Ramtin Ehsani

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I am a PhD candidate specializing in language model-assisted automated program repair to enhance software engineering tasks, such as bug resolution. I am interested in advancing AI-driven approaches for improving software tools and environments.

Research Interests: AI for Software Engineering, Empirical Software Engineering, Natural Language Processing, Large Language Models, Data Analysis, Automated Software Engineering, Human/Social Aspects of Software Engineering

EDUCATION

Doctor of Philosophy in Computer Science	2023 – Present
Drexel University	*Philadelphia, PA*
Bachelor of Science in Computer Engineering	2018 – 2022
Iran University of Science and Technology	*Tehran, Iran*

EXPERIENCE

Research Assistant — 2023 – Present
SOAR Lab — *Philadelphia, PA*

- Automated bug-resolution with large language models (LLMs) by designing a pipeline to preprocess bug reports and source code, applying techniques like AST extraction and similarity scoring to identify relevant files for LLM-assisted patch generation
- Exploring the integration of retrieval-augmented generation (RAG) techniques with large language models (LLMs) to enhance automated program repair
- Developed a framework for analyzing developer-ChatGPT conversations, annotating prompt gaps and styles, and quantifying their impact on effective issue resolution to optimize interactive debugging workflows
- Developed an analytical framework for detecting incivility and toxicity in open source software (OSS) communications, leveraging NLP and ML techniques to identify patterns and triggers of toxic behavior in GitHub, aiming to improve collaboration and inclusivity in OSS projects | ***NLBSE'25, MSR'24, FSE'23***

Software Engineer — 2020 – 2021
KayaDev — *Tehran, Iran*

- Developed Android applications using Java, Android Studio, and Firebase, focusing on creating efficient and user-friendly solutions
- Mentored a group of junior developers in an online bootcamp, helping them build foundational skills in software development and programming

PUBLICATIONS

Conference Proceedings

- **Ramtin Ehsani**, Sakshi Pathak, Esteban Parra Rodriguez, Sonia Haiduc, and Preetha Chatterjee. "Exploring the Role of LLMs in GitHub Issue Resolution Outcomes". *Under review.*
- **Ramtin Ehsani**, Sakshi Pathak, and Preetha Chatterjee. "Towards Detecting Knowledge Gaps for Improved LLM-guided Issue Resolution". *Under review.*
- **Ramtin Ehsani**, Mia Mohammad Imran, Robert Zita, and Kostadin Damevski and Preetha Chatterjee. "Incivility in Open Source Projects: A Comprehensive Annotated Dataset of Locked GitHub Issue Threads". In *Proceedings of the 21st International Conference on Mining Software Repositories*. MSR 2024.
- Layla Bouzoubaa, **Ramtin Ehsani**, Preetha Chatterjee, and Rezvaneh Rezapour. "The Evolution of Substance Use Coverage in the Philadelphia Inquirer". In *International AAAI Conference on Web and Social Media* ICWSM Data Challenge 2023.
- **Ramtin Ehsani**, Rezvaneh Rezapour, and Preetha Chatterjee. "Exploring Moral Principles Exhibited in OSS: A Case Study on GitHub Heated Issues". In *Proceedings of the 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering*. FSE 2023.

- Mohammad Ilbeigi, Azita Morteza, and **Ramtin Ehsani**. "Emergency Management in Smart Cities: Infrastructure-Less Communication Systems". In *Construction Research Congress*. CRC 2022.

Journal Articles

- Mohammad Ilbeigi, Azita Morteza, and **Ramtin Ehsani**. "An Infrastructure-Less Emergency Communication System: A Blockchain-Based Framework". In *Journal of Computing in Civil Engineering*. 2022 volume 36, page 04021041.
- Layla Bouzoubaa, **Ramtin Ehsani**, Preetha Chatterjee, and Rezvaneh Rezapour. "Shifting Narratives in Media Coverage: A Decade of Drug Discourse in The Philadelphia Inquirer". *Under Review.*

Workshops

- **Ramtin Ehsani**, Rezvaneh Rezapour, and Preetha Chatterjee. "Analyzing Toxicity in Open Source Software Communications Using Psycholinguistics and Moral Foundations Theory". In *The 4th International Workshop on NL-based Software Engineering*. NLBSE 2025.

Extended Abstracts and Symposiums

- Layla Bouzoubaa, **Ramtin Ehsani**, Preetha Chatterjee, and Rezvaneh Rezapour. "The Evolution of Substance Use Coverage in the Philadelphia Inquirer". In *10th International Conference on Computational Social Science*. IC2S2 2024.

FELLOWSHIPS & AWARDS

SIGSOFT CAPS Travel Award   Feb. 2023

Association for Computing Machinery (ACM) Special Interest Group on Software Engineering to financial support for selected researchers in attending the 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE).

GSA Graduate Student Domestic Travel Subsidy Award   Feb. 2023

Recipient of an $800 grant to facilitate academic travel for participation in the 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE).

PROFESSIONAL SERVICES & ACHIEVEMENTS

MSR Junior Program Committee   Dec. 2024

In 22nd *International Conference on Mining Software Repositories* (MSR 2025), Ottawa, Canada.

Journal Review Committee   Jun. 2024

In *Journal of Automated Software Engineering* (ASE)

ICSE Artifact Evaluation Committee   Feb. 2023

In 40th *International Conference on Software Engineering* (ICSE 2024), Lisbon, Portugal.

PROFESSIONAL MEMBERSHIPS & AFFILIATIONS

Events Coordinator of Doctoral Student Association (DSA)   2024 – Present

Serving as an Executive Board Member and Events Coordinator, organizing academic and social events to foster community engagement and support for doctoral students at Drexel University.

Member of Association for Computing Machinery (ACM)   2023 – Present

TECHNICAL SKILLS

Languages: Python, Java, C#, Javascript, SQL, Kotlin
Tools: Git, Docker, PostgreSQL, SQLite, Nginx
Libraries: PyTorch, HF Transformers, HF Datasets, Pandas, NLTK, React, Flask, Android