Nada Abdelkhalek

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EDUCATION

CONCORDIA UNIVERSITY
DOCTOR OF PHILOSOPHY IN ELECTRICAL AND COMPUTER ENGINEERING (PhD)
Sept 2020-Present | Montreal, QC, Canada.
- PhD Candidate: GPA: 4.3/4.3
- Supervisor: Professor Walaa Hamouda
- Research Area: Learning-Driven Wireless Networks

CONCORDIA UNIVERSITY
MASTER OF APPLIED SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING (MASc)
Sept 2018-Aug 2020 | Montreal, QC, Canada.
GPA: 4.15/4.3

THE AMERICAN UNIVERSITY IN CAIRO (AUC)
BACHELOR OF SCIENCE IN ELECTRONICS AND COMMUNICATIONS ENGINEERING (BSc)
Sept 2013- Jun 2018 | Cairo, Egypt.
GPA: 3.781/4 | Magna Cum Laude (High Honor's)

PUBLICATIONS

1-N. Abdolkhani, N. Abdel Khalek, and W. Hamouda, "Deep Reinforcement Learning for EH-Enabled Cognitive-IoT Under Jamming Attacks", ACCEPTED in IEEE Internet of Things Journal.

2-N. Abdel Khalek and W. Hamouda, "G-VAP: A Generative Variational Autoencoder Approach for Enhanced Cooperative Sensing", ACCEPTED in IEEE Globecom 2024.

3-N. Abdel Khalek and W. Hamouda, "Optimizing Spectrum Efficiency in Hybrid Cognitive Radios Through Unsupervised Learning", ACCEPTED in IEEE Globecom 2024.

4-N. Abdel Khalek, N. Abdolkhani, and W. Hamouda, "Deep Reinforcement Learning for Joint Power Control and Access Coordination in Energy Harvesting CIoT" IEEE Internet of Things Journal, pp. 1-1, 2024.

5-N. Abdel Khalek, D. H. Tashman, and W. Hamouda, "Advances in machine learning-driven cognitive radio for wireless networks: A survey," IEEE Communications Surveys & Tutorials, pp. 1–1, 2023.

6- N. Abdel Khalek, and W. Hamouda, "DEAP Learning: A Data-Driven Approach to Unsupervised Cooperative Spectrum Sensing" IEEE Globecom 2023 (Best Paper Award)

7- N. Abdel Khalek, and W. Hamouda, "DeepSense: An Unsupervised Deep Clustering Approach for Cooperative Spectrum Sensing" IEEE ICC 2023.

8- N. Abdel Khalek, and W. Hamouda, "Intelligent Spectrum Sensing: An Unsupervised Learning Approach Based on Dimensionality Reduction" IEEE ICC 2022.

9- N. Abdel Khalek, and W. Hamouda, "Unsupervised Two-Stage Learning Framework for Cooperative Spectrum Sensing" IEEE ICC 2021.

10- N. Abdel Khalek, and W. Hamouda "Learning-Based Approaches for Intelligent Cognitive Radio," thesis, Concordia University, Montreal, 2020.

11- N. Abdel Khalek, and W. Hamouda, "From Cognitive to Intelligent Secondary Cooperative Networks for the Future Internet: Design, Advances, and Challenges" IEEE Network 2020.

12- N. Abdel Khalek, and W. Hamouda, "Learning-Based Cooperative Spectrum Sensing in Hybrid Underlay-Interweave Secondary Networks" IEEE Globecom 2020.

13- S. Emara, A. Elewa, O. Wasil, K. Moustafa, N. Abdel Khalek, and et al., "Heterogeneous ITS Architecture for Manned and Unmanned Cars in Suburban Areas" IEEE EFTA 2018.

