

Mahmoud Nazzal, Ph.D.

Computer Engineering — AI Security and Applications

- ⌚ Personal Website : <https://mahmoudkanazzal.github.io> ⚡ Email : mazzal[at]odu[dot]edu
- 📞 Phone : +1 757-683-7760
- 👤 LinkedIn : mahmoud-nazzal
- 💻 GitHub : <https://github.com/mahmoudkanazzal>
- 🌐 Google Scholar : <https://scholar.google.com/citations?user=ygjUJnYAAAJ>
- 📍 Address : Room 3210, ENGR & COMP SCI BLDG, Norfolk, VA 23529, USA

RESEARCH INTERESTS

Currently : Security, robustness, and applicability of Graph Neural Networks (GNNs) and Large Language Models (LLMs)

- Adversarial robustness of GNNs and LLMs in novel areas
- Prompt optimization and engineering
- Real-world applications of LLMs and GNNs in :
 - Secure and functional source code generation
 - Hardware design automation
 - Transportation system analytics
 - Internet security
 - Deepfake detection

Past interests : Machine learning (ML) for communications (Physical layer security, Channel estimation, and spectrum sensing)

PROFESSIONAL EXPERIENCE

Starting 2025	Assistant Professor (Tenure Track), OLD DOMINION UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE, Norfolk, VA, USA <ul style="list-style-type: none">• Tenure-track faculty appointment beginning Fall 2025
2021–2025	Research Assistant / Teaching Assistant, NEW JERSEY INSTITUTE OF TECHNOLOGY, Newark, NJ, USA <ul style="list-style-type: none">• Conducted research on LLM and GNN security and applications• Collaborated with industry partner (TelAI, HVantae Inc.) on legal document analysis• Lectured undergraduate courses in computer engineering
2019–2021	Lecturer, ABU DHABI VOCATIONAL EDUCATION AND TRAINING INSTITUTE, Abu Dhabi, UAE <ul style="list-style-type: none">• Taught undergraduate courses in electrical engineering• Supervised student projects and provided mentorship
2017–2019	Researcher, ISTANBUL MEDIPOL UNIVERSITY, Istanbul, Turkey <ul style="list-style-type: none">• Conducted research on machine learning for wireless communication technologies
2016–2017	Lecturer, IZMIR UNIVERSITY OF ECONOMICS, Izmir, Turkey <ul style="list-style-type: none">• Taught courses in electrical engineering• Supervised graduation projects
2009–2016	Research and Teaching Assistant, EASTERN MEDITERRANEAN UNIVERSITY, Famagusta, Cyprus <ul style="list-style-type: none">• Supervised laboratory sessions for undergraduate students• Taught courses in electrical and electronic engineering

EDUCATION

2025	Ph.D. in Computer Engineering, NEW JERSEY INSTITUTE OF TECHNOLOGY, Newark, NJ, USA
2021	<ul style="list-style-type: none">• GPA : 4.00/4.00• Dissertation : <i>Adversarial Robustness in Advanced Sequential and Relational Machine Learning Models Integrating Graph Neural Networks and Large Language Models</i>• Supervisors : Prof. Abdallah Khereishah and Dr. Issa Khalil
2010	M.Sc. in Electrical and Electronic Engineering, EASTERN MEDITERRANEAN UNIVERSITY, Cyprus
2009	<ul style="list-style-type: none">• GPA : 3.77/4.00• Thesis : <i>Color Demosaicing for Digital Camera Images</i>
2009	B.Sc. in Electrical Engineering, BIRZEIT UNIVERSITY, Ramallah, West Bank
2004	<ul style="list-style-type: none">• Final-year project : <i>Power Factor Correction Using a Three-Phase Converter</i>

RESEARCH CONTRIBUTION SUMMARY

- Over 13 journal papers and 23 conference papers
- 1 book chapter
- 10 US and EU patents
- 650+ Citations

GRANTS

2026	Intelligent Framework for Securing IoT Systems in Critical Infrastructure, COMMONWEALTH CYBER INITIATIVE (CCI), Award Number : HC-2Q26-033 <ul style="list-style-type: none">• Role : Principal Investigator (Old Dominion University component); collaborative project with George Mason University.• Amount : \$100,000.
------	--

