Mohamad Issam Sayyaf

29 rue de la chabossiere, 44340 Nantes, France

IssamSayyaf | issamsayyaf | Issamsayyaf97@gmail.com | +33 758 120733

Professional Summary

PhD Researcher and Embedded Systems Engineer with expertise in signal processing, embedded Linux, and artificial intelligence. Proven track record in developing innovative solutions for real-time systems, IoT applications, and wireless communications. Strong background in both academic research and practical implementation of complex systems.

Education

Nov/2023 - Present **PhD in Signal Processing**
University of Gustave Eiffel, France
Thesis: "Anomaly Detection for Positioning Signals"
Focus: Real-time signal processing, deep learning, and positioning systems optimization

Sep/2021 - Oct/2023 **Master's in Telecommunication Engineering**
University of Calabria, Italy *GPA: 110/110 cum laude*
Specialization: Smart Sensing, Computing, and Networking
Thesis: "Wireless Crack Detection System Based on IoT and Acoustic Emission"

Sep/2014 - Sep/2019 **Bachelor's in Electronics Engineering**
University of Aleppo, Syria *GPA: 88.56% with distinction*
Specialization: Communication Engineering
Thesis: "Free Space Optical System Using LASER with AES Encryption"

Professional Experience

PhD Researcher Nov/2023 - Present
University of Gustave Eiffel, France

- Developed and implemented anomaly detection algorithms for step detection in pedestrian dead reckoning (PDR) systems
- Enhanced step detection accuracy by filtering out mimic walking signals using deep learning
- Currently analyzing GNSS signal anomalies, focusing on jamming and spoofing detection
- 5G signal LOS/NLOS detection and mitigation to improve the positioning system

Embedded Systems Engineer Jun/2023 - Present
Hexabitz, USA (Freelance)

- Developed custom Linux distributions using Yocto Project
- Created BSPs for STM32MP1 and i.MX93 platforms
- Implemented device drivers and system integration
- Work with Bra-metal, and Real-time Operating System RTOS.

Measurement Engineer Oct/2022 - Oct/2023
University of Calabria, Italy

- Designed distributed measurement systems using LabVIEW
- Implemented real-time data acquisition for IoT applications
- Developed monitoring and analysis tools

Teaching Assistant Sep/2020 - Aug/2021
University of Aleppo, Syria

- Conducted laboratory sessions for:
  - Antenna Engineering
  - Microwave Engineering
  - Radar Engineering

Key Projects

Anomaly Detection for Step Detection 2024

- Developed AI algorithms for distinguishing between genuine and mimic walking signals
- Implemented real-time processing for wearable devices
- Enhanced pedestrian tracking accuracy

Truck Monitoring System 2023

- Customized Linux image using Yocto Project
- Integrated multiple communication interfaces (Wi-Fi, Bluetooth, LTE, GNSS)
- Implemented real-time monitoring and data acquisition

Wireless Crack Detection System 2022-2023

- Developed acoustic emission-based crack detection
- Implemented wireless sensor network
- Created real-time monitoring system

Publications

- Sayyaf, Mohamad Issam, Zhu, Ni, Renaudin, Valerie, "Anomaly Filtering for Pedestrian Dead Reckoning Using Segment-Based Autoencoders," 2025 IEEE/ION Position, Location and Navigation Symposium (PLANS), Salt Lake City, UT, April 2025, pp. 53-62.
- Sayyaf, M.I., et al. "Step Detection Enhanced by Anomaly Filtering," IEEE Applied Sensing Conference (APSCON), Jan 2025
- Sayyaf, M.I., et al. "Wireless Crack Detection System Based on IoT and Acoustic Emission," IEEE MetroLivEnv, May 2023
- Sayyaf, M.I., et al. "Detection and Classification of Crack for Heritage Building," Metro Archaeo 2022
- Sayyaf, M.I., et al. "Heart Rate Evaluation by Smartphone: An Overview," HealthyIoT 2022

Technical Skills

Embedded Systems	Embedded Linux (Yocto, Buildroot), RTOS (FreeRTOS, Zephyr), ARM Cortex-M, STM32, NXP MPU
AI/ML	Deep Learning (CNNs, LSTMs, Transformers), TinyML, Reinforcement Learning, Signal Processing
Wireless Communication	5G, LTE, Wi-Fi, Zigbee, Bluetooth, LoRaWAN, SDN
Programming	Python, C/C++, Java, LabVIEW, MATLAB
Tools	Altium Designer, HFSS, CST Microwave Studio, Mininet

Languages

Arabic	Native
English	Professional (B2)
French	Intermediate (A2)

Awards & Honors

2022	Best Paper Award, EAI Healthy IoT 2022
2022-2023	University of Calabria Scholarship (€3,500)
2021-2022	University of Calabria Scholarship (€1,700)

Certifications

Course	**Date**	**Provider**
Yocto Project Development	Jul 2024	Bootlin
Embedded Linux Development	Apr 2024	Bootlin
Transformer Models	Mar 2024	Google
Reinforcement Learning	Aug 2023	Alberta University
RTOS Development	Aug 2023	Udemy
TinyML Applications	Dec 2022	Harvard University
AWS IoT	Nov 2022	AWS
Deep Learning	Aug 2022	IBM