

# Alireza Hoseinpour

Computer Science Master’s Student at Bowling Green State University (BGSU)

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## Research Interests

- ◇ AI4SE and SE4AI
- ◇ Software Maintenance and Evolution
- ◇ Software Testing
- ◇ Software Analytics
- ◇ Empirical Software Engineering

## Education

- ◇ **Bowling Green State University (BGSU)**, OH, USA Spring 2025 – Present  
M.Sc. in Computer Science
  - GPA: (4/4)
  - Research Supervisor: Dr. Abbas Heydarnoori
- ◇ **Sharif University of Technology (SUT)**, Tehran, Iran Fall 2018 – Spring 2024  
B.Sc. in Computer Engineering
  - GPA: (16.5/20) (Last 6 semesters 17.5/20)
  - Thesis Supervisor: Dr. Mahdiah Soleymani

## Research Experience

- ◇ **Research Assistant**, BGSU Spring 2025 – Present  
*Supervisor: Dr. Abbas Heydarnoori*
  - Solving critical software maintenance challenges using large language model (LLM) agent frameworks integrated with retrieval-augmented generation (RAG), vector databases, and knowledge graphs.
  - Designed and implemented an LLM-based agent for issue-commit link recovery (ILR), achieving a 60–262% improvement in Hit@1 score over state-of-the-art methods.
  - Currently extending the framework to tackle issue classification and automatic generation of bug reproducibility tests.
- ◇ **Undergraduate Thesis Research**, SUT Spring 2023 – Fall 2024  
*Supervisor: Dr. Mahdiah Soleymani*
  - Investigated robustness of CNNs and Vision Transformers (VGG16, ResNet50, ViT, CLIP, DINO) under distribution shifts from spurious correlations, conducting large-scale experiments with varied training strategies.
  - Designed and implemented novel datasets with synthetic spurious signals to test generalization.
  - Showed that fine-tuning improves minority-group robustness (via DFR), while classifier-only tuning offers a cost-efficient alternative.

## Publications

- ◇ A. Akhavan, **A. Hoseinpour**, A. Heydarnoori, and M. Keshani. “**LinkAnchor: An Autonomous LLM-Based Agent for Issue-to-Commit Link Recovery.**” *arXiv preprint*, Aug. 2025. DOI: [10.48550/arXiv.2508.12232](https://doi.org/10.48550/arXiv.2508.12232).
- ◇ **A. Hoseinpour**, M. Taherkhani, F. HosseiniNoohdani, H. Asadollahzadeh, and M. Soleymani Baghshah. “**Evaluating Robustness of Pre-Trained Deep Neural Networks Against Spurious Correlations.**” *ECCV OOD Workshop*, Oct. 2023. [Workshop Paper](#).

<b>Honors and Awards</b>	<div> <div>◇ <b>2<sup>nd</sup> Place, BGSU ACM Hackathon</b> <span>Apr 2025</span></div> <div>Awarded for developing <b>Piqniq</b>, an emergency alert app designed to support users during panic attacks. Event details: <a href="#">Hackathon Website</a>.</div> </div>
<b>Teaching Assistantships</b>	<div> <div>◇ <b>BGSU:</b></div> <div> <div>– <b>Software Engineering:</b> Dr. Abbas Heydarnoori <span>Spring 2025</span></div> </div> <div>◇ <b>SUT:</b></div> <div> <div>– <b>Computer Simulation:</b> Dr. Safaei <span>Spring 2023</span></div> <div>– <b>Database Design:</b> Dr. Baharifard <span>Spring 2023</span></div> <div>– <b>Compiler Design:</b> Dr. Hosseinmardi <span>Spring 2023</span></div> <div>– <b>Logical Circuits:</b> Dr. Arshadi <span>Fall 2022</span></div> <div>– <b>Compiler Design:</b> Dr. Hosseinmardi <span>Fall 2022</span></div> <div>– <b>Software Engineering Principles:</b> Dr. Baharifard <span>Fall 2022</span></div> </div> </div>
<b>Work Experience &amp; Projects</b>	<div> <div>◇ <b>Software Engineer at <a href="#">Digikala</a></b> <span>Sep 2022 – Apr 2024</span></div> <div>Digikala is the largest e-commerce company in Iran with 40+ million users.</div> <div> <div>– Developed scalable systems and real-time user interaction infrastructure to support high-traffic promotions.</div> <div>– Engineered software for two Black Friday events, with zero downtime and meeting commercial goals.</div> <div>– <b>Technologies:</b> PHP, Redis, Memcached, Kafka, MySQL, REST APIs, Jenkins, GitLab, Git, Scrum.</div> </div> <div>◇ <b>Co-founder at <a href="#">AYOT</a></b> <span>Feb 2021 – Aug 2023</span></div> <div>AYOT is an IoT platform for smart home appliances in partnership with SUT's startup accelerator.</div> <div> <div>– Developed the engine for cross-company IoT device interoperability</div> <div>– Mentored interns from the Computer Engineering department.</div> <div>– <b>Technologies:</b> Python, FastAPI, PostgreSQL, Kafka, Redis, Docker, REST APIs, MQTT.</div> </div> <div>◇ <b>Software Engineer at <a href="#">Tapsell</a></b> <span>Jan 2022 – Sep 2022</span></div> <div>Tapsell is a leading AdTech company in Iran.</div> <div> <div>– Designed and implemented Tapsell's Creative Management Platform (CMP) product from scratch.</div> <div>– <b>Technologies:</b> Java, Kotlin, Spring Boot, Redis, MongoDB, PostgreSQL, REST APIs, Caffeine, Kubernetes, GitLab CI/CD, Maven, Git, JUnit, Mockito, Scrum.</div> </div> <div>◇ <b>Software Engineer at <a href="#">Farazpardazan</a></b> <span>Feb 2019 – Sep 2019</span></div> <div>Faraz Pardazan develops advanced digital solutions for banking, payments, and financial services.</div> <div> <div>– Contributed to "Hamrah Novin", the official mobile banking application of <a href="#">EN Bank</a>.</div> <div>– <b>Technologies:</b> Java, Spring Boot, Hibernate, SQL.</div> </div> </div>
<b>Voluntary Experiences</b>	<div> <div>◇ <b>"She'r ta Code" (First)</b> <span>Nov 2023 – Apr 2024</span></div> <div>She'r ta Code is a Spaghetti Code contest that focuses on UBs and exploits the architectural behaviors of computers and compilers.</div> <div> <div>– Contributed as part of the sponsorship and marketing team, helping secure support and promote the event.</div> <div>– Assisted with organizational tasks, ensuring smooth competition execution.</div> </div> </div>
<b>Skills</b>	<div> <div>◇ <b>Programming:</b> Python, Java, Kotlin, C/C++, PHP</div> <div>◇ <b>ML/DL:</b> PyTorch, TensorFlow, Scikit-learn, Hugging Face Transformers</div> <div>◇ <b>Agent Frameworks:</b> OpenAI, LlamaIndex</div> <div>◇ <b>Data Analysis:</b> Pandas, NumPy, Matplotlib</div> <div>◇ <b>Databases:</b> SQL, MongoDB, Redis, Memcached, Neo4j</div> <div>◇ <b>Languages:</b> Persian (native), English (fluent, TOEFL iBT 104/120)</div> </div>