

MOHSEN SHAKIBAFAR

Senior Systems Architect | IIoT & Industry 4.0 | Cloud & Edge Computing

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PROFILE

Senior Systems Architect with 20+ years of experience designing and implementing large-scale industrial automation, IoT/IIoT platforms, and cloud & edge computing solutions for energy and manufacturing sectors. Co-inventor of MAPNA MIND (Iran's first industrial IIoT cloud platform) and MAPCS (Iran's first DCS), holding two registered patents and extensive hands-on experience with Siemens TELEPERM XP and SPPA-T2000 systems across 60+ power plant units. Track record of translating complex industrial challenges into scalable, reliable, and future-ready Industry 4.0 solutions.

PROFESSIONAL EXPERIENCE

06/2026 – present

Visiting Researcher — Distributed Systems Group

[Christian-Albrechts-Universität zu Kiel \(CAU Kiel\)](#) · Kiel, Germany

- Designing and evaluating an architecture integrating Federated Learning (FL) with Tiny Machine Learning (TinyML) over Named Data Networking (NDN) for real-time monitoring of power distribution networks
- Targeting improved efficiency, scalability, resilience, and security of energy infrastructure monitoring through edge AI processing, local FL model training, and content-based routing via NDN
- Collaborating with Dr.-Ing. Mohamed Hail and the Distributed Systems research group; contributing to joint research and knowledge exchange with faculty, researchers, and students

03/2025 – 05/2026

Vice President, Digital Technology Development

[MAPNA Digital \(MAPNA Group\)](#) · Tehran, Iran

- Established technical vision and core digital architecture for MAPNA Group's digital innovation arm
- Leading design of industrial IT platforms, IIoT systems, and data-driven solutions for energy, manufacturing, and transportation sectors
- Driving large-scale smart systems and Industry 4.0 initiatives across MAPNA Group subsidiaries

07/2023 - 03/2025

Manager, Digitalization Business Center

[MAPNA Electric & Control Engineering & Manufacturing \(MECO\)](#) · Tehran, Iran

- Designed scalable cloud-native and edge-based architectures for smart energy and industrial automation platforms
- Developed and enhanced MAPNA MIND, a high-availability real-time industrial analytics and decision-support platform
- Led digital transformation initiatives across MAPNA subsidiaries; helped establish technical foundations of MAPNA Digital

03/2020 - 07/2023

Head of Technology, Digitalization Center

[MAPNA Electric & Control Engineering & Manufacturing \(MECO\)](#) · Tehran, Iran

- Architected next-generation MAPNA MIND IIoT/smart infrastructure platform (cloud, edge, industrial data integration)
- Designed MINDA IIoT gateway for connected devices and smart home, covering embedded development and communication protocols

07/2016 - 03/2020

Head of Software & Network, Condition Monitoring Project

MAPNA Electric & Control Engineering & Manufacturing (MECO) · Tehran, Iran

- Designed IIoT/Industry 4.0 platform for collecting, processing, and analysing industrial data at scale
- Implemented secure data acquisition from industrial control systems, real-time monitoring, and cloud-based big-data analytics pipelines
- Built intelligent applications for condition monitoring and performance optimisation of power and industrial assets

11/2013 - 09/2016

Head of Network & Software, MAPCS DCS Project

MAPNA Electric & Control Engineering & Manufacturing (MECO) · Tehran, Iran

- Led architecture and development of MAPCS, Iran's first DCS (Distributed Control System) based on Foundation Fieldbus standards
- Designed supervisory and process control platform; deployed across multiple power plant units
- Ensured deterministic, secure, and scalable control solutions supporting industrial automation and process optimisation

02/2011 - 10/2013

Team Lead, MAPVIEW Monitoring & HMI Software

MAPNA Electric & Control Engineering & Manufacturing (MECO) · Tehran, Iran

- Designed and developed MAPVIEW, the HMI and monitoring software for MAPCS DCS
- Expanded functionality, improved industrial operator UI/UX, and ensured reliable data communication between field devices and supervisory layers

10/2009 - 02/2011

Expert in Industrial Networks & System Administration

MAPNA Electric & Control Engineering & Manufacturing (MECO) · Tehran, Iran

- Administered Solaris/Unix systems and provided technical support for Siemens TELEPERM XP and SPPA-T2000 across ~60 power plant units
- Managed industrial network configuration, cybersecurity hardening, access control, and system documentation for critical control environments

01/2007 - 01/2009

Expert Commissioning Supervisor - Railway & Metro Signaling

Maharan International Engineering · Tehran, Iran

- Deployed and configured safety-critical signaling systems for complex rail and metro environments
- Performed functional and integration testing; ensured compliance with technical and safety standards

EDUCATION

2020 – present

Ph.D. Candidate — Computer Systems Networking & Computing

K. N. Toosi University of Technology (KNTU), Tehran

Research focus: IIoT systems and distributed computing

2012 – 2015

M.Sc. Information Technology — Computer Networks

Islamic Azad University, Garmsar

Thesis: New Method in Image Compression with Vital Points (novel lossy compression algorithm)

1999 – 2004

B.Sc. Electrical Engineering

Shiraz University

TECHNICAL SKILLS

Industrial Systems	DCS/SCADA, Foundation Fieldbus, PROFIBUS, MODBUS, OPC, PLC, HMI Design, Industrial Cybersecurity (OT/IT)
IoT / IIoT / Cloud	Cloud Architecture, Edge Computing, IoT Platform Development, Embedded Systems, MQTT, REST APIs
Programming	C# (Expert), C/C++ (Expert), JavaScript (Advanced), Python (Intermediate), PHP, Delphi, Pascal, Assembly x86
DevOps & Systems	Docker, Linux/Unix/Solaris, Windows Server, Shell Scripting
Databases & Networks	MS SQL Server, Industrial Ethernet, OT/IT Integration, SCADA Networks
Project Management	Scrum (PSM), Agile IT Project Management, Team Leadership (10+ direct reports)

LANGUAGES

Persian (Farsi)	Native
English	Fluent — IELTS 6.0
German	Basic — A1 (actively learning)
Arabic	Basic

CERTIFICATIONS & TRAINING

Networking	CCNA, CCNP (Route & Switch)
Security	CompTIA Security+, Certified Ethical Hacker (CEH)
Project Management	Professional Scrum Master (PSM)
Other	Linux Programming, ARM Programming, Big Data, Software Architecture, Angular

PATENTS & PUBLICATIONS

2021	Patent: MAPNA MIND — Comprehensive IoT/IIoT Cloud-Based Platform Iranian Patent No. 105702. Cloud-based IIoT platform for AI developers, industries, and smart home applications.
2016	Patent: MAPNA Automation & Process Control System (MAPCS) Iranian Patent No. ir139650140003006723. Iran's first DCS (Distributed Control System) based on Foundation Fieldbus technology.
2022	Book: Scrum for Practitioners (Co-translator, Persian edition) Safar Publishing, 2022. Practical companion to the Scrum Guide.
2005 / 2011	Book: Control of Peripheral Devices by Computer (Author) Nass Publishing. ISBN: 0964-410-058-1. Programming in 9 languages; adopted as reference at several universities. 2nd edition 2011.

AWARDS

2012, 2015, 2016	Top Engineer Award (3× recipient) Awarded by MECO, Engineering and R&D Departments.
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