Haneen Alsuradi

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🖿 HaneenSu.github.io

Research Interests

Brain computer interface, Brain-intelligence for Human-Robot interaction, Machine learning for neurohaptics, EEG data processing and analysis, Time-series classification.

Education

2019–2022 **PhD Degree in Electrical Engineering, New York University, USA** .
GPA: 3.956/4.0
○ Supervisor: Dr. Mohamad Eid
○ Affiliation: AIMLab, NYU Tandon
○ Focus: Signal Processing, Neurohaptics, Machine Learning
○ Thesis: A Machine-Learning-Based Neurocognitive Framework to Evaluate the Experience of Haptic Delay

2015–2016 **MSc Degree in Microsystems Engineering, Masdar Institute (now Khalifa University), UAE** .
GPA: 4.0/4.0
○ Supervisor: Dr. Jerald Yoo
○ Focus: Circuit design, Printed electronics
○ Thesis: Design, Modeling and Characterization of Printed Passive Elements on Medical Hydrocolloids

2009–2014 **BSc Degree in Electrical and Electronics Engineering, University of Sharjah, UAE** .
GPA: 3.93/4.0 (Summa cum laude)
○ Final Year Project (FYP) Supervisor: Prof.Maamar Bettayeb
○ Focus: Signal Processing, Electronics, Minor in Applied Physics
○ FYP title: Brain Computer Interface (BCI): Speller Application

Work Experience

Oct 2022.– Present **Post-Doctoral Associate at the Center of Robotics and AI**, *NYUAD, Abu Dhabi, UAE.*
○ Brain-Machine Intelligence for Human-Robot Interaction.
○ Sub project 1: Brain-based human augmentation with a VR robotic finger.
○ Sub project 2: Social robotics for ADHD patient support.

Sept.–Dec. (2018) **Research Associate**, *Khalifa University, Abu Dhabi, UAE.*
○ Supervisor: Prof.Baker Mohammad
○ Analog to Digital Converter design and simulation on 65 nm technology.

July 2017–March 2018 **Digital Layout Engineer**, *Golden Electronics, Amman, Jordan.*
○ CMOS Digital Standard cells layout and schematic design.
○ Layout design in 28nm, 16nm, 14nm and 8nm technology nodes (TSMC and GF).
○ Layout optimiazation (i.e. area reduction and speed boosting).

Dec. 2014–May 2017	**Research Assistant**, *Masdar Institute, Abu Dhabi, UAE*. ○ Digital Circuit Design, Simulation and Layout on Cadence. ○ Wearable Electronics simulation, fabrication and verification. ○ Scanning Electron Microscopy (SEM) imaging.
June 2012–August 2012	**Research Intern**, *CERN, Geneva, Switzerland*. ○ Joined the CRIS experiment team ○ Used SRIM to simulate the Francium alpha decay detection. ○ Prepared the setup for the Silicone detectors test.
May 2010–July 2011	**Research and Laboratory Assistance**, *University of Sharjah, UAE*. ○ Worked at the UAE National X-Ray fluorescence laboratory. ○ Preformed specimen preparation and analysis of environmental archeological samples.

Supervision

Undergraduate Research	**Jiacheng Chen**, *Machine Learning and Neurohaptics [Sept. 2023-present]*.
Undergraduate Research	**Mahmoud Hafiz, Natty Metekie, and Lihan Feng**, *Social Robotics for ADHD [Jan. 2023-present]*.
Undergraduate Research	**Mbebo Nonna, Helin Mazi, and Ali Fakhry**, *Human Augmentation in VR [Jan. 2023-present]*.
Capstone Project	**Hadi Assadi and Praggya Jeyakuma**, *Detection of haptic delay using EEG data [2020-2021]*.
Internship	**Sara Ba'ara, Hadi Assadi and Allan Michelin**, *FaceGuard: A Wearable System to Avoid Face Touching [2020]*.

Teaching

Teaching positions

Fall 2021	**New York University Abu Dhabi**. ○ Teaching assistant for "ENGR–UH 1000: Computer Programming for Engineers" ○ Delivered the lab sessions and mentored students for term projects.
Spring 2016	**Masdar Institute**. ○ Teaching assistant for "MIC-610: Analysis and Design of Digital Integrated Circuits"

Training

Fall 2021	**New York University Abu Dhabi**. ○ Teaching Assistant Training Series [certificate] ○ Delivered by the NYUAD graduate and postdoctoral programs office.

Honors and Awards

Fall 2022	**GradSlam (three minutes thesis)**. Finalist at NYUAD 2022 [video]
Spring 2021	**Global PhD Travel Award**. Travel award towards attending WorldHaptics 2021
2019–2022	**Global PhD Student Fellowships in Engineering**. Highly competitive and generous fellowship by NYUAD

2009–2014	**Honors list during BSc**. Summa cum laude.

