

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 focusing on advancing AI-driven approaches for improving software tools and environments.

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

EDUCATION

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

EXPERIENCE

Research Assistant <i>SOAR Lab</i>	2023 – Present <i>Philadelphia, PA</i>
<ul style="list-style-type: none">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 generationExploring the integration of retrieval-augmented generation (RAG) techniques with large language models (LLMs) to enhance automated program repairDeveloped 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 MSR'25Developed 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 <i>KayaDev</i>	2020 – 2021 <i>Tehran, Iran</i>
<ul style="list-style-type: none">Developed Android applications using Java, Android Studio, and Firebase, focusing on creating efficient and user-friendly solutionsMentored a group of junior developers in an online bootcamp, helping them build foundational skills in software development and programming	

PUBLICATIONS

Conference Proceedings

- Ramtin Ehsani**, Esteban Parra Rodriguez, Sonia Haiduc, and Preetha Chatterjee. “Knowledge Injection for Improving LLM-based Program Repair”. *Under review*.
- Ramtin Ehsani**, Sakshi Pathak, and Preetha Chatterjee. “Towards Detecting Prompt Knowledge Gaps for Improved LLM-guided Issue Resolution”. In *Proceedings of the 22nd International Conference on Mining Software Repositories*. MSR 2025.
- 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.
- 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.
- 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.

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

Journal Articles

- **Ramtin Ehsani**, Sakshi Pathak, Esteban Parra Rodriguez, Sonia Haiduc, and Preetha Chatterjee. “What Makes ChatGPT Effective for Software Issue Resolution? An Empirical Study of Developer-ChatGPT Conversations in GitHub Issues”. *Under review*.
- Layla Bouzoubaa, **Ramtin Ehsani**, Preetha Chatterjee, and Rezvaneh Rezapour. “Shifting Narratives in Media Coverage: A Decade of Drug Discourse in The Philadelphia Inquirer”. In *Journal of JMIR Infodemiology*. 2025
- 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.

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.

PROFESSIONAL SERVICES & ACHIEVEMENTS

Program Committee

- 11th Intl. Conf. on Computational Social Science (IC2S2 2025), Sweden, Ex. Abstract Track Mar. 2025
- 22nd Intl. Conf. on Mining Software Repositories (MSR 2025), Canada, Research Track. Dec. 2024
- 40th International Conference on Software Engineering (ICSE 2024), Portugal, Artifact Track. Feb. 2023

Journal Reviewer

- *Journal of Software Testing, Verification and Reliability* (STVR) Jun. 2025
- *Journal of Automated Software Engineering* (ASE) Jun. 2024

FELLOWSHIPS & AWARDS

CCI College PhD Research Excellence Award Jun. 2025

Awarded by Drexel’s College of Computing & Informatics for outstanding PhD research.

SIGSOFT CAPS Travel Award Feb. 2023

Association for Computing Machinery (ACM) Special Interest Group on Software Engineering awarded a grant as a selected researcher to present at the 31st ACM ESEC/FSE conference.

GSA Graduate Student Domestic Travel Subsidy Award Feb. 2023

Awarded a grant as a selected researcher to present at the 31st ACM ESEC/FSE conference.

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 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