SELECTED AWARDS AND HONORS

May 2025	Hashimoto Prize (\$5000), NJIT, NEWARK, NJ, USA Awarded for outstanding scholarship and research potential in Electrical and Computer Engineering
Oct. 2024	ACM Conference on Computer and Communications Security (CCS 2024), SALT LAKE CITY, UTAH, USA Student Travel Grant to attend the conference
Jun. 2023	33rd Great Lakes Symposium on VLSI (GLSVLSI), KNOXVILLE, TN, USA Best Paper Award (2nd place). See <i>award details here</i>
Nov. 2022	ECE PhD Stories Contest, NJIT, NEWARK, NJ, USA 3rd Prize
2021 - 2022	New Jersey Institute of Technology, NEWARK, NJ, USA Ross Fellowship
2022 - 2024	New Jersey Institute of Technology, NEWARK, NJ, USA Teaching Assistantship and Research Assistantship
Jun. 2021	Signal Processing and Communications Applications Conference (SIU 2021), ISTANBUL, Turkey Best Paper Award (3rd place). See <i>award details here</i>
Oct. 2020	Turkish Patent and Trademark Office, ANKARA, Turkey 5th Place, Second University Patent Competition
2017 - 2019	The Scientific and Technological Research Council of Turkey (TUBITAK), ANKARA, Turkey TUBITAK 2221 Fellowship
2009-2010	Eastern Mediterranean University, FAMAGUSTA, Cyprus Research Assistantship
2008 - 2009	Jerusalem District Electricity Company (JDECO), RAMALLAH, West Bank B.Sc. Graduation Project Fund, Amount \$2,000

NOTABLE PUBLICATIONS

Conference Papers (C)

- [C22] M. Nazzal, I. Khalil, A. Khreishah, and N.H. Phan, “**PromSec**: Prompt Optimization for Secure Generation of Functional Source Code with Large Language Models (LLMs)”, *31st ACM Conference on Computer and Communications Security (CCS 2024)*, Salt Lake City, UT, USA, Oct. 2024, [Covered by a US Provisional Patent.]
- [C21] M. Nazzal, I. Khalil, A. Khreishah, N.H. Phan, and Y. Ma, “Multi-Instance Adversarial Attack on GNN-Based Malicious Domain Detection”, *45th IEEE Symposium on Security and Privacy (IEEE S&P 2024)*, San Francisco, CA, USA, May 2024.  [Presentation Video]
- [C20] A. Al-Barqawi, M. Nazzal, I. Khalil, A. Khreishah, and N.H. Phan, “ViGText : Deepfake Image Detection with Vision-Language Model Explanations and Graph Neural Networks”, *To appear in the 33rd Network and Distributed System Security (NDSS 2026)*, San Diego, CA, USA, Feb 2026.

- [C19] M. Nazzal*, K. Nguyen*, D. Vungarala*, R. Zand, H. Phan, A. Khreishah, and S. Angizi, “FedChip : Federated LLM for Artificial Intelligence Accelerator Chip Design,” in *IEEE International Conference on LLM-Aided Design (ICLAD 2025)*, Stanford University, Stanford, CA, Jun. 2025 (*Equal contribution).
- [C18] D. Vungarala*, M. Nazzal*, M. Morsali, C. Zhang, A. Ghosh, A. Khreishah, and S. Angizi, “SA-DS : A Dataset for Large Language Model-Driven AI Accelerator Design Generation,” Accepted to appear in *58th IEEE International Symposium on Circuits and Systems (IEEE ISCAS)*, London, UK, May 2025. (*Equal contribution)
- [C17] T.K. Ton, N. Nguyen, M. Nazzal, A. Khreishah, C. Borcea, N.H. Phan, R. Jin, I. Khalil, and Y. Shen, “Demo : **SGCode** : A Flexible Prompt-Optimizing System for Secure Generation of Code”, *31st ACM Conference on Computer and Communications Security (CCS 2024)*, Salt Lake City, UT, U.S.A, Oct. 2024.
- [C16] M. Morsali, M. Nazzal, A. Khreishah, and S. Angizi, “IMA-GNN : In-Memory Acceleration of Centralized and Decentralized Graph Neural Networks at the Edge”, *33rd edition of Great Lakes Symposium on VLSI (GLSVLSI)*, Knoxville, TN, USA, Jun. 2023. [Best Paper Award]

