

Masoud SADRNEZHAAD

PhD Student at Linköping University

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I am a PhD candidate in the Complex Software-Intensive Systems Research Group at Linköping University. My research focuses on the intersection of software architecture recovery, agentic LLMs, and cyber-physical systems. Before starting my PhD, I worked as a web developer, technical lead, recommender systems researcher, programming instructor, and Linux server administrator.

Competencies: Python Programming | Agentic AI | Software Architecture | Recommender Systems | Linux | Django

🎓 EDUCATION

Oct 2024 Now	Doctor of Philosophy - PhD in Computer Science and Engineering Location: Linköping University, Linköping, Sweden ➤ Advisor: ⚡ Dr. Daniel Varro ➤ Activities and Societies: I joined ⚡ Navitas.se marketing committee for a year.
Sep 2019 Oct 2022	Master of Science - MSc in Information Technology (Subdiscipline: Enterprise Architecture) Location: Shahid Beheshti University, Tehran, Iran (Ranked among the top 6 universities in Iran by QS 2024) ➤ GPA: 19.46 / 20 (1 st Rank) ➤ Thesis Title: Using empirical data to support technology selection in software architecture decision-making ➤ Advisor: ⚡ Dr. Sadegh Aliakbary ➤ Related Coursework: Enterprise Architecture (20/20), Software Architecture (20/20), Business Processes Reengineering (20/20), Decision Support Systems (20/20), Self-Adaptive and Self-Organizing Systems (19.75/20), Advanced Software Engineering (19.5/20), Enterprise Resource Planning (19.5/20) ➤ Activities and Societies: I coordinated with the executive team and the Third National Conference on Enterprise Architecture workshop lecturers. (🔗 Team Page in Conference Website)
Sep 2012 Jun 2018	Bachelor of Science - BSc in Computer Engineering (Subdiscipline: Software Engineering) Location: Sharif University of Technology, Tehran, Iran (Ranked 334 th university in the world by QS 2024) ➤ Related Coursework: Software Engineering (17.7/20), System Analysis and Design (17.7/20), Information Technology Ethics (20/20), Information Technology (17.5/20), Software Engineering Lab (20/20) ➤ Activities and Societies: Besides building a website using MediaWiki, I wrote articles for ⚡ Rayanesh, the department's magazine. I also initiated the ⚡ Free Software Users Group. I was the technical staff of the Sharif AI Challenge 2015, and in this position, I built ⚡ a QA website for the questions of the participants about the competition. I also installed and configured its server to run contestants' submitted codes.

💡 TEACHING EXPERIENCE

- Thesis Supervision:
 - Paulsson, M. *Improving Quality in AI-Generated Code through Prompt Engineering – An Evaluation of the Impact of Prompting Techniques on Software Quality in Code Generated by Large Language Models*. Master's thesis, Linköping University, Department of Computer and Information Science, DataTeknik, 30 ECTS, 2025. **Supervisors:** M. Sadrnezaad (Internal), T. Mårtensson (External). **Examiner:** D. Varró.
- Accredited University Courses:
 - I contributed as a lab assistant, supporting course delivery through course planning, grading exams and assignments, assisting students in problem-solving sessions, and managing online course forums.

University	Course Title	Level	Examiner	Semester(s)
Linköping University	Methods and Tools for Large Distributed Projects	MSc	Dr. August Ernstsson	🔗 Winter 2024
	Concurrent Programming and Operating Systems	BSc		🔗 Winter 2024
Shahid Beheshti University	Advanced Software Engineering	MSc	Dr. Fereidoon Shams Aliee	Fall 2021
Sharif University of Technology	System Analysis and Design	BSc	Seyed Ebrahim Abtahi	🔗 Fall 2017, 🔗 Spring 2017, 🔗 Fall 2016
			Dr. Mehraneh Shantiae	Spring 2017
	Advanced Programming in Java	BSc	Dr. Salman Marvasti	🔗 Fall 2015
	Technical Presentation	BSc	Dr. Ali M. A. Hemmatyar	Fall 2014

➤ External Extracurricular Courses:

- Taught 200+ students with high satisfaction rates: 99% believe the instructor knows the subject well, 98% find the course well-organized, 97% enjoy the current content and respectful, friendly style, and 91% appreciate prepared class plans.
- Developed courseware that includes announcements, resources, topics, calendars, assignments, and code samples.

