

# Seyed Bagher Hashemi Natanzi

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Location: Worcester, Massachusetts, USA

## SUMMARY

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Who am I?

My nickname is **Milad**, and I am a professional engineer with more than 7 years of industry experience. My career roles have included Data Scientist, Data Analyst, and Telecommunications Engineer. I hold an M.Sc. in Information Technology with a specialization in Computer Networking. My expertise encompasses RF Planning, Network Performance Engineering, Revenue Assurance, and Data Analysis within international telecommunications companies like Huawei, MTN.

Currently, I am a Ph.D. candidate at Worcester Polytechnic Institute, specializing in the integration of Open RAN and AI for the development of xApp and rApp for future 6G wireless communications (OAI). This includes building and testing on an O-RAN (Open Radio Access Network) testbed using srsRAN and OAI, alongside research into LLM vulnerabilities.

## PROFESSIONAL EXPERIENCE

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### MTN IRANCELL

Tehran, Iran

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

May 2017 – March 2022

- Expert in Data Science and Machine Learning for managing call details records (CDRx) in the charging system, Marketing and Finance department. Strong contribution to Marketing and ITS digital projects to cover technical issues, protect revenue streams, and detect revenue loss through proactive control design.

### Telecom, Inc

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

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**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, OAI, OAI-T, Matlab, Cloudsim, NS2, RANFusion, USRP (SDR)

## EDUCATION

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### Worcester Polytechnic Institute (WPI)

Worcester, MA, U.S.

*Ph.D. in Electrical and Computer Engineering*

Aug 2022 – Present

- Research Interests: Wireless Communications, 5G, 6G, O-RAN, LLM Vulnerability, SDN
- Focus: O-RAN and AI/ML integration for Wireless Mobile Networks (NSF Funded project).

### Azad University of Pardis

Tehran, Iran

*Master of Engineering in Information Technology—Computer Networks*

2014 – 2017

### Azad University of Najafabad

Iran

*Bachelor of Engineering in Computer Software*

2007 – 2012

## SELECTED PUBLICATIONS

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- A Comprehensive Tool for Simulating Handover In Next-G RAN (in progress)
- 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)
- O-RAN Performance Analyzer with Sample-Collector xApp: Design, and Deployment (Submitted)
- 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

## **SELECTED PROJECTS**

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- **OAIC and OAIC-T**

*Aug 2022–Present*

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

- In this project, I am developing xApp for an open platform that enables prototyping and testing of artificial intelligence-based controllers to facilitate 6G research.

## **HONORS & AWARDS**

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- 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
- MTN Irancell Innovation Special Award, 2nd Rank, 2021
- MTN Irancell Innovation Special Award, 4th Rank, 2020
- Outstanding Engineer, IT Department, Huawei Company, 2016