Journal Papers (J)

- [J13] M. Nazzal, A. Khreishah, J. Lee, S. Angizi, A. Al-Fuqaha, and M. Guizani, “Semi-decentralized Inference in Heterogeneous Graph Neural Networks for Traffic Demand Forecasting : An Edge-Computing Approach”, *IEEE Transactions on Vehicular Technology*, Jan. 2024.

Patents (P)

- [P10] M. Nazzal, I. Khalil, A. Khreishah, and N.H. Phan, “Method and System for Prompt Optimization for Secure Generation of Functional Source Code with Large Language Models”, *US Patent*, Patent Application No. : US63/561,573, Washington, D.C., USA, Filing date : Mar. 5, 2024.

Book Chapters (BC)

- [BC1] M. Nazzal, M. A. Aygul, and H. Arslan, *Channel Modeling for 5G and Beyond*, In : H. Arslan, E. Basar, *Flexible and Cognitive Radio Access Technologies for 5G and Beyond*, Telecommunications Series, Institution of Engineering and Technology, ISBN-13 : 978-1-83953-079-1, p. 342, 2020.

RECENT JOURNAL PAPERS (ML SECURITY)

-
- [J12] M. Anan, M. Nazzal, A. Khreishah, I. Khalil, N.H. Phan, and A. Sawalmeh, “STING : A Stealthy Backdoor Attack on GNN-Based Malicious Domain Detection via DNS Perturbations”, *IEEE Open Journal of the Communications Society*, vol. 6, pp. 7823-7841, Sep. 2025.
- [J11] I. Alsmadi, K. Ahmad, M. Nazzal, F. Alam, A. Al-Fuqaha, A. Khreishah, and A. Algosaibi. “Adversarial NLP for social network applications : Attacks, defenses, and research directions”, *IEEE Transactions on Computational Social Systems*, vol. 10, no. 6, pp. 3089-3108, Nov. 2022.
- [J10] N. Aljaafari, M. Nazzal, A. Sawalmeh, A. Khreishah, M. Anan, A. Algosaibi, M. Alnaeem, A. Aldalbahi, A. Alhumam, and C. P. Vizcarra, “Investigating the Factors Impacting Adversarial Attack and Defense Performances in Federated Learning”, *IEEE Transactions on Engineering Management*, vol. 71, pp. 12542-12555, May 2022.
- [J9] I. Alsmadi, N. Aljaafari, M. Nazzal, S. Alhamed, A. Sawalmeh, C. P. Vizcarra, A. Khreishah, M. Anan, A. Algosaibi, M. Alnaeem, A. Aldalbahi, and A. Alhumam, “Adversarial Machine Learning in Text Processing : A Literature Survey”, *IEEE Access*, vol. 10, pp. 17043-17077, Jan. 2022.
- [J8] H. M. Furqan, M. A. Aygül, M. Nazzal, and H. Arslan, “Primary User Emulation and Jamming Attack Detection in Cognitive Radio via Sparse Coding”, *EURASIP Journal on Wireless Communications and Networking*, no. 1, pp. 1-9, Apr. 2020.

