

Alireza Fadaei

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LinkedIn

Software Engineer · Applied AI & Security Researcher

M.Sc. Student, Software Engineering and Information Systems
University of Oulu

ORCID: 0009-0007-1187-7288

Based in Oulu, Finland · Open to on-site, hybrid & remote research and engineering opportunities

RESEARCH PROFILE

Software engineer and researcher working at the intersection of distributed machine learning, cybersecurity, and reliable software systems. My research includes federated learning and intrusion detection for distributed and resource-constrained environments, supported by practical experience in backend engineering, infrastructure, and research software.

RESEARCH INTERESTS

Federated and distributed machine learning · Intrusion detection · Cybersecurity · Privacy-sensitive systems · Reliable AI-enabled software · Research software

EDUCATION

2026–Present	M.Sc. Software Engineering and Information Systems University of Oulu · Oulu, Finland Building on my previous M.Sc. in Software Engineering, the programme extends my expertise in advanced software engineering, software quality, AI-enabled systems, and human-centred information systems.
2022–2025	M.Sc. Software Engineering Islamic Azad University, Najafabad Branch · Top student Thesis: An Optimized Federated Deep Learning Approach for Intrusion Detection in Dew Computing Environments
2017–2022	B.Sc. Computer Engineering University of Isfahan · Best B.Sc. Thesis Award Thesis: Design and Implementation of an ADS-B-Based Aircraft Observation System

PUBLICATIONS

2026	A Novel Intrusion Detection System for Dew Computing Environments Based on an Enhanced Federated Deep Learning Model Alireza Fadaei, Behrang Barekatain · <i>The Journal of Supercomputing</i> , 2026 · Published February 16, 2026 · DOI: 10.1007/s11227-026-08314-x Proposed a lightweight CNN-based intrusion-detection approach integrated with federated learning for resource-constrained dew computing environments, without centralising sensitive data. View publication (Springer)
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RESEARCH PROJECTS

Federated Web Attack Detection

Implemented a lightweight 1D-CNN with Flower for distributed intrusion detection; evaluated under IID and non-IID data distributions.

BrassicaLNC Research Database

Built the database and backend, administered the server, and organised data from 2,361 publicly available RNA-Seq libraries.

ADS-B Aircraft Observation Station

Designed and implemented a system to capture, process, and present real-time aircraft data; received the Best B.Sc. Thesis Award.

PROFESSIONAL EXPERIENCE

2026

Software Engineer · Aminyx (Remote)

Built agentic AI features for automated sourcing, multi-layered trust-scoring systems, and secure infrastructure for B2B smart contracts and international trade workflows, contributing to a modular AI-powered SaaS platform for global trade.

2022–2024

Software Developer · Fardaad (ISTT)

Built backend functionality for vulnerability and patch-management tools developed for municipal and government network environments. Improved backend algorithms supporting patch deployment workflows and collaborated through Git-based development and cross-functional review.

2021–2022

Backend Developer & Server Administrator · BrassicaLNC

Built the backend and administered a research-data platform organising data from 2,361 publicly available RNA-Seq libraries.

2021–2022

Backend Developer & Server Administrator · MetaMenu

Developed backend features and administered infrastructure for a cloud-based restaurant platform spanning interactive AR menus, ordering, delivery, and accounting workflows within an agile startup team.

2021–2022

Backend Developer · Piranest Team

Developed marketplace backend functionality connecting travellers with local tour guides and supporting tour reservations.

2020

Flask Developer · Fapsco Project

Developed and maintained Flask-based website features and internal tools, supporting stable client-facing services and day-to-day business workflows.

TEACHING & LEADERSHIP

2024–2026	Programming Instructor · Iran TVTO Delivered programming and software-development training through hands-on, industry-aligned projects in official vocational programmes.
2024–2026	Chair, Computer Department · Kabir Technical and Vocational School Led the department team and developed curricula in programming, network security, and machine learning.

TECHNICAL SKILLS

Software & Backend	Python · Node.js · Django · Flask · FastAPI · REST APIs
Machine Learning	TensorFlow · Scikit-learn · Pandas · NumPy · Federated Learning · CNNs
Data & Infrastructure	PostgreSQL · Redis · Neo4j · Docker · Nginx · Linux
Security	Intrusion Detection · Vulnerability Management · AI Security · IoT Security
Research / Engineering Practices	Git · Technical Documentation · API Design · Code Review

LANGUAGES

English: Professional working proficiency · IELTS Academic: Overall 7.5, March 2025