Skills

Programming Language	MATLAB,C++, Python, HTML, Verilog.
Frameworks	Keras, TensorFlow, PyTorch
Packages	Pandas, NumPy, scikit-learn
Operating System	Windows, Linux
Languages	Arabic (mother tongue), English (fluent - TOEFL iBT score 108)

Invited Talks

Fall 2021/2022/2023	Invited lecture on "Introduction to Machine Learning" for Computer Programming for Engineers course at NYUAD
Fall 2022	Invited seminar on "Using machine learning and EEG data to evaluate haptic experience" by the Early Engineers Research forum at NYUAD. [link]

Professional and Community Activities

Reviewing

Journal	Reviewer for Transactions on Haptics.
Journal	Reviewer for several Frontiers Journals [Robotics and AI - Neuroergonomics - Frontiers in Neurorobotics]

Organizing and Leadership

2022-2024	Vice chair of the Postdoctoral Council Steering Committee (PCSC)

Publications

Journals

2023	H. Alsuradi, W. Parks, and M. Eid, "An ensemble deep-learning approach for single-trial EEG classification of vibration intensity", Journal of Neural Engineering
2023	V. Babushkin, H. Alsuradi, MH. Jamil, MO. Al-Khalil, and M. Eid, "Assessing Handwriting Task Difficulty Levels through Kinematic Features: A Deep-Learning Approach", Frontiers in Robotics and AI
2023	H. Alsuradi, and M. Eid, "EEG-based Machine Learning Models to Evaluate Haptic Delay: Should We Label Data Based on Self-Reporting or Physical Stimulation?", Transactions on Haptics
2022	H. Alsuradi, W. Park, and M. Eid, "Assessment of EEG-based Functional Connectivity in Response to Haptic Delay", Frontiers in Neuroscience
2022	H. Alsuradi, and M. Eid, "An ensemble deep learning approach to evaluate haptic delay from a single trial EEG data", Frontiers in Robotics and AI
2022	H. Alsuradi, W. Park, and M. Eid, "Midfrontal theta power encodes the value of haptic delay", Scientific Reports

2021 H. Alsuradi, W. Park, and M. Eid, "Midfrontal theta oscillation encodes haptic delay", Scientific Reports

2021 A. Michelin, G. Korres, S. Ba'ara, H. Assadi, H. Alsuradi, R. Sayegh, A. Argyros, M. Eid, "FaceGuard: A Wearable System To Avoid Face Touching", Frontiers in Robotics and AI

2020 H. Alsuradi, W. Park, and M. Eid, "EEG-based Neurohaptic Research: A Literature Review" IEEE Access

2019 H. Alsuradi and Jerald Yoo, " Screen Printed Passives and Interconnects on Medical Hydrocolloid Dressing for Wearable Sensors," Scientific Reports

2017 W Saadeh, MAB Altaf, H Alsuradi, J Yoo, "A 1.1-mW ground effect-resilient body-coupled communication transceiver with pseudo OFDM for head and body area network". IEEE Journal of Solid-State Circuits

2013 T.E. Cocolios, H.H. Alsuradi, et al., "The collinear resonance ionization spectroscopy (CRIS) experimental setup at CERN-ISOLDE." Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms

Conferences

2021 H. Alsuradi and M. Eid, "Trial-based Classification of Haptic Tasks Based on EEG Data", 2021 IEEE World Haptics Conference (WHC)

2021 V. Babushkin, W. Park, M. Jamil, H. Alsuradi, and M. Eid, "EEG-based Classification of the Intensity of Emotional Responses", 10th International IEEE/EMBS Conference on Neural Engineering (NER)

2020 H. Alsuradi, W. Park, and M. Eid, "Explainable Classification of EEG Data for an Active Touch Task using Shapely Values", International Conference on Human-Computer Interaction

2020 H. Alsuradi, C. Pawar, W. Park, and M. Eid, "Detection of Tactile Feedback on Touch-screen Devices using EEG Data," 2020 IEEE Haptics Symposium (HAPTICS)

2017 H. Alsuradi and Jerald Yoo, "Design and Modeling of an Inductive Coupling Wireless Power Transfer Using Printed Spirals on Medical Hydrocolloid Dressings," IEEE International Symposium on Circuits and Systems (ISCAS)

2016 W. Saadeh, H. Alsuradi, M. Altaf and J. Yoo, " A 1.1 mW hybrid OFDM ground effect-resilient body coupled communication transceiver for head and body area network " IEEE Asian Solid-State Circuits Conference (A-SSCC) (Presenting Author)