Course Title	Organizer	Semesters
Python Programming	Sharif University of Technology -  Sharif Rayan Academy	Spring 2019, Winter 2020
	University of Tehran - Cultural Education and Development Centre	Fall 2018
	Saipa Training Center	Summer 2019
	 MapsaHR Company	Fall 2021
Front-end Web Development Linux System Administration Web Scraping in Python	Shahid Beheshti University - Culture Home Center	Summer 2017, Fall 2017, Winter 2018, Summer 2018, Fall 2018, Winter 2019, Summer 2019
		Summer 2016, Fall 2018, Winter 2019, Summer 2019
		Fall 2016
		Winter 2018

➤ Public Engagement & Invited Talks

- Jun 2025 **Gen. AI in Simulation-Based Test Environments for Large-Scale CPSs**, Software Center Reporting Workshop at Ericsson Company
- Dec 2020 **Animating and Simulating Business Processes to Redesign Them**, Informatics Society of Iran
- Apr 2020 **Semantic Storage and Retrieval Using the Resource Description Framework**, Shahid Beheshti University
- Jan 2020 **Research Areas in Software Engineering that Address Self-Adaptive and Self-Organizing Systems**, Faculty of Computer Science and Engineering, Shahid Beheshti University
- Dec 2019 **Simulating Self-Adaptive Software Architecture with the SWIM Scenario in the Rainbow Framework**, Faculty of Computer Science and Engineering, Shahid Beheshti University
- Dec 2017 **What is Net Neutrality, and Where Does it Come From?**, Sharif University of Technology
- Sep 2017 **A Comparative Introduction to MV* Patterns and Pattern Families**, Tehran Linux Users Group, Univ. of Tehran
- Aug 2017 **Managerial Anti-Patterns in Software Engineering**, Tehran Linux Users Group, University of Tehran
- Jul 2017 **Architectural Anti-Patterns in Software Engineering**, Tehran Linux Users Group, University of Tehran
- Mar 2017 **Bad Smells and How to Fix Them**, Tehran Linux Users Group, University of Tehran
- Feb 2017 **Concepts and Implementation of Web Crawlers**, Tehran Linux Users Group, University of Tehran
- Oct 2016 **From Permission Culture to Free Culture: How Law Constrains Culture and Creativity (Software Freedom Day)**, Isfahan University
- Sep 2016 **An Introduction to ZeroNet and the Decentralized Web (Software Freedom Day)**, Kharazmi Hall, Computer Engineering Department, Sharif University of Technology
- Jul 2016 **Design and Architecture of Amazon Cloud Services (AWS)**, Tehran Linux Users Group, University of Tehran
- May 2016 **Mezzanine Content Management System Workshop (Pycon)**, Iran University of Science and Technology
- Feb 2013 **Some Examples of Social Semantic Web**, Tehran Linux Users Group, Information Technology Organization

PUBLICATIONS

- Sadrnezaad, M., López, J.A.H., Mårtensson, T., Varró, D. *Generative AI in Simulation-Based Test Environments for Large-Scale Cyber-Physical Systems: An Industrial Study*. In *Product-Focused Software Process Improvement (PROFES 2025)*, Salerno, Italy, December 1–3, 2025. Accepted for research track (to appear Dec. 2025). (CORE rank: B)

HONORS & AWARDS

- May 2025 **External Reviewer**, 41st International Conference on Logic Programming (ICLP 2025)
- Jul 2019 **Ranked 5th**, Nationwide Masters University Admission Exam among more than 15000 participants.
- Sep 2014 **23rd Team**, Sharif 5th Cyber Security and Hacking Competition (CTF) among over 800 teams.  Finals,  Quals
- Nov 2013 **16th Team**, Sharif 4th Cyber Security and Hacking Competition (CTF) among over 100 teams.  Finals,  Quals

WORK EXPERIENCE

- Nov 2022 – Sep 2024 **Technical Lead & DevOps,  HUMMERS LEASING AND  HUMMERS BROKER, Tehran, Iran**
- Formed a high-performing technical team after systematically evaluating 500+ individuals in various areas.
 - Maintained communication with stakeholders to thoroughly grasp project requirements, progress, and risks.
 - Implemented automation scripts for DevOps processes, including email server and GitLab administration.
 - Implemented enterprise-level web software for leasing management using Django and Bootstrap.
- Team Leadership SDLC Nginx Redis Linux ATS Recruitment Django Zimbra Mail Server HTMX PostgreSQL
GitLab CoCalc Moodle Selenium Agile Coaching