SCHOLARSHIPS

1- FONDS DE RECHERCHE DU QUÉBEC- NATURE ET TECHNOLOGIES (FRQNT) DOCTORAL FELLOWSHIP
2022
2- CONCORDIA UNIVERSITY INTERNATIONAL TUITION AWARD OF EXCELLENCE AND MERIT AWARD
2020
3- CONCORDIA UNIVERSITY SPLIT MERIT SCHOLARSHIP
2020 & 2018
4- THE AMERICAN UNIVERSITY IN CAIRO'S ACADEMIC ACHIEVEMENT SCHOLARSHIP
2013

HONORS AND AWARDS

OUTSTANDING CONFERENCE ORGANIZER
The Graduate Student Research Conference (GSRC) | 2022-2024
BEST PAPER AWARD
IEEE Global Communications (GLOBECOM) Conference | 2023
DEAN'S LIST OF THE SCHOOL OF SCIENCES AND ENGINEERING
The American University in Cairo | 2016-2018
OUTSTANDING ACADEMIC ACHIEVEMENT AWARD
The American University in Cairo | 2018 & 2017 & 2016.

RESEARCH PROJECTS

1- Deep Learning-enabled Computer Vision in a Small Sample Regime
Dr. Eugene Belilovsky | Feb. 2021 - Apr. 2021.
Given a few samples of labeled data, deep learning models tend to overfit. In this research project, we studied this problem with and without pre-trained image classification models. Transfer, few-shot, and ensemble learning were used to solve this problem.

2- A Machine Learning Framework for Predicting American Sign Language Iconicity.
Dr. Andrew Delong | Sept. 2020- Dec. 2020.
This research project aimed to explore the psycholinguistics of American Sign Language (ASL) concerning iconicity. Using supervised learning, we investigated the possibility of predicting iconicity in ASL based on phonological properties.

INTERNSHIPS

VALEO EGYPT
Software validation intern
Jun- Aug 2018 & Jul- Aug 2017 | Cairo, Egypt.

- Generated testing Scenarios using Java to test the functionality of an embedded system using testing techniques such as white box and black box
- Executed the testing cases and evaluated the performance of the system, and if there were any bugs a report was sent to the development team.

MISR FOR CENTRAL CLEARING, DEPOSITORY AND REGISTRY (MCDR)
IT & networking intern
Aug 2016 | Cairo, Egypt.

- Observed the process of installing HP Arc Sight into the MCDR network.
- Built the schematic diagram of the security F5 network.
- Learned about the ISE by CISCO and observed how it is being setup remotely.

WORK EXPERIENCE

CONCORDIA UNIVERSITY
Graduate Student Ambassador
The School of Graduate Studies
Fall 2024- Present | Montreal, QC, Canada.

- Represent the Electrical and Computer Engineering department to prospective graduate students nationally and internationally.
- Engage with prospective students, applicants, and newly-admitted students via the university website and direct chats.

CONCORDIA UNIVERSITY
Scribe and Notetaker
The Access Centre for Students with Disabilities
Fall 2022- Present | Montreal, QC, Canada.

- Recorded students' spoken answers verbatim in writing and read aloud written content during exams.
- Produced individualized summative notes, describing main themes & ideas discussed in lectures in a clear and comprehensive format.

CONCORDIA UNIVERSITY
Graduate teaching assistant
Fall 2019- Present | Montreal, QC, Canada.

- Led the COMP 432/6321 machine learning lab, COMP 499/691 deep learning lab, ELEC 367 telecommunications lab and COEN 212 digital design lab in which students performed experiments related to the material in the course.

CONCORDIA UNIVERSITY
Lab assistant
Summer 2021 and 2020 | Montreal, QC, Canada.

- Collaborated with the lab coordinator to formulate standardized lab exams.
- Tested and enhanced the new lab experiments for the ELEC 367 telecommunications lab.
- Proposed modifications and adjustments to the lab manual content to facilitate both in-person and online delivery of the material.

VOLUNTEERING

IEEE Transactions on Cognitive Communications and Networking
Reviewer | Jul 2024-Present.

The International Telecommunication Conference (ITC)
Technical Program Committee Member | 2023-2024.

IEEE Wireless Communications Letters &
IEEE Communications Letters &
IEEE Transactions on Mobile Computing Journal
Reviewer | Dec 2021-Present.

IEEE Montreal Teachers In Service Program (TISP)
Volunteer | Nov 2019-Present | Montreal, Canada.

EXTRACURRICULAR

The Annual Graduate Students Research Conference (GSRC)
Organizer | 2022-Present | Montreal, Canada.

MTL Connecte 2021 - Printemps numérique
Volunteer and Host | Nov 2021 | Montreal, Canada.

PROGRAMMING LANGUAGES

Python - Scikit-learn, Pytorch, & Gym