

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, L^AT_EX.

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

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| 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 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. Makhoulf, "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. Makhoulf, "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

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- **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 Makhoulf :** Assistant Professor at ENET'Com, Tunisia.
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