



MOHAMED KHALED MOHYELDIN NAEIM

Network Design Engineer | OT & Industrial Networks

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PROFESSIONAL SUMMARY

Network Design Engineer specializing in mission-critical transportation and industrial communication systems. Experienced in designing resilient network architectures, improving uptime, and integrating multi-vendor environments across rail and OT(Operational Technology) domains. Increased system availability to >99.99% while accelerating commissioning and strengthening security. Combines strong routing and switching expertise with Python-based network test automation and monitoring to deliver scalable, reliable infrastructure.

CORE SKILLS

- **Network Architecture:** LAN/WAN, Leaf-Spine, High Availability, Topology Design (Microsoft Visio)
- **Industrial & OT Networks:** CBTC, SCADA, Rail Communication Systems
- **Routing & Switching:** OSPF, BGP, EIGRP, IS-IS, QoS
- **Layer 2 Technologies:** VLANs, STP, RSTP, MST, EtherChannel
- **Resilience & Redundancy:** HSRP, ERPS, MRP, Failover Design
- **Access Control & Protection:** IEC 62443, IPsec VPNs, Network Segmentation, AAA
- **Fiber Optics:** OTDR Testing, Splicing, Fault Detection
- **Infrastructure Scripting:** Python, REST APIs, JSON, SDN, Network Automation
- **Observability Tools:** SNMP, Syslog, NetFlow
- **Network Testing & Validation:** iperf3, fping, Throughput/Latency Benchmarking, Test Automation
- **Platforms & Vendors:** Cisco, Nokia, Huawei

WORK EXPERIENCE

February 2026 – Present | **Network Design Engineer | HITACHI Rail**

- Engineered and deployed communication networks for CBTC systems, achieving >99.99% uptime
- Built LAN/WAN topologies (MRP/RSTP rings) in Microsoft Visio, eliminating single points of failure
- Integrated ultra-reliable wireless backhaul (Cisco URWB) with sub-1 ms roaming latency
- Strengthened network stability using ERPS and multi-area OSPF, reducing failover time to <50 ms
- Led OT data center planning (Leaf-Spine, vSAN), increasing scalability and throughput by ~30%
- Applied IEC 62443-based segmentation and IPsec VPNs, reducing security risks by ~40%
- Managed integration across onboard, wayside, and WAN systems for seamless operation
- Developed an internal tool automating onboard network acceptance testing across train segments, standardizing latency/throughput validation reports

February 2024 – January 2026 | **Testing & Commissioning Engineer | NOKIA (Cairo Monorail Project)**

- Deployed and configured telecom infrastructure across 100+ network nodes
- Executed end-to-end validation across PA, PIS, CCTV, and telephony platforms
- Managed fiber optic testing and optimization, improving signal quality and backbone stability by ~25%

CERTIFICATIONS

- **Administering VMware vSphere 8** — March 2026
- **Active Directory on Windows Server** — April 2026
- **CCNP ENARSI** — February 2026
- **CCNP ENCOR (350-401)** — January 2026
- **CCNA (Enterprise, Security, Automation)** — September 2025
- **ROS (Robotics)** — August 2023
- **.NET Backend Development** — June 2023

KEY ACHIEVEMENTS

- Delivered commissioning milestones on schedule with 100% test case compliance
- Automated LAN performance validation end-to-end with a self-built Python tool, eliminating manual test execution and reporting

TECHNICAL PROJECTS

- **PingPair – Automated LAN Characterization Tool** – Built a Python/Qt app automating iperf3/fping test sweeps with automated reporting, cutting LAN acceptance testing from hours to ~16 minutes
- **Cairo Monorail Daily Progress Tracker App** – Created a reporting application for daily site updates
- **IoT-Based Elderly Monitoring System** – Engineered a wearable tracking platform
- **Autonomous Mobile Robot (SLAM)** – Developed mapping and navigation using sensor fusion
- **Face Recognition System** – Built a biometric access solution using Python and OpenCV
- **IoT Smart Home System** – Designed a cost-effective remote control and automation platform
- **ESP32-S3 Smart USB Drive** – Programmed embedded firmware supporting dual USB/WiFi operation
- **AI-Driven Development Workflows** – Implemented automated planning, code review, and testing processes, reducing development time by ~30%

TECHNOLOGY STACK

- **Networking:** Cisco, Nokia, Huawei
- **Protocols:** OSPF, BGP, EIGRP, MPLS, VXLAN, EVPN
- **Security:** IPSec, AAA, 802.1X, DHCP Snooping
- **Telemetry & Diagnostics:** SNMP, Syslog, NetFlow, iperf3, fping
- **Systems:** Linux, Windows Server Tools
- **Design & Documentation:** Microsoft Visio (L1/L2 network topology diagrams, as-built documentation)
- **Programming:** Python (PySide6/Qt), C, C++, Embedded C, C#
- **Programmability:** REST APIs, SDN

EDUCATION

Bachelor of Engineering (Honours) in Electronics
Multimedia University (MMU), Malaysia | 2018 – 2023

PUBLICATIONS

Naeim, M.K.M., et al. (2023)
“A Mobile IoT-Based Elderly Monitoring System for Senior Safety”
International Journal of Technology, 14(6), pp. 1185–1195

LANGUAGES

Arabic (Native), English (Fluent), German (Basic)