Nima chaharbaghi

nima.chaharbaghi@eleve.isep.fr PARIS, FRANCE Nima chaharbaghi

Education

Master's degree, IEMDP Wireless telecommunication and IOT systems 2025 – Present
École d'ingénieurs du numérique (*ISEP*) PARIS, FRANCE
double degree student

Master of Science in Telecommunications Engineering 2024 – Present
UNIVERSITY OF BOLOGNA (*UNIBO*) BOLOGNA, ITALY
CGPA:28.6/30

Bachelor of Science in Electrical Engineering 2019 – 2023
ISFAHAN UNIVERSITY OF TECHNOLOGY (*IUT*) ESFAHAN, IRAN

Interests

- ML for Wireless Communication
- MIMO
- Integrated Sensing and Communications
- 5G Prototyping
- Signal Processing
- Localization
- Non Terrestrial Networks
- 5G Core Network

RESEARCH EXPERIENCE

Master's Thesis Researcher – Digital Twin & 5G Localization 2025/11 – Present
Under the supervision of Professor Florian Kaltenberger, I started my Master's thesis on the design and implementation of a digital twin infrastructure for the EURECOM GEO-5G testbed. SOPHIA ANTIPOLIS, FRANCE

- Performing GPU-accelerated ray-tracing simulations with NVIDIA Sionna RT to generate realistic channel impulse responses.
- Integrating ray-traced channels into the OpenAirInterface (OAI) stack via the OAI Ray-Tracing Channel Emulator and rfsimulator.
- Conducting uplink TDoA-based UE localization experiments using the OAI LMF module and evaluating localization accuracy.

Research Assistant, WiLab – University of Bologna 2025/01 – 2025/09
Under the supervision of Professor Roberto Verdone and Professor Gianni Pasolini and in collaboration with Northeastern University, I contributed to the deployment and testing of a 5G system. Key accomplishments include: BOLOGNA, ITALY

- Configured and tested the Radio Access Network (RAN) using the OpenAirInterface framework.
- Worked within an OpenShift-based environment to manage system components and ensure stable operations.
- Operated various USRPs (X410, B210) using the UHD library for hardware configuration, signal transmission, and device management.
- Supported integration and troubleshooting efforts to improve network reliability and performance.

Isfahan University of Technology IT Center 2022/07 – 2022/09
Internship Experience: Network Manager ESFAHAN, IRAN

- Developed proficiency in Linux administration at the LPIC-1 level.
- Strengthened networking and troubleshooting abilities at the CCNA level.
- Worked with OpenStack in cloud and virtualization projects, leading to better system performance and resource use.

Projects

AI-Based Resource Prediction for 5G Core Networks (Open5GS + Kubernetes) 2025
- Deployed a full 5G Core network using **Open5GS and UERANSIM** on Kubernetes.
- Collected AMF CPU and memory metrics using **Prometheus**.
- Applied **Chronos-T5 (Tiny)** for time-series forecasting and compared results with **TimeGPT**.

Secure Video Transmission System Using H.264 and AES Encryption 2024
- Designed a system to receive and decode transport stream data transmitted in H.264 format.
- Applied Advanced Encryption Standard (AES) to secure video streams, preventing unauthorized access.
- Implemented decryption for both AES and H.264 encoded data to ensure smooth video playback.
- Analyzed data flow, encryption, and decryption processes to optimize security and performance.

Real-Time Hand Gesture Recognition Using mmWave Radar (Final Year Project) 2023
- Designed and implemented signal processing algorithms to extract gesture features.
- Utilized machine learning techniques to classify and interpret hand gestures accurately.
- Integrated the system with user interfaces for practical applications.

Implementing Effects of AWGN on Constellation, Constant Complex Channel Gain, and Multipath Channel using MATLAB 2023
- Utilizing Gray code for constellation point mapping to enhance error resilience.
- Generating random binary sequences and mapping them to complex constellations.
- Evaluating signal power and noise power for different Signal-to-Noise Ratios (SNR).
- Applying complex Gaussian noise to simulate real-world channel conditions.
- Investigating the impact of constant complex channel gain on signal constellations.

Languages

ENGLISH	PERSIAN	FRENCH
IELTS 6.5	Native	A1

Skills

Matlab	Python
C++	LaTeX
XILINX Vivado	OpenCV
Open Air Interface	CCNA
SRSran	Linux LPIC

References

Davide Dardari , *Full Professor*
davide.dardari@unibo.it

Roberto Verdone , *Full Professor*
roberto.verdone@unibo.it

Gianni Pasolini , *Associate Professor*
gianni.pasolini@unibo.it