JOURNAL PAPERS (ML AND SIGNAL PROCESSING)

-
- [J7] M. Aygül, M. Nazzal, and H. Arslan, “Sparsifying dictionary learning for beamspace channel representation and estimation in millimeter-wave massive MIMO”, *IEEE Access*, vol. 11, pp. 98436-98451, Sep. 2023.
- [J6] S. Shao, M. Nazzal, A. Khreishah, and M. Ayyash, “Self-optimizing Data Offloading in Mobile Heterogeneous Radio-Optical Networks : A Deep Reinforcement Learning Approach”, *IEEE Network Magazine*, vol. 36, no. 2, pp. 100-106, May 2022.
- [J5] A. Alenezi, M. Nazzal, A. Sawalmeh, A. Khreishah, S. Shao, and M. Almutiry, “Machine Learning Regression-based RETRO-VLP for Real-time and Stabilized Indoor Positioning”, *Cluster Computing*, Vol. 27, pp. 299–311, Dec. 2022.
- [J4] M. A. Aygül, M. Nazzal, and H. Arslan, “Using OMP and SD Algorithms Together in mm-Wave mMIMO Channel Estimation”, *Signal, Image and Video Processing*, Springer, vol. 16, pp. 1205–1213, Jan. 2022.
- [J3] M. A. Aygül, M. Nazzal, M. İ. Sağlam, D. B. da Costa, H. F. Ates, and H. Arslan, “Efficient Spectrum Occupancy Prediction Exploiting Multidimensional Correlations through Composite 2D-LSTM Models”, *Sensors-Special Issue AI-Enabled Cognitive Radio Networks*, vol. 21, no. 1, pp. 135-153, Dec. 2020
- [J2] M. Nazzal, A. R. Ekti, A. Gorcin, and H. Arslan, “Exploiting sparsity recovery for compressive spectrum sensing : A machine learning approach”, *IEEE Access*, vol. 7, pp. 126098-126110, Apr. 2019.
- [J1] M. Nazzal, F. Yeganli, and H. Ozkaramanli, “A strategy for residual component-based multiple structured dictionary learning”, *IEEE Signal Processing Letters*, vol. 22, no. 11, pp. 2059-2063, Nov. 2015.

CONFERENCE PAPERS (SECURITY, ML, SIGNAL PROCESSING)

