MENSI, Neji

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EDUCATION

Ph.D. in Electrical Engineering **Fall 2019 - Present**
Howard University, DC, USA.
- *o Advisor*: Prof. Danda B. Rawat
- *o Thesis' Tentative Title*: Design, Develop, and Evaluate the Physical Layer Security for Wireless Networking Systems.
- *o Prospective Graduation Date* : May 2023
- *o Courses Taken*: Probability & Random Variables, Cybersecurity for Net CPS/IoT, Intro. to Machine Learning, Computer Security, Control Theory, and Engineering Analysis.
- *o GPA*: 4.00/4.00.

MS in Signals and Spatial Image Processing **Fall 2017 - Spring 2018**
Universite Paul Sabatier (UPS), Toulouse, France.
- *o Advisor*: Dr. Vincent Rivalland
- *o Master Thesis*: Mapping of the Useful Soil Reserve by Geophysical Method.
- *o Courses Taken*: Signal processing, Thematic Mapping, Geographic Information Systems and Database, 3-D vision, C++ Programming, Earth Observation.

BS and MS degrees in Electrical Engineering **Fall 2011 - Spring 2016**
Ecole Nationale d'Electronique et des Télécommunications de Sfax (ENET'COM), Tunisia.
- *o Advisor*: Dr. Amel Makhlouf
- *o Master Thesis*: Study of Cloud and Security in Vehicular Ad-Hoc Network (VANET).
- *o Courses Taken*: Wireless Communications, Telecommunications Networks, Databases, DSP, Analog Transmission, Radio Propagation, Algorithms, TCP/IP, Mobile Networks, Java.

EXPERIENCE

Research Assistant *Howard University, DC, USA.* **Since Fall 2019**
- o Study of physical layer security in a wireless vehicular networks.
- o Provide solutions to mitigate the threats of eavesdropping attacks for different scenarios: Single Eavesdropper (SE), Non-Cooperative Eavesdroppers (NCE), and Cooperative Eavesdroppers (CE).
- o Proposing security schemes employing the Intelligent Reconfigurable Surface (IRS) and Relays.
- o Investigate the use of artificial noise and jamming methods in multiple attacks scenario under different models of channel fadings.

Java Developer *Groupe INTM, France.* **02/2019 - 07/2019**
- o Creating Databases and participating in websites development.

Master Research Internship, *CESBIO, France.* **03/2018 - 09/2018**
- o Conductivity measurements of a field using UM38-MK2 instrument.
- o Estimation of the electrical conductivity for 3 different layers of the tested field.
- o Development of a method to extract water signal from the conductivity using mathematical method "Archie's Law".
- o Validation of the results based on datasets of soil profiles, penetrometer profiles and spatial images.

Database Engineer, *Ooredoo, Tunisia.* **05/2017 - 08/2017**
o Development and generation of customer's database using Toad for Oracle.
o Improvement of graphical interface using javafx.
o Organize the access rights to the customer database for each employee in the company.

Senior Research Internship, University of Idaho, Idaho, USA. **03/2016 - 09/2016**
o Motivating vehicles to provide StaaS cloud service and trustful warnings in VANET.
o Proposing a security scheme to prevent Bogus Information Attacks.
o Studying the vehicular cloud during traffic jam using MATLAB simulations.

Engineering Internship,*Tunisian Telecommunications Enterprise (TT).* **Summer 2015**
o Study of different mobile networks operations.
o Fixing phone breakdowns.

Engineering Internship, *Société Tunisienne de l'Air, Tunisia.* **Summer 2014**
o Study of the implemented network architecture.

ACADEMIC PROJECTS

Scattered Field by a Dielectric Sphere **Fall 2019**
Howard University, DC, USA.
o Study the Radio Cross Section (CRS) for Far-Field scattered by a Dielectric Sphere using the Mie Theory method and C++ in Linux environment.
o Solve the non-homogeneous wave-guide problem using Finite Element Method (FEM) and C++ in Linux environment.

