Amirali Sajadi

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Curriculum Vita

Research Statement

I research **software engineering** with an emphasis on advancing **software security**. My work leverages AI solutions to automate and enhance development processes. In particular, I study the role and influence of large language models in ensuring secure software. Previously, I have also explored the human factors impacting engineering practices.
Research Interests: AI for Software Engineering, Software Security, Vulnerability Detection and Repair, Natural Language Processing, Large Language Models, Data analysis, Human Aspects of Software Engineering

Education

Drexel University — Pennsylvania, USA
Ph.D. in Computer Science — 2022–Present

Azad University Karaj Branch — Alborz, IRN
B.Sc. in Computer Engineering — 2018–2021

Azad University Qazvin Branch — Qazvin, IRN
B.Sc. in Mechanical Engineering — 2016–2018

Select Coursework

- Intro to Artificial Intelligence
- Machine Learning
- Software Design
- Software Analytics
- Cloud Software Engineering
- Fundamentals of Safe Computing

Research Experience

Research Assistant — Pennsylvania, USA
SOAR Lab - Drexel University — 2022-Present

- Developing LLM-enhanced taint analysis solutions for automated vulnerability detection.
- Exploring strategies to generate test cases for commonly occurring LLM/user vulnerabilities.
- Investigated the security of LLM-generated software patches compared to developer-written patches.
- Empirically evaluated the security awareness of GPT-4, Claude 3, and Llama 3 in responding to programming questions with inherent vulnerabilities, revealing limitations and potentials. Proposed prompt engineering solutions to enhance their security-awareness.
- Conducted a systematic literature review on the use of psycholinguistic tools like LIWC in software engineering studies, highlighting their applications, limitations, and potential for advancing research on human factors.
- Conducted an empirical study on the role of interpersonal trust among open-source developers across the GitHub platform. [ICSE '2023]
- Performed a qualitative analysis on the textual communications of developers and published a publicly available dataset for sentiment analysis purposes. [ESEC/FSE '2023]

Publications

- **Amirali Sajadi**, K. Damevski, and P. Chatterjee, **"Are AI-Generated Fixes Secure? Analyzing LLM and Agent Patches on SWE-bench"**, *Under Review*
- **Amirali Sajadi**, B. Le, A. Nguyen, K. Damevski, and P. Chatterjee, **"Do LLMs Consider Security? Empirical Study on Responses to Programming Questions"**, *Accepted to Empirical Software Engineering (EMSE), Springer, 2025*
- **Amirali Sajadi**, K. Damevski, and P. Chatterjee, **"Psycholinguistic Analyses in Software Engineering Text: Systematic Literature Review"**, *Under review*
- **Amirali Sajadi**, K. Damevski, and P. Chatterjee, **"Interpersonal Trust in OSS: Exploring Dimensions of Trust in GitHub Pull Requests"**, Proceedings of the 45th International Conference on Software Engineering (ICSE), New Ideas and Emerging Results Track, May 2023 (Acceptance rate: 22%)
- **Amirali Sajadi**, K. Damevski, and P. Chatterjee, **"Towards Understanding Emotions in Informal Developer Interactions: A Gitter Chat Study"**, The 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Ideas, Visions and Reflections Track, Dec 2023

Research Presentation

- **Interpersonal Trust in OSS: Exploring Dimensions of Trust in GitHub Pull Requests**, 45th International Conference on Software Engineering (ICSE), Paper Presentation Talk, via Zoom.
- **Towards Understanding Emotions in Informal Developer Interactions: A Gitter Chat Study,** 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Paper Presentation Talk, California, USA.

Undergraduate Student Mentoring

Under the supervision and in collaboration with my advisor, served as graduate research mentor for four undergraduate students. Worked closely with the students to perform qualitative and quantitative analyses.

- **Moon Mustafa**, Performed qualitative analyses on open-source issue resolution processes, 2025
- **Binh Lee, Anh Nguyen**, Performed data analysis and a case study on the security of the LLM-generated content, 2024
- **Vanessa Martinez**, Curated a dataset for sentiment analysis, using developer chat utterances, 2023

Additionally, since 2024, I have been a course instructor and a teaching assistant, supporting students in their learning and development in computer science courses.

Service to Profession

Review Committee Member — Software Testing, Verification and Reliability 2025

ICSE Artifact Evaluation Committee — ICSE 2024
40th International Conference on Software Engineering

Review Committee Member — IEEE Software 2024

Fellowships and Awards

- **Drexel Graduate Leadership Award, 2025**, in recognition of outstanding achievements during the 2024-2025 academic year.
- **ACM -SIGSOFT CAPS Travel Award** 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)
- **Drexel CCI Travel Award, 2022**, Department funding - covering 50% of conference travel costs for ICSE 2023
- **GSA Graduate Travel Subsidy Award, 2023**, University funding - covering 50% of conference travel costs for ESEC/FSE 2023

Professional Membership & Affiliation

- **Member, Doctoral Student Association (DSA), Drexel University**
  Executive Board Member and Events Coordinator at Doctoral Student Association (DSA) Drexel University College of Computing and Informatics, 2023-2024
- **Member, Association for Computing Machinery (ACM),** 2022-Current
- **Member, Upsilon Pi Epsilon (UPE), Drexel Chapter**, 2024-Current

Technical Skills

Languages: Python, Java, JavaScript, Go, SQL
Tools: Git, Docker, PostgreSQL, MySQL, SQLite
Libraries: Pandas, NumPy, Matplotlib, PyTorch, Keras, Flask, jQuery, Bootstrap, Android