-
- [C15] **M. Nazzal**, N. Aljaafari, A. Sawalmeh, A. Khreishah, M. Anan, A. Algosaibi, M. Alnaeem, A. Aldalbahi, A. Alhumam, C. P. Vizcarra, and S. Alhamed, "Genetic Algorithm-Based Dynamic Backdoor Attack on Federated Learning-Based Network Traffic Classification", *8th International Conference on Fog and Mobile Edge Computing (FMEC 2023)*, Tartu, Estonia, Sep. 18-20, 2023.
 - [C14] M. A. Aygül, **M. Nazzal**, and H. Arslan, "Estimating Multi-Dimensional Sparsity Level for Spectrum Sensing", *2023 IEEE Wireless Communications and Networking Conference (WCNC 2023)*, Glasgow, Scotland, UK, Mar. 2023.
 - [C13] M. A. Aygül, H. M. Furqan, **M. Nazzal**, and H. Arslan, "Deep Learning-Assisted Detection of PUEA and Jamming Attacks in Cognitive Radio Systems", *2020 IEEE 92nd Vehicular Technology Conference : VTC2020-Fall*, Victoria, BC, Canada, Oct. 2020.
 - [C12] **M. Nazzal**, A. Sawalmeh, S. Shao, M. Anan, A. Khreishah, and A. Alanazi, "Retro-VLP: Towards Single Light Source-based Real-time Indoor Positioning", *International Conference on Information and Communication Systems (ICICS 2022)*, Irbid-Jordan, Jun. 2022.
 - [C11] **M. Nazzal**, M. A. Aygül, and H. Arslan, "Estimation and Exploitation of Multidimensional Sparsity for MIMO-OFDM Channel Estimation", *2022 IEEE Wireless Communications and Networking Conference (WCNC 2022)*, Austin, TX, USA, Apr. 2022.
 - [C10] M. A. Aygül, **M. Nazzal**, and H. Arslan, "Deep RL-Based Spectrum Occupancy Prediction Exploiting Time and Frequency Correlations", *2022 IEEE Wireless Communications and Networking Conference (WCNC 2022)*, Austin, TX, USA, Apr. 2022.
 - [C9] **M. Nazzal**, M. A. Aygül, and H. Arslan, "Sparse Coding with Enhanced Atom Selection for FDD Massive MIMO Channel Estimation", *2021 IEEE 94th Vehicular Technology Conference : VTC2021-Fall*, Norman, OK, USA, Sep. 2021.
 - [C8] M. A. Aygül, **M. Nazzal**, and H. Arslan, "Using OMP and SD Algorithms Together in Millimeter Wave Massive MIMO Channel Estimation", *Signal Processing and Communications Applications Conference (SIU 2021)*, Istanbul, Turkey, Jun. 2021. [Best Paper Award]
 - [C7] M. A. Aygül, **M. Nazzal**, and H. Arslan, "Deep Learning-Based Optimal RIS Interaction Exploiting Previously Sampled Channel Correlations", *2021 IEEE Wireless Communications and Networking Conference (WCNC 2021)*, Nanjing, China, Mar. 2021.
 - [C6] M. A. Aygül, **M. Nazzal**, A. R. Ekti, A. Gorcin, D. B. da Costa, H. F. Ates, and H. Arslan, "Spectrum Occupancy Prediction Exploiting Time and Frequency Correlations Through 2D-LSTM", *2020 IEEE 91st Vehicular Technology Conference : VTC2020-Spring*, Antwerp, Belgium, May 2020.
 - [C5] **M. Nazzal**, O. Hasekioglu, A. R. Ekti, A. Gorcin, and H. Arslan, "Compressed spectrum sensing using sparse recovery convergence patterns through machine learning classification", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2019)*, Istanbul, Turkey, Sep. 2019.
 - [C4] **M. Nazzal**, M. A. Aygül, A. Görçin, and H. Arslan, "Dictionary learning-based beamspace channel estimation in millimeter-wave massive MIMO systems with a lens antenna array", *the International Wireless Communications & Mobile Computing Conference (IWCMC 2019)*, Tangier, Morocco, Jun. 2019.
 - [C3] **M. Nazzal**, M. A. Aygül, A. Görçin, and H. Arslan, "Sparse Coding for transform domain-based sparse OFDM channel estimation", *Signal Processing and Communications Applications Conference (SIU 2019)*, Sivas, Turkey, Apr. 2019.
 - [C2] **M. Nazzal**, H. M. Furqan, and H. Arslan, "FDD massive MIMO channel estimation by sparse coding over AoA/AoD cluster dictionaries", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2018)*, Bologna, Italy, Sep. 2018.
 - [C1] H. M. Furqan, **M. Nazzal**, and H. Arslan, "Iterative tap pursuit for channel shortening equalizer design", *7th International Conference on Computer and Communication Engineering (ICCCE 2018)*, pp. 416-420, Kuala Lumpur, Malaysia, Sep. 2018.

PATENTS

-
- [P9] M. A. Aygül, H. M. Furqan, **M. Nazzal**, and H. Arslan, "Primary User Emulation / Signal Jamming Attack Detection Method", *US Patent*, Patent No. : US12177005B2, Washington, D.C., USA, Publication date : Dec. 24, 2024.
 - [P8] M. A. Aygül, **M. Nazzal**, and H. Arslan, "Learning-Based Spectrum Occupancy Prediction Exploiting Multi-Dimensional Correlation", *US Patent Application*, Patent No. : US2023038809A1, Washington, D.C., USA, Publication date : Nov. 30, 2023.
 - [P7] M. A. Aygül, **M. Nazzal**, and H. Arslan, "Learning-Based Spectrum Occupancy Prediction Using Multidimensional Correlation", *Korean Patent Application*, Patent No. : KR20230079436A, Seoul, South Korea, Publication date : Jun. 7, 2023.
 - [P6] M. A. Aygül, H. M. Furqan, **M. Nazzal**, and H. Arslan, "Primary User Emulation / Signal Jamming Attack Detection Method", *European Patent*, Patent No. : EP4082135A4, Munich, Germany, Publication date : Dec. 13, 2023.
 - [P5] M. A. Aygül, **M. Nazzal**, and H. Arslan, "Learning-Based Spectrum Occupancy Prediction Exploiting Multi-Dimensional Correlation", *European Patent*, Patent No. : EP3989626A1, Munich, Germany, Publication date : Apr. 27, 2022.
 - [P4] M. A. Aygül, **M. Nazzal**, and H. Arslan, "Learning-Based Spectrum Occupancy Prediction Exploiting Multi-Dimensional Correlation", *World Intellectual Property Organization (WIPO)*, Patent No. : WO2022084096A1, Geneva, Switzerland, Publication date : Apr. 28, 2022.
 - [P3] M. A. Aygül, H. M. Furqan, **M. Nazzal**, and H. Arslan, "Primary User Emulation / Signal Jamming Attack Detection Method", *World Intellectual Property Organization (WIPO)*, Patent No. : WO2021133312A1, Geneva, Switzerland, Publication date : Jul. 1, 2021.
 - [P2] A. AlBarqawi, I. M. Khalil, A. Khreishah, N. H. Phan, **M. Nazzal**, "ViGText : Deepfake Detection Using VLM Explanations and Graph Neural Networks", *Patent Disclosure (Pending Application)*, HBKU IP Office, Doha, Qatar, 2025.
 - [P1] A. AlBarqawi, I. M. Khalil, A. Khreishah, N. H. Phan, **M. Nazzal**, "CAPTCHA Framework Using Perceptual Puzzles for Enhanced Robustness Against Vision-Language Model Attacks", *Patent Disclosure (Pending Application)*, HBKU IP Office, Doha, Qatar, 2025.

