

# Priti Oli

Memphis, TN ✉ [poli@memphis.edu](mailto:poli@memphis.edu) 🏠 <https://pritioli.github.io>

## Education

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**The University of Memphis, Memphis, TN**

*Aug 2019 - In progress*

*Ph.D. in Computer Science*

**Research:** Natural Language Processing, 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*

## Work Experience

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**Learner's Data Institute**

*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.

**DataWhys**

*April 2023- August 2023*

*Research Assistant / Data Science Instructor*

- Developed and delivered lectures and interactive exercises on data science concepts to undergraduate students.

**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.

## Projects

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- **DeepCodeTutor:** 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.

- **Automated assessment of students' explanation during code comprehension** Researched, designed, and developed an end-to-end pipeline for assessing students' explanations during code comprehension using transformer-based models.
- **Knowledge Tracing using Transformer 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 and identification of areas for improvement.

## Teaching Experience

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### Teaching Assistant

*Dec 2017-Apr 2017*

*IOE, Pulchowk Campus*

- Designed and facilitated engaging lab sessions, developing instructional materials for undergraduates on Computer Architecture and Organization to enhance the subject understanding.

### Instructor DataScience Internship

*May 2023-July 2023*

*DataWhy's, IIS, Memphis*

- Created comprehensive lectures and facilitated interactive exercises to educate undergraduate students on essential data science principles.

## Technical Skills

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### Programming Languages:

Python, Java, JavaScript, SQL, Elasticsearch

### Tools & Framework:

PyTorch, TensorFlow, Pandas, NLTK, Spring-MVC, Struts

## Awards and Honors

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

## Professional Services

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- Reviewer ACM-SIGCSE (Special Interest Group Computer Science Education) 2023,2024
- ACL BEA Workshop 2023
- Sub-reviewer FLAIRS 2022 and FLAIRS 2021

## Travel Grant

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- IIS (Institute for Intelligent Systems) Travel Grant 2021, 2022, 2023
- University of Memphis GSA Student Travel Award
- Travel Award by SPLICE to present on CSEDM 2023
- AIED 2023: Conference Travel Scholarship
- Grad Cohort 2020, 2021, 2022

## Scholarly and Professional Memberships and Volunteer Experience

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- Member: Women in Computing, University of Memphis
- Volunteer: Code For Nepal (2017-2018)
- Executive Member : LOCUS (Institute Of Engineering, Pulchowk Campus, 2015)
- Chief Editor : LOCUS Journal

## Publication

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- Explaining Code Examples in Introductory Programming Courses: LLM vs Humans, *Arun-Balajiee Lekshmi-Narayanan* **Priti Oli**, *Jeevan Chapagain*, *Mohammad Hassany*, *Rabin Banjade*, *Peter Brusilovsky*, *Vasile Rus* AI for Education Workshop, AAAI 2024
- Automated Assessment of Students' Code Comprehension using LLMs, **Priti Oli**, *Rabin Banjade*, *Jeevan Chapagain*, *Vasile Rus* AI for Education Workshop, AAAI 2024
- 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 Geenrative AI in Education Workshop, NeurIPS'23 GAIED
- A Systematic Investigation of Expert and Novice Programmers' Ratings of Code Cohesion. *Jeff Bye*, *Rina Harsch*, *Yewon Kang*, **Priti Oli**, *Rabin Banjade*, *Andrew Tawfik*, *Vasile Rus*, *Panayiota Kendeou*, Poster presented at the 64th Annual Meeting of the Psychonomic Society. San Francisco, CA, USA(2023, November)
- 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
- 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 2022
- SelfCode: An Annotated Corpus and a Model for Automated Assessment of Self-Explanation During Source Code Comprehension *Jeevan Chapagain*, *Zak Risha*, *Rabin Banjade*, **Priti Oli**, *Lasang Tamang*, *Peter Brusilovsky*, *Vasile Rus* The International FLAIRS Conference Proceedings, 2023
- 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
- Domain Model Discovery from Textbooks for Computer Programming Intelligent Tutors, *Rabin Banjade*, **Priti Oli**, *Lasang Jimba Tamang*, *Jeevan Chapagain*, and *Vasile Rus*, The International FLAIRS Conference Proceedings 2021
- 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
- Automated Assessment of Student Self-explanation During Source Code Comprehension, *Jeevan Chapagain*, *Lasang Tamang*, *Rabin Banjade*, **Priti Oli**, *Vasile Rus*, The International FLAIRS Conference Proceedings