Chokri NOUAR

Security & Cryptography Engineer | Network Security | Cybersecurity | Zero Trust Security

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PROFESSIONAL SUMMARY

Cybersecurity engineer holding a PhD in Cryptography and Information Security, specializing in applied and post-quantum cryptography (PQC). Combines advanced scientific expertise in PQC, hybrid PKI, and cryptographic protocols with proven operational experience in SOC environments, Fortinet firewalls, secure network architecture, and Zero Trust.

Developed several industry-oriented PQC implementations, including hybrid Kyber/Dilithium secure channels, post-quantum PKI, and quantum-resistant ZTNA solutions. Author of four research publications in cryptography. Immediately available for a position or assignment involving the design and protection of resilient infrastructures against current cyber threats and quantum-era risks.

CORE EXPERTISE

- Network and systems security: Fortinet firewalls, VPN, and IDS/IPS
- Designed, configured, and deployed secure network
- Conducted in-depth investigations and handled complex security incidents
- Performed real-time monitoring of client infrastructures and analyzed security alerts
- PQC-secured Zero Trust Network Access (ZTNA) architecture
- Applied and post-quantum cryptography (PQC): Kyber, Dilithium, and hybrid classical/PQC schemes
- Hybrid classical and post-quantum Public Key Infrastructure (PKI)
- IoT security and secure communication protocols
- Secure encryption of voice, images, and multimedia
- Key management and authentication: MAC, HMAC, and HKDF

PROFESSIONAL EXPERIENCE

Cybersecurity Analyst - SOC L1- L2 — 2025-2026

ALXYR Consulting - Rabat

- Performed real-time monitoring of client infrastructures and analyzed security alerts.
- Conducted in-depth investigations and handled complex security incidents.
- Drafted and updated operational procedures for the team.
- Designed and managed internal phishing-awareness campaigns for clients.

Network & Systems Security Engineer — 2023-2025

Confidential - Rabat

- Designed, configured, and deployed secure network architectures.
- Implemented Network Access Control solutions and managed IPsec/SSL VPN tunnels.
- Modeled and validated network architectures in virtual environments using PnetLab.
- Prepared engineering and compliance reports.

Research Intern - Post-Quantum Cryptography — Feb.-Oct. 2023

University of Ottawa & LoginID - Ottawa, Canada

- Analyzed the resistance of encryption systems to quantum attacks.
- Collaborated with academic and industry teams on the Crypto-DID project.

Lecturer - Mathematics and Cryptography — 2017-2025

Mohammed V University / Regional Academy of Education - Rabat

- Supervised PhD students in post-quantum cryptography and information security from 2023 to 2025.
- Taught undergraduate-level applied mathematics at the Faculty of Sciences of Rabat from 2017 to 2023.

KEY TECHNICAL PROJECTS

Post-Quantum Cryptography-Secured ZTNA

Python | Kyber KEM | AES-GCM | Policy-Based Access Control

Zero Trust Network Access prototype integrating Kyber key exchange, AES-GCM encryption, device validation, and policy-based access control. Designed as a modern, quantum-resistant alternative to traditional VPN solutions.

Hybrid PKI Laboratory - Classical and Post-Quantum

Python | X.509 Certificates | Post-Quantum Cryptography

Laboratory environment for generating, signing, and verifying quantum-resistant digital certificates by combining classical and post-quantum public key infrastructures.

Hybrid PQC Secure Channel - Kyber512 and X25519

Python | liboqs | Docker | AES-GCM | HKDF

Secure communication protocol combining classical and post-quantum cryptography for key exchange and encrypted data transmission. Implemented as a containerized client-server architecture with complete key lifecycle management.

Secure Post-Quantum Communication for IoT

Python | Kyber KEM | AES-GCM AEAD

Hybrid secure channel between a simulated IoT device and a server, using Kyber for post-quantum key establishment and symmetric cryptography for data protection. Designed with an industry-oriented deployment architecture.

Chaotic Image Encryption - NMGM

MATLAB | Gingerbread Man Map | NIST/DIEHARDER Test Suites

Image-encryption scheme based on a modified chaotic system and an optimized pseudo-random number generator. Validated using NIST statistical test suites and published in 2025.

Message Authentication Code Application

Java | HMAC MD5/SHA-1 | CBC-MAC DES/AES

Application designed to guarantee message integrity and authenticity over unsecured networks.

TECHNICAL SKILLS

Cryptography	PQC (Kyber, Dilithium) | Hybrid PKI | Digital signatures and certificates | Hash functions | MAC/HMAC | HKDF | Authentication
Network Security	FortiGate | NGFW | IPS/IDS | IPsec/SSL VPN | High Availability | Zero Trust (ZTNA) | Nmap | Wireshark
SIEM / EDR-XDR	Splunk | Wazuh | Microsoft Defender for Endpoint | Symantec Antivirus | FortiEDR
Networking	Switching | Routing | Trunking | DHCP | TCP/IP | IPAM | OSI | DNS
Tools & Languages	Python | C/C++ | MATLAB | Java | Docker | AI | Linux | Windows | macOS

CERTIFICATIONS

- Fortinet Certified Professional - Secure Networking (NSE 4-NSE 6), April 2026-April 2029
- Fortinet Certified Associate - Associate Cybersecurity (NSE 3), December 2025-December 2028
- Fortinet Certified Fundamentals - Fundamentals Cybersecurity (NSE 1-NSE 2), July 2025-July 2028
- Python 3 - SoloLearn, 2020 | C/C++ - SoloLearn, 2020

EDUCATION

PhD in Cryptography and Information Security **2018-2023**
Mohammed V University - Rabat

Master's Degree in Mathematics and Statistics **2010-2012**
Mohammed V University - Rabat

Bachelor's Degree in Mathematics and Computer Science **2007-2010**
Mohammed V University - Rabat