SEMINARS AND PRESENTATIONS

- [S4] **M. Nazzal**, I. Khalil, A. Khreishah, and N.H. Phan, "PromSec: Prompt Optimization for Secure Generation of Functional Source Code with Large Language Models (LLMs)," 31st ACM Conference on Computer and Communications Security (**CCS 2024**), Salt Lake City, UT, USA, Oct. 2024. *Covered by a US Provisional Patent.* (In person)
- [S3] **M. Nazzal**, I. Khalil, A. Khreishah, N.H. Phan, and Y. Ma, "Multi-Instance Adversarial Attack on GNN-Based Malicious Domain Detection," 45th IEEE Symposium on Security and Privacy (**IEEE S&P 2024**), San Francisco, CA, USA, May 2024.  [Presentation Video]. (In person)
- [S2] **M. Nazzal**, N. Aljaafari, A. Sawalmeh, A. Khreishah, M. Anan, A. Algosaibi, M. Alnaeem, A. Aldalbahi, A. Alhumam, C. P. Vizcarra, and S. Alhamed, "Genetic Algorithm-Based Dynamic Backdoor Attack on Federated Learning-Based Network Traffic Classification," 8th International Conference on Fog and Mobile Edge Computing (**FMEC 2023**), Tartu, Estonia, Sep. 18-20, 2023. (Online)
- [S1] Presenter at the **IEEE 802.11™ Wireless Local Area Networks standard meetings**. Represented Istanbul Medipol University and Vestel Group, contributing to cognitive radio in Nov. 2020. (Online)

TEACHING EXPERIENCE

Present Aug. 2025	Old Dominion University, NORFOLK, VA, USA Assistant Professor, Graduate Courses Taught : <ul style="list-style-type: none">• CS 722/822 – Machine Learning (Fall 2025)• CS 795/895 – Topics in Computer Science : LLM Architectures & Applications (Spring 2026)
May 2024 Sep. 2022	New Jersey Institute of Technology, NEWARK, NJ, USA Lecturer, Courses Taught : <ul style="list-style-type: none">• Microprocessors<ul style="list-style-type: none">> <i>Course evaluation : 3.29/4.00</i>• Computer Architecture and Organization<ul style="list-style-type: none">> <i>Course evaluation : Fall 3.69/4.00, Spring 3.24/4.00</i>
Jul. 2021 Aug. 2019	Institute of Applied Technology, ABU DHABI, UAE Lecturer, Courses Taught : <ul style="list-style-type: none">• Robotics• Circuit Analysis• Engineering Communications• Graduation Project
Jun. 2017 Sep. 2016	Izmir University of Economics, IZMIR, Turkey Lecturer, Courses Taught : <ul style="list-style-type: none">• Graduation Project• Java Programming• Electric Circuits• Digital Electronics• Computer Organization and Architecture
Jun. 2016 Sep. 2015	Eastern Mediterranean University, FAMAGUSTA, Cyprus Lecturer, Courses Taught : <ul style="list-style-type: none">• Introduction to Logic Design• Computer Architecture and Organization• C/C++ Programming• Electric Circuits
Sep. 2015 Oct. 2009	Eastern Mediterranean University, FAMAGUSTA, Cyprus Teaching Assistant, supervised laboratory sessions and conducted tutorials for the courses : <ul style="list-style-type: none">• Digital Signal Processing• Introduction to Logic Design• Introduction to Programming• Signals and Systems

