Alireza (Aaron) Imani

Irvine, CA | aaron.imani@uci.edu | LinkedIn | Google Scholar

Summary

A PhD Student in Software Engineering with over four years of research experience, specializing in large language models for software engineering tasks, human-centered studies, and software development. Published six peer-reviewed papers, including at the premier software engineering conferences, **ICSE 2025** and **MSR 2025**. Adept at designing and conducting innovative studies to address complex software engineering challenges.

Education

University of California, Irvine — Irvine, USA
Ph.D. in Software Engineering — *9/2023 – Expected 8/2027*

- GPA: 4.0
- Thesis Focus: Investigating the Factors Impacting Large Language Model's Code Understanding

University of Calgary — Calgary, Canada
Master of Science in Software Engineering — *1/2021 – 8/2023*

- GPA: 4.0
- Thesis Title: Effective Control System Framework Selection through Checklist-based Software Quality Evaluation

Ferdowsi University of Mashhad — Mashhad, Iran
Bachelor of Science in Computer Engineering — *9/2016 – 9/2020*

- Final Project: Workflow Scheduling using Artificial Bee Colony Optimization

Publications

- **Imani, A**., Ahmed, I., & Moshirpour, M. (2024). Context Conquers Parameters: Outperforming Proprietary LLM in Commit Message Generation. arXiv preprint arXiv:2408.02502. **(Accepted in ICSE 2025)**
- Tafreshipour, M., **Imani, A.**, Huang, E., Almeida, E., Zimmermann, T., & Ahmed, I. (2024). Prompting in the Wild: An Empirical Study of Prompt Evolution in Software Repositories. arXiv preprint arXiv:2412.17298 **(Accepted in MSR 2025)**
- **Imani, A.**, Radmanesh, S., Ahmed, I., & Moshirpour, M. (2024). Does Documentation Matter? An Empirical Study of Practitioners' Perspective on Open-Source Software Adoption. arXiv preprint arXiv:2403.03819.
- Radmanesh, S., **Imani, A.**, Ahmed, I., & Moshirpour, M. (2024). Investigating the Impact of Code Comment Inconsistency on Bug Introducing. arXiv preprint arXiv:2409.10781.
- Salmani, A., **Imani, A.**, Bahrehvar, M., Duffett-Leger, L., & Moshirpour, M. (2022). A data-centric approach to evaluate requirements engineering in multidisciplinary projects. In 2022 IEEE International Conference on Systems, Man, and Cybernetics (SMC) (pp. 903–908).
- Salmani, A., **Imani, A.**, Bahrehvar, M., Duffett-Leger, L., & Moshirpour, M. (2022). An Intelligent Methodology to Enhance Requirements Engineering in Multidisciplinary Projects. In 2022 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE) (pp. 452–457).
- **Imani, A.**, Moshirpour, M., & Belostotski, L. (2021). Checklist-based Software Quality Evaluation of Tango Controls. In 2021 International Conference on Information Systems and Advanced Technologies (ICISAT) (pp. 1–7).

Work Experience

AI Engineer — 12/2024 – Present
PSS Global Tech — *Irvine, USA*

- Contributed to the development of a Dental Office Intelligent Call Center using Rasa Open-source framework
- Implemented Retrieval-Augmented Generation (RAG) for a chatbot developed using Rasa Open-source.
- Enhanced intent classification by 20% using Sklearn GridCVClassifier (SVM)
- Directed student collaborators by assigning tasks and reviewing deliverables

Research Assistant 1/2021 – Present

SEPE Lab *Irvine, USA*

- Published six peer-reviewed papers, including a recently directly accepted paper in **ICSE 2025**.
- Designed and evaluated innovative LLM-based approaches for code-related tasks, such as commit message generation, enhancing developer productivity.
- Explored methods to assess and improve the quality of open-source software, contributing to community-driven development practices.

Embedded Software Developer 1/2021 – 8/2022

Herzberg Astronomy and Astrophysics Research Centre *Penticton, Canada*

- Contributed to the ARTTA-4 project, focusing on control system enhancements.
- Developed interconnected device servers in C++ and Python using the Tango Controls framework for the control system managing advanced radio telescopes at Dominion Radio Astrophysical Observatory.
- Facilitated seamless communication with hardware devices, such as a Moxa serial device server and a LabJack T4 device, by developing robust software interfaces.

Sessional Instructor 8/2022 – 12/2022

University of Calgary *Calgary, Canada*

- Lectured a graduate-level course, "Programming Fundamentals for Data Engineers" which covers the fundamentals of Python programming, including Basic data structures and algorithms; Loops and iterations; Files and I/O, Functions, Classes, Modules, and Packages; Strings and text manipulation; Data wrangling; Network and Web programming, and Data visualization.

Projects

OMEGA (Local Commit Message Generator) | *Python, Langchain, Research* 3/2024 – 8/2024

- Published a paper accepted in the research track of ICSE 2025 (10% acceptance rate), showcasing advancements in commit message generation. .
- Designed novel augmentation techniques for raw commit diffs, achieving GPT-4-level performance with small language models.
- Enhanced privacy by eliminating reliance on proprietary large language models, ensuring secure and ethical AI adoption.
- Optimized sustainability by adopting a 4-bit quantized open-source large language model runnable on local GPUs with only 8GB of VRAM.

ICS Honors Program Mentorship | *Research, Large Language Models, Python, Langchain* 3/2024 – 8/2024

- Guided an undergraduate student in designing and implementing a large language model-driven solution to automate the review process for software engineering manuscripts, significantly reducing manual effort.
- Mentored an undergraduate student in developing automated, privacy-focused user stories for emerging applications, leveraging state-of-the-art prompting techniques.

Technical Skills

Research Interests: Natural Language Processing, Large Language Models, Fine-tuning, Prompt Engineering, Model Training, Machine Learning, Neural Network, Dataset Curation, Dataset Labeling, Model Evaluation, Deep Learning, RNN, LSTM, Literature Review, Empirical Research, Interview/Survey Design, Qualitative Analysis, Statistical Analysis, Human Subjects Research, Statistics, IoT
Languages: Python, Java, C, C++, JavaScript, HTML/CSS
Databases: MySQL, PostgreSQL, NoSQL, DynamoDB
Frameworks: React, Tango Controls, Langchain, Pytorch, Rasa
Developer Tools: Git, Docker, AWS, Google Cloud Platform, Heroku
Libraries: spaCy, nltk, pandas, NumPy, Matplotlib, streamlit, Flask