Priti Oli

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Education

The University of Memphis, Memphis, TN *Aug 2019 - August 2024*
Ph.D. in Computer Science
Research: Natural Language Processing, Large Language Models, Human-Computer Interaction, Computer Science Education

The University of Memphis, Memphis, TN *Aug 2019 - Dec 2021*
Master in Computer Science

Institute of Engineering, Pulchowk Campus, Kathmandu *Dec 2011 - Dec 2015*
Bachelor in Electronics and Computer Engineering

Technical Skills

Programming Languages: Python, Java, JavaScript, SQL Elasticsearch, TypeScript
Tools & Framework: PyTorch, TensorFlow, PySpark, Pandas, NLTK, Spring MVC, Angular, Vue

Research Experience

University of Memphis *April 2020- April 2023*
Research Assistant

- Developed a comprehensive end-to-end conversational system to enhance program comprehension for students in introductory programming courses, focusing on improving learning outcomes and understanding of fundamental programming concepts.
- Developed both frontend and backend components of a dialogue-based scaffolding system for code comprehension tasks. Improved semantic similarity approaches to provide effective feedback to students leveraging Large Language Models(LLMs) with few shot and fine-tuning approaches (SFT+DPO).
- Designed, and developed an end-to-end pipeline for assessing students' explanations during code comprehension using transformer-based models.
- Implemented and evaluated state-of-the-art deep learning models, including Recurrent Neural Networks (RNNs) and Transformers, to effectively perform knowledge tracing of students' coding exercises across multiple semesters, enabling accurate assessment of their learning progress.

Work Experience

Zakipoint Health, Inc. *June 2017 - July 2019*
Senior Software Engineer

- Developed and implemented Zakipoint's in-house software, surpassing client expectations by delivering a high-performing solution that met all functionality requirements within the specified timeline, resulting in increased client satisfaction and successful software adoption.
- Successfully leveraged d3.js to streamline data processing and visualization, resulting in the rapid development and deployment of a highly effective system for analyzing and presenting complex datasets.
- Optimized operational efficiency by automating daily maintenance tasks for Elastic search, resulting in streamlined operations and improved productivity

Deerwalk Services Inc. *Dec 2015 - Dec 2016*
Software Developer

- Designed and developed cutting-edge application systems, driving significant enhancements to client requirements within the health portal system of Deerwalk.

- Enhanced reporting functionalities using Jasper Report and Apache POI, resulting in streamlined data analysis, improved decision-making processes, and enhanced overall system efficiency.

Awards and Honors

- Google Computer Science Research Mentorship Program (**CSRMP 2022 a**)
- Peter I. Neathery Fellowship (Aug 2020) University of Memphis
- GHC Scholar 2022, 2023 (**GHC 2022, 2023**)
- University of Memphis GSA TOP 20 under 35
- Runner-Up(2016) NASA space app challenge Kathmandu 2016

Selected Publications

- Automated Assessment of Students' Code Comprehension using LLMs, ***Priti Oli**, Rabin Banjade, Jeevan Chapagain, Vasile Rus* Proceedings of the 2024 AAAI Conference on Artificial Intelligence, PMLR 257:118-128
- The Behavior of Large Language Models When Prompted to Generate Code Explanations, ***Priti Oli****, *Rabin Banjade*, Jeevan Chapagain, Vasile Rus* - arXiv preprint arXiv:2311.01490, 2023 Generative AI in Education Workshop, NeurIPS 2023 GAIED
- Explaining Code Examples in Introductory Programming Courses: LLMs vs Humans, *Arun-Balajiee Lekshmi-Narayanan*, **Priti Oli****, *Jeevan Chapagain, Mohammad Hassany, Rabin Banjade, Peter Brusilovsky, Vasile Rus* AI for Education Workshop, AAAI 2024
- Identifying Gaps In Students' Explanations of Code Using LLMs *Rabin Banjade,, **Priti Oli**,and Vasile Rus* International Conference on Artificial Intelligence in Education
- Exploring The Effectiveness of Reading vs. Tutoring For, Enhancing Code Comprehension For Novices, ***Priti Oli**, Rabin Banjade, Arun Balajiee Lekshmi Narayanan, Peter Brusilovsky, and Vasile Rus*. In Proceedings of ACM SAC Conference (SAC'24). ACM, Avila, Spain, Article 4, 10 pages
- Improving Code Comprehension through Scaffolded Self-Explanation, ***Priti Oli**, Rabin Banjade, Arun Balajiee Lekshmi Narayanan, Jeevan Chapagain, Lasang J. Tamang, Peter Brusilovsky, and Vasile Rus* AIED: International Conference on Artificial Intelligence in Education 2023
- Automated Extraction of Domain Models From Textbook Indexes For Developing Intelligent Tutoring Systems *Rabin Banjade, **Priti Oli**, Vasile Rus*, Proceedings of the International Conference on Intelligent Tutoring System 2022
- Automated Assessment of Quality of Jupyter Notebooks Using Artificial Intelligence and Big Code, ***Priti Oli**, Rabin Banjade, Lasang Jimba Tamang, and Vasile Rus* , The International FLAIRS Conference Proceedings 2021
- A Comparative Study of Free Self-Explanations and Socratic Tutoring Explanations for Source Code Comprehension *Tamang, Lasang Jimba, Zeyad Alshaikh, Nisrine Ait Khayi, **Priti Oli**, and Vasile Rus*, In Proceedings of the 52nd ACM Technical Symposium on Computer Science Education (pp. 219-225).
- NL-Augmenter: A Framework for Task-Sensitive Natural Language Augmentation. *Kaustubh D. Dhole, Varun Gangal, Sebastian Gehrmann, . . . , **Priti Oli**,. . . Jascha Sohl-Dickstein, Jinho D. Choi, Eduard Hovy*,arXiv:2112.02721v1
- Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models, *Aarohi Srivastava, Abhinav Rastogi,. . . ., **Priti Oli**,. . . . . ., Zijie J. Wang, Zirui Wang, Ziyi Wu*, arXiv:2206.04615
- A Systematic Investigation of Expert and Novice Programmers' Ratings of Code Cohesion. *Jeff Bye, Rina Harsch, Yewon Kang, **Priti Oli**, Rabin Banjade Banjade, Andrew Tawfik, Vasile Rus, Panayiota Kendeou*, Poster presented at the 64th Annual Meeting of the Psychonomic Society. San Francisco, CA, USA(2023, November)
- Preliminary Experiments with Transformer based Approaches To Automatically Inferring Domain Models from Textbooks, *Rabin Banjade, **Priti Oli**, Lasang Jimba Tamang, Vasile Rus*, Proceedings of the 15th International Conference on Educational Data Mining