MENTORING EXPERIENCE

2023	Faculty Advisor, NJIT UNDERGRADUATE SUMMER RESEARCH AND INNOVATION SYMPOSIUM (PROVOST URI SUMMER RESEARCH FELLOWSHIP), Newark, NJ, USA
2022	Mentored summer interns Youssef Kanani and Pulami Basu, whose works were published in the NJIT annual conference proceedings.
2022	Faculty Advisor, NJIT UNDERGRADUATE SUMMER RESEARCH AND INNOVATION SYMPOSIUM (PROVOST URI SUMMER RESEARCH FELLOWSHIP), Newark, NJ, USA
2021	Mentored summer intern Oscar Mahecha-Benitez whose work was published in the NJIT annual conference proceedings.

TECHNICAL SKILLS

AI Programming Environments	Pytorch, TensorFlow, Scikit-learn, PyG, DGL
LLM-Related Skills	Retrieval-Augmented Generation (RAG), Vector Databases, Semantic Search
Programming Languages	MATLAB, Python, C/C++, Java
Cluster Computing Infrastructure	High-performance computing (HPC) utilizing Slurm Wolver for CPU/GPU nodes and parallel storage management, Hadoop , Apache Spark for data processing and analytics
Embedded Systems	Micro-controllers, Arduino
Scientific and Professional Skills	Professional and Scientific Reporting, Grant Proposal Writing, Class Management in International English-Speaking Environments
Computer Literacy	MS Windows, MS Office, Linux, \LaTeX

PROFESSIONAL DEVELOPMENT AND TRAINING

Research-Focused Faculty Development

- Early Career Faculty Research Proposal Development Academy (2025–2026) Old Dominion University (ODU), Norfolk, VA
 - Focus : Inaugural cohort training in research agenda development, funding strategies, sponsor intelligence, and competitive proposal writing.
 - Provider : ODU Office of Research.
- Excite the Dream ODU (Sept. 2024)
 - Focus : Orientation to faculty roles, academic expectations, and hiring processes through virtual workshops and leadership meetings.
 - Provider : ODU Office of Faculty Recruitment and Retention.

Teaching-Focused / Instructional Development

- Design Your Own Course (DYOC) Workshop (Jan. 2026)
 - Focus : Instructional design principles for online and hybrid course development.
 - Provider : ODUGlobal, ODU.
- Online Course Development : CS 722/822 – Machine Learning (2026)
 - Focus : Development of a fully online graduate Machine Learning course, including multimedia content and assessment design.
 - Provider : ODUGlobal, ODU.
- Faculty Certificate in Smart Learning (Mar. 2020)
 - Focus : Online pedagogy, digital learning environments, and technology-enhanced instruction.
 - Provider : Hamdan Bin Mohammed Smart University, UAE.

PROFESSIONAL AFFILIATIONS

- The Institute of Electrical and Electronics Engineers (IEEE)
- Association for Computing Machinery (ACM)

EDITING, REVIEWING, AND PROGRAM COMMITTEE SERVICE

Journal and Conference Reviewer

- IEEE/ACM Transactions on Networking
- IEEE Transactions on Signal Processing
- IEEE Transactions on Wireless Communications
- IEEE Wireless Communications Letters
- IEEE Access

Program Committee Service

- Technical Program Committee (TPC) Member — IEEE ICTAI 2025

LANGUAGES

- **Arabic** : Native proficiency
- **English** : Fluent
- **Turkish** : Intermediate proficiency