Anup Shakya

ML Research | PhD Candidate

Location: Memphis, Tennessee
Email: anupshakya07@gmail.com
Phone: +1-901-450-9675
GitHub: anupshakya07
LinkedIn: anupshakya07
Website: portfolio

SUMMARY

- Research and development experience with proficiency in Python, Java, statistical modeling, and Machine Learning libraries evidenced by the completion of **3 research projects** on **Educational Data Mining** and **Neural Network Verification** funded by **NSF**
- Able to design and conduct experiments, process data, analyze/evaluate results, and build deep learning models and pipelines demonstrated by **6 peer-reviewed publications** in venues like **IEEE ICDM** and **EDM**
- Strong communication and collaboration skills with strong interest in Generative AI and Large Language Models (LLM) resulting in **6 conference presentations** and **3 collaborations** including a collaboration with **Adobe Research**

EDUCATION

Ph.D., Computer Science | *The University of Memphis* | (GPA 3.99) **Jan 2020 – Dec 2024**
M.S., Computer Science | *The University of Memphis* | (GPA 3.98) **Jan 2020 – Aug 2022**

WORK EXPERIENCE

Graduate Research Assistant | *The University of Memphis* **Jan 2020 - Present**

- Developed the ability to effectively contribute in a collaborative team-oriented environment leading to **3 successful research collaborations**
- Solved the student strategy prediction problem leading **3 research projects** funded by **NSF**, **Bill & Melinda Gates Foundation**, and **Learning Academy**
- Exhibited ability to investigate, evaluate, and progress solutions with an ability to write scientific articles as evidenced by **6 peer-reviewed publications**

Software Engineer Lead | *Deerwalk Services* **Dec 2015 – Jan 2020**

- Highlighted ability to maintain high coding standards with expertise in building web applications leading to the development of **4 in-house web application** products
- Led software development and enhanced the agile development process resulting in **25% improvement** in efficiency evidenced by lead development role in **2 web application projects**

RELEVANT PROJECTS | *(Link to Full Projects List)*

- **Scalable Student Strategy Prediction in Math Learning** | *(Link to Project)*
  Relevant Skills : Python, TensorFlow, Transformers, LSTM, Learning Science, ML Optimization
  - Developed an innovative embedding, MVec, and employed a non-parametric clustering to build a scalable and fair ML model to predict (assess) student strategies/performance on Math problems in K-12 students

- **Probabilistic Verification of Neural Networks** | *(Link to Project)*
  Relevant Skills : Python, PyTorch, scikit-learn, Hybrid Markov Logic Network, MILP Optimization, Statistical Learning
  - Proposed a novel approach to verify representations in Deep Neural Networks with a probabilistic framework using Hybrid Markov Logic and Mixed Integer Linear Programming optimization

RESEARCH PUBLICATIONS

- **Anup Shakya**, Abisha Thapa Magar, Somdeb Sarkhel and Deepak Venugopal, **On the verification of Embeddings using Hybrid Markov Logic**, In Proceedings of 23rd IEEE International Conference on Data Mining (ICDM) 2023 Dec. *(Link to Paper)*
- **Anup Shakya**, Vasile Rus and Deepak Venugopal, **Scalable and Equitable Math Problem Solving Strategy Prediction in Big Educational Data**, In Proceedings of 16th International Conference on Educational Data Mining (EDM) 2023. *(Link to Paper)*
- **Anup Shakya**, Vasile Rus and Deepak Venugopal, **Student Strategy Prediction using a Neuro-Symbolic approach**, In Proceedings of 14th International Conference on Educational Data Mining (EDM) 2021. *(Link to Paper)*

- **Anup Shakya**, Vasile Rus and Deepak Venugopal**, Mastery Guided Non-parametric Clustering to Scale-up Strategy Prediction**, In AAAI Workshop on AI4ED, 2023 Feb. *(Link to Paper)*
- Abisha Thapa Magar, **Anup Shakya**, Somdeb Sarkhel and Deepak Venugopal, **Verifying Relational Explanations: A Probabilistic Approach**, In proceedings of IEEE International Conference on Big Data 2023, Sorrento, Italy. *(Link to Paper)*
- **Anup Shakya**, Vasile Rus, Stephen Fancsali, Steve Ritter and Deepak Venugopal, **NeTra: A Neuro-Symbolic System to discover strategies in Math Learning**, In Proceedings of The Third Workshop of Learner Data Institute in conjunction with International Conference on Educational Data Mining 2022. *(Link to Paper)*

SKILLS LIST

Python, PyTorch, Transformers, TensorFlow, MySQL, Java, Learning-Science, Large Language Models, Fine-Tunng, ElasticSearch, Data Science, scikit-learn, JavaScript, Computer Vision, AWS, Google Cloud, Reinforcement Learning, Supervised-Learning, Statistical Analysis, Pandas, Hypothesis Testing

HONORS AND AWARDS

- 2nd position in 18th Annual CS Research Symposium 2023 at the University of Memphis
- Peter I Neathery Fellowship 2021

AFFILIATIONS AND HOBBIES

- Active Member of Nepali Student Association at University of Memphis
- Senior Member of the University of Memphis Machine Learning and AI Research Lab
- Soccer
- Listening to Music and Playing Guitar