Qt Application for Image Processing **Fall 2018**
Universite Paul Sabatier (UPS), Toulouse, France.
o Creation of an image processing application using C++ and Qt-Creator.
o Manage a library of descriptors (Information concerning the images to be treated).
o Define 2 types of access rights which are:
-Super User: He has the right to process images, modify the database and give access to other users.
-Regular User: He has the right to view just a part of the database and images.

Network Security **Fall 2015**
ENET'COM, Tunisia.
o Network attacks of experimental websites using Mantra and Kali Linux.

4G Project **Spring 2014**
ENET'COM, Tunisia.
o Study of 4G networking systems.

TECHNICAL SKILLS AND SPOKEN LANGUAGES.

Programming:	MATLAB, C/C++, MySQL, Java, JavaFX.
Networking:	TCP/IP, Security, VLAN, Routing Protocols, Ethernet.
Tools:	Qt-Creator, Eclipse, QGIS, Trelis, Origin, LAPACK, Boost, LaTeX.
OS:	Windows, Linux.
Languages:	*English, French, Arabic.*

CERTIFICATES

o Coursera: Machine Learning, Stanford University.
o Coursera: Data Analysis with Python, IBM.
o CCNA 1: Cisco Certified Network Associate level 1.
o CCNA 3: Cisco Certified Network Associate level 3.
o DELF B2: Diploma of Studies in French language level B2.

- o Creation of Dynamic Websites.
- o Human Development from the Canadian Training Center of Human Development.
- o Participation in the training worked out by the German university "Passeau" : Security and IOT.
- o Attendance of RedHat Training I: System administration.

GRANTS AND AWARDS

- o Intel scholarship award for the academic year 2021-2022.
- o MIT student travel grant to attend the summer school workshop.
- o NSF student travel grant to attend GLOBECOM 2021.
- o Intel scholarship award for the academic year 2020-2021.

SERVICE TO THE PROFESSION (REVIEWER)

- o IEEE Transactions on Vehicular Technology (TVT).
- o IEEE Wireless Communications Letters (WCL).
- o International Journal of Mobile Communications (IJMC).
- o Digital Signal Processing (DSP).

ACADEMIC AND PROFESSIONAL MEMBERSHIP

- o IEEE Vehicular Technology Society. **Since 2022**
- o IEEE Communications Society. **Since 2020**
- o IEEE Graduate Student. **Since 2019**
- o IEEE Young Professionals. **Since 2019**

LINKS

- o Personal Website: `https://nejii.github.io/`
- o Linkedin: `www.linkedin.com/in/neji-mensi`
- o Google Scholar: `https://scholar.google.com/citations?user=jS19_tIAAAAJ&hl`
- o ResearchGate: `https://www.researchgate.net/profile/Neji_Mensi`
- o Github: `https://github.com/Nejii`

PUBLICATIONS

Conferences

[1] **Neji Mensi**, and Danda B. Rawat (2022). "Security Analysis of NOMA-FSO/RF Network Over Double Shadowed kappa-mu and Malaga-M Channels". In 2022 IEEE Global Communications Conference: Wireless Communications (Globecom 2022 WC).

[2] **Neji Mensi**, and Danda B. Rawat (2022). "Triple-hop Mixed RF-FSO-FSO Analysis Over Double Shadowed kappa-mu and Malaga-M Turbulence". In 2022 IEEE Global Communications Conference: Mobile and Wireless Networks(Globecom 2022 MWN).

[3] **Neji Mensi**, D. B. Rawat and C. Liu, "Security Analysis of Mixed RF-FSO Blockage Attack Over Generalized RF Fading and Atmospheric Turbulence," 2022 IEEE Conference on Communications and Network Security (CNS), 2022, pp. 344-352, doi: 10.1109/CNS56114.2022.9947271

[4] **Neji Mensi**, D. B. Rawat and E. Balti, "Physical Layer Security for V2I Communications: Reflecting Surfaces Vs. Relaying," 2021 IEEE Global Communications Conference (GLOBECOM), 2021, pp. 01-06, doi: 10.1109/GLOBECOM46510.2021.9685258.

