications

Inherently faithful GNN Explanations using reparameterized sub graph sampling. *Ongoing research*

Kokate A., and Xiaoli F. *2023*

- Aims to uncover sub-graph motifs learnt by an underlying GNN, will increase model level transparency

Interpretable deep learning for guided microstructure-property explorations in photovoltaics. *NPJ, Computational Materials*

Pokuri B. S. S., Ghosal S., **Kokate A.**, Sarkar S., and Ganapathysubramanian B. *2019*

- Discovered cell attributes most responsible for photovoltaic property and increased user trust in model decisions

A study of interpretability mechanisms for deep convolutional networks. *Iowa State Repository*

Kokate Apurva, and Sarkar Soumik *2018*

- Provides a taxonomy of vision based algorithms capable of extracting model rationale as subset of pixels

A forward-backward approach for visualizing information flow in deep networks. *NeurIPS*

Balu A., Nguyen T. V., **Kokate A.**, Hegde C., and Sarkar S. *2017*

- Developed and implemented a layer-wise attribution method by leveraging mathematical inversion of the model's forward pass, enhancing interpretability and improving model accuracy by 15%

Work Experience

Kingland Systems *Iowa, USA*

Full Stack Software Engineer *July 2018 - May 2021*

- Engineered an automated cloud-based document parsing system employing Deep Learning-based Named Entity Recognition, achieving 99% accuracy in resolving entities for DTCC's mutual fund database, managing **5 million data points and 1.1 million daily updates**.
- Developed cloud based Vendor Collaboration system, integrating Java API's with a central AWS database for Kroger Supermarket chain. Drastically **reduced operational time from days to hours** and improved vendor - supplier engagement
- Initiated **Integration Testing** initiatives across multiple Kingland projects, achieving an **80% boost** in code coverage. Orchestrated the transfer of the framework between diverse teams in the United States and China, fostering effective **collaboration across cultures**.
- **Mentored 3 junior professionals** which helped them gain UI development and Testing skills.

Icon Laboratory *Iowa, USA*

Summer Software Intern *May 2017 - July 2017*

- Designed **security module for IOT devices** and implemented obfuscation, and retrieval of user keys motivating data privacy and reliability

Presentation and Peer Reviews

USA	**Ethics Reviewer for Dataset and Benchmarking track**, NeurIPS	2024
Canada	**Poster Presentation at MoML Conference**, Valence Labs and Mila	2024
Canada	**Participated at MoML Summer school and Hackathon**, Valence Labs and Mila	2024
USA	**Participated at Poster Presentation**, Oregon State University	2024
USA	**Member and Speaker**, The Pervasive Personalized Intelligence Center	2023
USA	**Participation**, AgAID Hackathon	2022
USA	**Honourable Mention by Kingland at Poster Presentation**, Iowa State University	2018

Education

Oregon State University *Oregon, USA*

PhD in Artificial Intelligence with a minor in Computer Science. GPA 3.7 *Sept 2021 - Exp. Grad May 2025*

- **Advisor:** Dr. Xiaoli Fern
- **Research area:** Explainable Graph Neural Networks

Iowa State University *Iowa, USA*

MS in Computer Science. GPA 3.63 *August 2016 - May 2018*

- **Advisor:** Dr. Soumik Sarkar
- **Lab:** Self-aware Complex Systems lab

Mumbai University *Mumbai, India*

B.Engg in Computer Engineering. *August 2012 - May 2016*

- Chairperson of The Computer Society of India Student Branch

Skills

Programming	Python (Pandas, PyTorch, NumPy, Scikit-learn), Java, C #, C/C++
Deep Learning Libraries	PyTorch, Tensorflow, Keras, Spacy
Miscellaneous	AWS, DynamoDB, PostgreSQL, Docker, Terraform, Gauge, Jenkins, Sumologic, Spring, JIRA
Soft Skills	Leadership, Problem-solving, Dedication, Hard-working, Curiosity