Jul 2020 Oct 2022	<p>Graduate Researcher, DATA-ORIENTED RESEARCH FOR SOFTWARE ANALYTICS LAB, Tehran, Iran</p> <ul style="list-style-type: none"> ➤ Developed two recommender systems to help library selection. One used recent deep-learning algorithms, while the other utilized content-based recommenders to alleviate the cold start problem. ➤ Using regex patterns in BigQuery, extracted GitHub data (< 3 mins), filtered incorrect libraries based on Maven conventions, and built samples using repository info (stars, branches, authors, commits, lifetimes, etc.). ➤ Extracted project topics and descriptions from GitHub API and processed them to complete tags. ➤ Designed an interactive dashboard using Data Studio for seamless data exploration. <div style="display: flex; justify-content: space-around; gap: 10px; margin-top: 5px;"> LaTeX Recommender System Deep Learning Python Google Cloud Google Colab BigQuery Data Studio Visual Paradigm </div>
Aug 2018 Jan 2021	<p>IT Consultant, METRAJ, Tehran, Iran</p> <ul style="list-style-type: none"> ➤ Managed the company's booth at the Sharif Job Fair Exhibition 2018, reengineered their legacy web software, gathered updated requirements, and wrote system analysis documents. ➤ Wrote scripts to extract data on real estate transactions from the Ministry of Roads & Urban Development website, which helped the company estimate house prices. <div style="display: flex; justify-content: space-around; gap: 10px; margin-top: 5px;"> Requirement Gathering JetBrains YouTrack DokuWiki Web Scraping Linux Administration Documentation GitLab </div>
Jul 2017 Sep 2024	<p>Technical Lead & Web Developer, CONNECT ISTI, Tehran, Iran</p> <ul style="list-style-type: none"> ➤ Developed web software using Django, implemented black box regression tests, administrated Linux servers, and established continuous delivery pipeline and data backup strategies. ➤ Created detailed technical documents for various stakeholders and documented recruitment procedures. ➤ Collected requirements, analyzed them, and divided them into actionable implementation tasks. <div style="display: flex; justify-content: space-around; gap: 10px; margin-top: 5px;"> Banban System Analysis Software Architectural Design Django Semantic-UI PyCharm HTML5 CSS3 JavaScript </div>
Sep 2016 Jul 2018	<p>Undergraduate Research Assistant, INTELLIGENT SOFTWARE ENGINEERING LAB, Tehran, Iran</p> <ul style="list-style-type: none"> ➤ I was acknowledged in the article "Cross-project code clones in GitHub" for developing a JetBrains plugin to track user actions and a tool that detects potential bugs by analyzing GitHub histories to find commits later fixed in subsequent revisions. <div style="display: flex; justify-content: space-around; gap: 10px; margin-top: 5px;"> LaTeX GitHub Datasets Java Standard pygit2 gensim nltk GHTorrent code clone detection JGit JetBrains Plugin SQL </div>
Sep 2012 May 2016	<p>Linux System Administrator, BEHESTAN RAYAN, Tehran, Iran</p> <ul style="list-style-type: none"> ➤ Worked for the data center, R&D, and Marketing departments and fulfilled projects for clients, such as the Municipal Employees Fund Institution and Kosar Credit Institution. ➤ Setup, hardening, and performance tuning of various Linux servers, including Debian, Ubuntu, and CentOS. ➤ Lectured in Big Data and Relational Database and Filing approaches. (Course Page) ➤ Implemented, optimized SEO, and improved the performance of the company and its client's multilingual websites based on their specific requirements, using web frameworks. <div style="display: flex; justify-content: space-around; gap: 10px; margin-top: 5px;"> Bind Zimbra Mail Server Cacti VMware ESX HP G9 Servers Apache MySQL Bash Firewalls Joomla SEO </div>
Sep 2010 Dec 2017	<p>Founding Member (Volunteer), LIBRE/FREE KNOWLEDGE FOUNDATION, Tehran, Iran</p> <ul style="list-style-type: none"> ➤ Organized the Software Freedom Day (SFD) conference held in Tehran in 2013, 2015, and 2016. More than a thousand people from all over the country participated. Attendance was completely gratis and free for everyone, and donations from the local community provided most of the conference costs. ➤ Through these three years, I accepted 41 workshops and 35 speeches as chairman of the referee committee. There were big media impressions, including social media, websites, newsletters, and television. ➤ Coordinated weekly meetings about philosophical aspects of Free Knowledge since July 2013. Maintained the wiki, edited and wrote papers on the wiki or translated the various selected articles, edited videos, and composed subtitles for chosen speech videos from the prominent people of the free software movement. <div style="display: flex; justify-content: space-around; gap: 10px; margin-top: 5px;"> Event Management FOSS Philosophy Translation Gimp Adobe Premiere MediaWiki </div>

PROJECTS

ARCHAIDE (COURSE PROJECT)	JUN 2020 - AUG 2020
<p>github.com/smmsadrnezh/archaide</p> <p>It allows software architects to create, visualize, and evolve architecture, analyze trade-offs, and propose tactics and patterns.</p> <div style="display: flex; justify-content: space-around; gap: 10px; margin-top: 5px;"> Ontology Engineering SPARQL OWL RDF Django </div>	
<p>BITERVAN ONLINE SHOP (FREELANCE CONTRACT)</p> <p>https://bitervan.com</p> <p>Bitervan is an online store where I have been involved from the beginning. We acquired some components and built others.</p> <div style="display: flex; justify-content: space-around; gap: 10px; margin-top: 5px;"> Magento Software Acquisition </div>	JUN 2016 – OCT 2016

A LANGUAGE

- Persian (Native), English (Proficient, TOEFL iBT 95), Swedish (Basic), Arabic (Basic)

MISCELLANEOUS

Court tennis, Art films, Western philosophy, Free knowledge, Classical and orientalisk traditional music