[5] **Neji Mensi**, D. B. Rawat and E. Balti, "PLS for V2I Communications Using Friendly Jammer and Double kappa-mu Shadowed Fading," ICC 2021 - IEEE International Conference on Communications, 2021, pp. 1-6, doi: 10.1109/ICC42927.2021.9500554.

[6] E. Balti and **Neji Mensi**, "Zero-Forcing Max-Power Beamforming for Hybrid mmWave Full-Duplex MIMO Systems", 2020 4th International Conference on Advanced Systems and Emergent Technologies (ICASET), 2020, pp. 344–349.

[7] **Neji Mensi** and A. Makhlouf, "Study of Vehicular Cloud during traffic congestion," 2016 4th International Conference on Control Engineering & Information Technology (CEIT), 2016, pp. 1-6, doi: 10.1109/CEIT.2016.7929040.

[8] **Neji Mensi** and A. Makhlouf, "Incentives for safe driving in VANET," 2016 4th International Conference on Control Engineering & Information Technology (CEIT), 2016, pp. 1-6, doi: 10.1109/CEIT.2016.7929081.

[9] **Neji Mensi** and DB. Rawat, "Physical Layer Security of NOMA Networks Under Fisher-Snedecor Composite Fading $\mathcal{F}$", **Under Review**.

Journals

[1] **Neji Mensi** and D. B. Rawat, "On the Performance of Partial RIS Selection vs. Partial Relay Selection for Vehicular Communications," in IEEE Transactions on Vehicular Technology, vol. 71, no. 9, pp. 9475-9489, Sept. 2022, doi: 10.1109/TVT.2022.3177130

[2] **Neji Mensi** and D. B. Rawat, "Reconfigurable Intelligent Surface Selection for Wireless Vehicular Communications," in IEEE Wireless Communications Letters, vol. 11, no. 8, pp. 1743-1747, Aug. 2022, doi: 10.1109/LWC.2022.3180479.

[3] **Neji Mensi**, D. B. Rawat, and E. Balti, "Gradient Ascent Algorithm for Enhancing Secrecy Rate in Wireless Communications for Smart Grid," in IEEE Transactions on Green Communications and Networking, doi: 10.1109/TGCN.2021.3093821.

[4] **Neji Mensi** and D. B. Rawat, "Securing Physical Layer Key Generation in Ambient Backscatter Devices Against Man-in-the-Middle Attack", **Under Review**.

[5] **Neji Mensi** and D. B. Rawat , "Secrecy Outage Probability (SOP) of Multi-User NOMA Network Against Multiple Eavesdroppers and Under Fisher-Snedecor Composite Fading $\mathcal{F}$," **Under Preparation**.

[6] **Neji Mensi** and D. B. Rawat , "Deep-Learning Approach to Secure Physical Layer Key Generation Against Man-in-the-Middle and Eavesdropping Attacks," **Under Preparation**.

REFERENCES

- **Prof. Danda B. Rawat**: Professor, Director of Data Science & Cybersecurity Center, and Director of DoD Center of Excellence in AI/ML, Howard University, USA.

  Contact information: danda.rawat@howard.edu | (202) 806-2209

- **Prof. Ahmed Rubaai**: Professor and Chair of the Department of Electrical Engineering and Computer Science, Howard University, USA.

  Contact information: arubaai@howard.edu

- **Prof. Chunmei Liu**: Professor at the Department of Electrical Engineering and Computer Science, Howard University, USA.

  Contact information: chuLiu@howard.edu

- **Dr. Vincent Rivalland**: Research Engineer in Scientific Computing, Affiliated to CESBIO, France.
  Contact information: vincent.rivalland@cesbio.cnes.fr | +33 (056) 155-8506
- **Prof. Amel Makhlouf** : Assistant Professor at ENET'Com, Tunisia.
  Contact information: amel.makhlouf@enetcom.usf.tn