





Milad Natanzi

✉ snatanzi@wpi.edu,  Google Scholar Profile,  LinkedIn,  WPI Profile,  www.natanzi.com
Location: Worcester, Massachusetts, USA

I hold an approved I-140 under the National Interest Waiver (NIW) and will be eligible to work in the U.S. without sponsorship.

SUMMARY

I have 7 years of offshore professional experience in the telecom industry, specializing in data analytics and network optimization. Before pursuing my Ph.D. at Worcester Polytechnic Institute, I gained extensive experience in roles that involved optimizing network performance, analyzing data trends, and developing innovative solutions for telecom challenges. Now in the final year of my Ph.D., I am focused on integrating Open RAN (O-RAN) with AI/ML/LLM to drive advancements in 6G wireless communications (OAIC). I enjoy tackling complex problems and taking on challenging projects that push me to think critically and come up with innovative solutions.

EDUCATION

Worcester Polytechnic Institute (WPI)

Massachusetts, U.S.

Ph.D. in Electrical and Computer Engineering

Aug 2022 – Present

- Focus: O-RAN and AI/ML/LLM integration for 6G Wireless Networks
- Research Interests: Wireless Communications, 5G, 6G, O-RAN, LLM Vulnerability, SDN

Master of Engineering in Information Technology—Computer Networks

Tehran, Iran

2014 – 2017

Bachelor of Engineering in Computer Software

Iran

2007 – 2012

PROJECT LIST

Deep Learning for MIMO in 6G Networks

2024

Optimized MIMO features for 6G networks using advanced deep learning techniques.

KPI Analysis xApp Development for O-RAN

2024

Developed a KPI analysis xApp to enhance O-RAN network performance.

LLM Vulnerability Research

2024

Explored security vulnerabilities and mitigation strategies for Large Language Models.

AI Service Provisioning in O-RAN using LLM Engine

2023

Develop LLM base component for O-RAN AI service

PROFESSIONAL EXPERIENCE

MTN IRANCELL

Tehran, Iran

Data Scientist, Data Analyst - Revenue Assurance Specialist (RA)

May 2017 – March 2022

- Expert in Data Science and Revenue Assurance, specializing in managing Call Detail Records (CDRs) within the Ericsson Charging System. Contributed to Marketing and Finance departments by resolving technical issues, protecting revenue streams, and detecting revenue losses. Developed proactive control mechanisms for granular revenue monitoring at gNodeB, site, and cell levels.

Telecom, Inc (Vendor)

Tehran, Iran

RF Optimization Engineer, Network Performance Engineer

March 2015 – May 2017

- Network performance Optimization in cellular Technology 2G, 3G, 4G, Site Planning project - KPI analysis for the region Seven (Tehran) to achieve more coverage and throughput in 4G Network - MTNIRANCELL Operator

TECHNICAL SKILLS AND COMPETENCIES

Programming Language: Python and C++ and interested to learn other languages.

Data Science & Analysis: 4 years of experience with SQL Server, Oracle, Linux, Knime, SSIS, InfluxDB.

Software Engineering: Git, Docker, System architecture and Web development.

AI: Deep Learning, Machine Learning, PyTorch, TensorFlow, Scikit-learn, Model training and evaluation, Large Language Model.

Telecom Field: 3 years as IT & RF Engineer at Huawei Telecommunication Company; Experienced in 2G/3G/LTE, Microwave, Transmission, RAN, CORE. Expert in Huawei software (U2000, NASTAR, OMSTAR, Actix, TEMS, Idart, Atoll).

Network Field: Software-Defined Networking (OpenFlow, Floodlight), Cloud Service Design (SAAS, PAAS, IAAS), Docker, VMware

ESX, Hosting, and service management), Knowledge of Servers (Physical, Virtual), Google Cloud (GCP) and IT Infrastructure.

Simulation Skills: OpenAirInterface (OAI), SRSRAN, OAIC, OAIC-T, Matlab, Cloudsim, NS2, RANFusion, USRP (SDR)

SELECTED PUBLICATIONS

- A Comprehensive Tool for Simulating Handover in Next-G RAN
- O-RAN Performance Analyzer with Sample-Collector xApp: Design, and Deployment (IEEE Communication Magazine)
- Secure Northbound Interface for SDN Applications with NTRU Public Key Infrastructure
- Secure Distributed Controllers in SDN with ECC Public Key Infrastructure
- The infrastructure of data centers for transferring big data traffic: A survey research
- Large Language Models for Intelligent Control in O-RAN Networks: Motivation, Standardization, and Use Cases (in progress)
- Understanding and Addressing Large Language Model Vulnerabilities, Challenges, and Strategies: A Survey (in progress)

SELECTED PROJECTS

- **OAIC and OAIC-T**

\$1 M project funded by NSF – News Link, MSU and WPI

Aug 2022–Present

HONORS & AWARDS

- Worcester Polytechnic Institute Fully Funded Ph.D. Scholarship, 2023
- Mississippi State University Fully Funded Ph.D. Scholarship, 2022
- University College Dublin Fully Funded Ph.D. Scholarship, 2022
- MTNirancell Innovation Special Award, 2nd Rank, 2021
- MTNirancell Innovation Special Award, 4th Rank, 2020
- Outstanding Engineer, IT Department, Huawei Company, 2016

WORKSHOP AND PRESENTATION

- Presented OAIC-T framework at Virginia Tech University, 2023
- Presented OAIC-T framework at Mississippi State University, 2024

REFERENCES

- Bo Tang
- More references available upon request.