Apurva Kokate

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Personal Profile

PhD candidate in AI with a minor in CS at Oregon State University. 3 years of relevant work experience. Research expertise in explainable deep learning. Seeking Machine Learning Engineer and Research roles.

Education

Oregon State University *Oregon, USA*

PhD in Artificial Intelligence with a minor in Computer Science *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 *August 2016 - May 2018*

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

Work Experience

Kingland Systems *Iowa, USA*

Full Stack Software Developer *July 2018 - May 2021*

- Ability to meet **team and company goals** in high stakes applications through successful completion of Text Analytics, Kroger's Vendor collaboration portal and Enterprise Data Management system leading to **2 technical architecture blueprints**.
- **Research and Development expertise** demonstrated by programming a **Convolutional ensemble learning architecture and Natural Language Programming** service which resulted in quick detection of tabular entities and named entity recognition from client documents
- Led Integration testing framework **project transition between US and China workforce** as evidenced by working amicably with 15 cross-cultural team members.
- **Mentorship expertise** with subject matter expertise to train junior professionals as evidenced by mentoring 1 professional on the Integration testing and User Interface development.
- **Technical Skills:** Python with PyTorch, NLP, Spacy, Tesseract, AWS, Terraform, Gauge, DB management, Git

Icon Laboratory *Iowa, USA*

Summer Software Intern *May 2017 - July 2017*

- Fast-paced, dynamic innovator to write code for obfuscation, storage and retrieval of user keys for better security resulting in early task completion
- **Technical Skills:** C Programming, Linux

Publications

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*

- Research and analysis expertise gained through though conducting **experimentation with 12 architecture perturbation, and using 3 back-propagation techniques(vanilla, guided, relu)** on 2 custom frameworks on 2 pixel space visualizations
- Conducted 12 experiments on 1 custom model to test Grad-CAM and Saliency visualizations on in sample and out of sample input data

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

Kokate Apurva, Sarkar Soumik *2018*

- **Created novel framework to benchmark interpretability algorithms** using sensitivity and implementation invariance performance on 3 perturbations which resulted in a Poster winning honourable mention at competetion
- **Proposed quantitative evaluation metrics** to calculate difference between deep learning models using KL-Divergence of weights and architecture difference

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

Balu A., Nguyen T. V., **Kokate A.**, Hegde C., and Sarkar S. *Oct 2021 - Dec 2021*

- Growth-oriented researcher to perform **comparative studies on SOTA interpretability algorithms**, critical contribution to forward backward algorithm, which combined salient aspects of its predecessors

Inherently faithful GNN Explanations using reparameterized sub graph sampling. *Oregon State*

Kokate A., and Xiaoli F. *Current*

- Studying meaningful explanation generation applied to chemical property prediction

Skills

Programming	Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), Java, C #, C/C++
Deep Learning Libraries	PyTorch, Tensorflow, Keras, Spacy
Miscellaneous	AWS, DynamoDB, PostgreSQL, Docker, Terraform, Gauge, Jenkins, Sumologic, Spring
Soft Skills	Leadership, Time Management, Problem-solving, Documentation

Achievements

2022	**Participation**, AgAID Hackathon	*USA*
2023	**Membership**, The Pervasive Personalized Intelligence Center	*USA*
2015	**Chairperson**, The Computer Society of India- Student Branch	*India*