Tarek El Baik

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Personal Statement

Dedicated ICT Engineering student specializing in cybersecurity, network security, and cloud infrastructure. Proven expertise in security risk assessment, penetration testing, and implementing security solutions across IT systems. Strong analytical and problem-solving skills demonstrated through hands-on experience with intrusion detection systems, network packet analysis, and federated learning security frameworks. Seeking to leverage technical expertise and leadership experience in an innovative cybersecurity environment.

Education

National Engineering School of Tunis   *Sept 2023 – Present*
Engineering Degree in ICT

Preparatory engineering School of Nabeul   *Sept 2021 – Jun 2023*
Preparatory Degree in Technology

Experience

Intelligent Warehouse Management Chatbot System   *AI Internship*
L-Mobile Tunisia - Tunis   *Aug 2025*

- Streamlined manual warehouse operations across disconnected systems for order tracking, inventory management, and delivery rescheduling processes
- Architected microservices-based chatbot system using Python (Rasa, FastAPI), implementing ML-powered intent classification (scikit-learn) and responsive web interface with real-time messaging capabilities
- Achieved 95% intent classification accuracy and reduced manual processing time by 75% through intelligent automation across 4 core business workflows

Cybersecurity Virtual Experience Analyst   *Remote Internship*
Mastercard – Forage   *May 2025*

- Completed a job simulation as part of Mastercard's Security Awareness Team.
- Identified and reported simulated security threats, including phishing attempts.
- Assessed departments' cybersecurity posture and implemented targeted training programs.

Academic Projects

SDN-Based Adaptive Intrusion Detection and Mitigation Platform   *Oct 2025 – Jan 2026*

- Addressed the challenge of detecting and neutralizing sophisticated network attacks (DDoS, port scanning, flooding) in real-time by leveraging Software-Defined Networking's centralized control and programmability to overcome traditional security infrastructure limitations
- Engineered a hybrid intrusion detection system combining threshold-based rules and machine learning classifiers on a Ryu controller, integrated automated mitigation through dynamic OpenFlow rule installation for immediate traffic blocking and isolation
- Achieved near real-time threat response with 93%+ detection accuracy and sub-second reaction latency in Mininet simulations, validated against realistic attack scenarios using performance metrics including recall, precision, false positive rate, and controller overhead

Python Network Sniffer with Desktop GUI   *Jun 2025 – Jul 2025*

- Created a comprehensive network traffic analysis tool to capture, inspect, and visualize network packets in real-time for cybersecurity monitoring and analysis
- Developed multi-threaded desktop application using Python, PySide6 (Qt), and Scapy library, implementing deep packet inspection across network layers (Ethernet, IP, TCP, UDP) with non-blocking GUI architecture
- Delivered polished application with modern dark theme, protocol-based color-coding, and structured packet analysis view, enabling efficient network traffic monitoring and detailed forensic analysis

Federated Learning for Intrusion Detection System: Containerized with Docker   *Dec 2024 – Apr 2025*

- Developed privacy-preserving Intrusion Detection System enabling collaborative cybersecurity training across distributed networks without compromising sensitive data sharing
- Implemented federated learning framework using Flower, TensorFlow/Keras DNN model, and Docker containerization with gRPC communication, orchestrated via Docker Compose for scalable multi-client deployment
- Achieved notable attack recall rates on CIC-IDS2017 dataset while maintaining data privacy, successfully handling non-IID data distribution and variable client participation in containerized environment

Certifications

- **Jr Penetration Tester** ☑ - TryHackMe (Dec 2025)
- **Pre Security** ☑ - TryHackMe (Sep 2025)
- **CCNA: Introduction to Networks** ☑ - Cisco (Jan 2025)
- **Fundamentals of Deep Learning** ☑ - Nvidia (Oct 2025)
- **Cyber Security 101** ☑ - TryHackMe (Oct 2025)
- **Introduction to Cybersecurity** ☑ - Cisco (Feb 2025)
- **Google AI Essentials** ☑ - Coursera (Jan 2025)
- **AWS Cloud Practitioner** ☑ -DataCamp (Feb 2025)
- **Rapid Application Development with Large Language Models (LLMs)** ☑ - Nvidia (Oct 2025)

Extracurricular Activities

Chair   *Tunis*
IEEE - ENIT SB   *May 2024 – Jan 2025*

- Led organizational transformation and growth strategy for IEEE-ENIT Student Branch to enhance member engagement and expand technical development opportunities
- Directed 20-member executive team through strategic planning, facilitated board meetings and general assemblies, and established inter-university collaborations with multiple engineering schools
- Achieved 40% increase in student engagement through enhanced networking initiatives and streamlined organizational operations across technical and professional development programs

Vice Chair   *Tunis*
IEEE - ENIT SB   *Jan 2024 – May 2024*

- Optimized organizational workflows and operational efficiency to support growing student branch activities and member demands
- Collaborated with senior leadership to redesign event planning processes, implemented resource allocation strategies, and enhanced communication frameworks
- Reduced project completion time through streamlined workflows, establishing foundation for successful transition to Chair role and organizational growth

Planification Team Lead for Tunisian Engineering Day (TUNED)   *Tunis*
IEEE - ENIT SB   *Jun 2024 – Oct 2024*

- Coordinated complex multi-track engineering conference with diverse technical workshops, keynote sessions, and real-time logistical requirements
- Orchestrated day-of-event program execution, managed speaker coordination, volunteer deployment, and implemented contingency planning for live event challenges
- Successfully delivered seamless conference experience with strict timeline adherence, enhanced attendee satisfaction, and established best practices for future events

Skills

Cybersecurity Tools: Nmap, Wireshark, Metasploit, BurpSuite, Gobuster, Hydra
Programming: Python, C++, Java, JavaScript, HTML5, CSS3, SQL
Frameworks: Rasa, FastAPI, TensorFlow, PySide6 (Qt), Scapy, scikit-learn
Technologies: Docker, AWS (EC2, S3), Federated Learning, LLMs , Deep Learning
Specializations: Cybersecurity, Network Security, AI/ML, Full-Stack Development