Alireza Nasirianfar

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Education

Université de Montréal (See Website)   **Montreal, Canada**
M.Sc. Computer Science   *2026 – Present*
   Specialization: Software Engineering

Amirkabir University of Technology (Tehran Polytechnic) (See Website)   **Tehran, Iran**
B.Sc. Computer Engineering (See Transcript)   *2020 – 2025*
   GPA: 3.74/4 (17.70/20)
   Selected Courses: Principles of Computational Intelligence, Principles & Applications of Artificial Intelligence, Information Retrieval, Applied Linear Algebra, Algorithm Design, Data Structures and Algorithms

Research Interest

- Software Engineering
- Software Architecture
- Software Supply Chain
- Artificial Intelligence

Language Skills

- Persian: Native
- English: Academic IELTS Test 7/9 (Listening:7.5, Reading:7.5, Speaking:7, Writing:6)

Teaching Experience

- Winter 2026 **Algorithmic Art and Free Software**, TA (Supervisor: Prof. Benoit Baudry)   UdeM
- Spring 2024 **Information Retrieval**, TA (Supervisor: Dr. Nickabadi)   AUT
- Spring 2024 **Computer Networks**, TA (Supervisor: Dr. Sabaei)   AUT
- Spring 2024 **Software Engineering II**, TA (Supervisor: Dr. Gohari)   AUT
- Spring 2024 **Assembly Language**, TA (Supervisor: Dr. Farbeh)   AUT
- Fall 2023 **Advanced Programming**, TA (Supervisor: Dr. Ziaeetabar)   AUT

Research Experience

Research Assistant   **Montreal, Canada**
Université de Montréal (UdeM)   *Jan. 2026 – Present*

Research on software supply chain security under the supervision of Prof. Benoit Baudry, focusing on large-scale analysis of GitHub Actions workflows, vulnerability evolution across workflow snapshots, and the impact of commits on reducing security weaknesses.

Research Assistant   **Tehran, Iran**
Amirkabir University of Technology   *Dec. 2023 – Apr. 2025*

Design and Implementation of a Stance Detection System for Persian Twitter Comments under supervision of Dr. Nickabadi

Work Experience

Software Engineer – Payment Team   **Feb. 2022 – Dec. 2025**
Tosan (See Website), Tehran, Iran

- Developed microservice-based backend systems integrating REST and SOAP services.
- Built reactive APIs using Spring Reactor and Spring WebClient.
- Implemented security using OAuth 2.0, Spring Security, and Keycloak.
- Worked on high-volume banking and ISO 8583 transaction systems (Oracle DB, jPOS).

Academic Projects

- **Security Analysis of GitHub Actions Workflows**: Ongoing research project under the supervision of Prof. Benoit Baudry at Université de Montréal, focusing on large-scale extraction and analysis of GitHub Actions workflows from major organizations, studying the evolution of security weaknesses across workflow snapshots, and evaluating the impact of commits on mitigating software supply chain vulnerabilities.   *In Progress*

- **Stance Detection System for Persian Twitter Comments**: Developed a stance detection system for Persian Twitter comments, including data preprocessing, semi-supervised label propagation (KNN and RBF), and adopting transformer-based models such as ParsBERT and SentenceBERT.   *Capstone Project*

- **Rating App**: Java web application exposing RESTful APIs for customer feedback submission, developed using Spring Boot, Hibernate, Spring Security, JUnit, and Mockito. (GitHub Link)

- **Image Classification**: Implemented two neural network architectures using PyTorch for CIFAR-10 image classification: a multilayer perceptron achieving 50% test accuracy and a convolutional neural network achieving 70% test accuracy.   *Computational Intelligence Course* (GitHub Link)

- **Search Engine**: Developed an information retrieval engine employing normalization and stemming techniques to construct a positional index.   *Information Retrieval Course, 2023* (GitHub Link)

Skills and Expertise

- Software Engineering: Software Supply Chain, Software Architecture, CI/CD, Agile and Scrum, Testing
- AI, ML: Tensorflow, Pytorch, Scikit-learn, Pandas, Matplotlib, Plotly, LangChain, Hugging Face
- Programming Language: Python, Java, C, Kotlin
- Software Development: SQL, Elasticsearch, Redis, Git, Docker, Spring
- Programming Expertise: Data Structures and Algorithms, Object-oriented Programming, Microservices