Saif Eddine Nouma

CONTACT INFORMATION

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EDUCATION

University of South Florida, Tampa, FL, USA — 2021 – Present
Ph.D., Computer Science (GPA: 3.9/4.0) — Expected: Spring 2026
Advisor: Dr. Attila Altay Yavuz

École Polytechnique de Tunisie, Tunis, Tunisia — 2017 – 2020
Bachelor of Engineering, Computer Science and Multi-Disciplinary Sciences
Thesis: *Applications of Machine Learning in Networking and IoT*

Institut Préparatoire aux Études d'Ingénieurs de Monastir, Monastir, Tunisia — 2015 – 2017
Preparatory Classes for Engineering Schools, Mathematics and Physics Track

WORK EXPERIENCE

Graduate Research Assistant, University of South Florida, Tampa, FL, USA — Dec 2021 – Present

- Designed and evaluated lightweight and post-quantum IoT authentication protocols
- Developed open-source cryptographic protocols in C/C++ for resource-constrained IoT devices
- Authored 10+ peer-reviewed publications in top venues (e.g., ACM TOMM, ACM/IEEE IoTDI)

System Administrator, University of South Florida, Tampa, FL, USA — Aug 2023 – May 2024

- Developed real-time monitoring dashboards using Grafana and Prometheus
- Managed and maintained a high-performance computing (HPC) cluster for research workloads
- Automated routine administration tasks with Ansible playbooks to improve efficiency and reliability

Graduate Teaching Assistant, University of South Florida, Tampa, FL, USA — Aug 2021 – Dec 2021

- Delivered several guest lectures to present research outcomes
- Assisted in creating and grading exams for 80+ undergraduate students in IT Data Structures

Software Engineer, Kopileft Services Inc., Tunis, Tunisia — Jan 2021 – Aug 2021

- Developed and maintained web services using Kotlin and Gradle
- Enhanced 50% of the BI reporting infrastructure with PostgreSQL and Java

Research Intern, LAAS-CNRS, Toulouse, France — Feb 2020 – Dec 2020
Advisors: Dr. Khalil Drira, Dr. Hassan Hassan

- Developed and benchmarked RNN models for network traffic prediction
- Designed and implemented early-exit distributed CNN models for heterogeneous IoT devices

Intern, Wevioo Consulting, Tunis, Tunisia — Jun 2019 – Aug 2019

- Designed and implemented an ML solution for handwritten signature verification using a Siamese CNN
- Deployed the system to authenticate bank checks within client infrastructures, enhancing fraud detection

SKILLS

Programming: C/C++, Python, Java, Kotlin, MATLAB, R, CUDA, SQL (PostgreSQL), (C)Make, Gradle, Bash

Machine Learning Libraries: TensorFlow, PyTorch, Keras, Scikit-learn, OpenCV, Pandas, NumPy, Matplotlib

Security & Cryptographic Libraries: OpenSSL, WolfSSL, LibGCRYPT, Intel SGX

Networking & System Tools: ns-3, Docker, Ansible, Prometheus, Grafana, Nagios, Slurm

Embedded Hardware: ARM Cortex-M4, ARM Cortex-A72, 8-bit AVR Microcontrollers (ATmega series)

PROJECTS

High-throughput optimal signatures for secure logging in IoT networks 2025

Hybrid post-quantum forward-secure signatures for digital twins 2023

Network traffic prediction using recurrent neural networks (RNNs) 2020

Distributed deep learning inference for edge computing 2020

PUBLICATIONS

[1] **Saif E. Nouma**, Attila A. Yavuz, *"Post-Quantum Hybrid Digital Signatures with Hardware-Support for Digital Twins"*, *ACM Transactions on Multimedia Computing, Communications, and Applications (ACM TOMM)*, Volume 20, Issue 6, pp 1-30, March 2024.

[2] **Saif E. Nouma**, Attila A. Yavuz, "*Post-Quantum Forward-Secure Signatures with Hardware-Support for Internet of Things*", *IEEE International Conference on Communications (IEEE ICC)*, May 2023, Rome, Italy.

[3] **Saif E. Nouma**, Attila A. Yavuz, "*Practical Cryptographic Forensic Tools for Lightweight Internet of Things and Cold Storage Systems*", *8th ACM/IEEE Conference on Internet of Things Design and Implementation (ACM/IEEE IoTDI)*, May 2023, San Antonio, Texas, USA.

PATENTS

[1] Attila A. Yavuz and **Saif E. Nouma**, "*System and Method for Cryptographic Forensic Audits on Lightweight IoT and Digital Archives*", US Patent US20240007300A1, Filed: June 2023.

[2] Attila A. Yavuz and **Saif E. Nouma**, "*Hardware Supported Authentication and Signatures for Wireless, Distributed and Blockchain Systems*", US Patent US20230308289A1, Filed: Mar 2023.

GRANTS and AWARDS

Travel: USF International Travel Grant IEEE ICC 2023 2023
Total: $1,500

Travel: NSF Student Travel Grant for IEEE ICC 2023 2023
Total: $1,500

National Engineering Entrance Exam 2017
Top 0.5% (Rank 4/1000)