Haneen Alsuradi

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Education

New York University Tandon School of Engineering **January 2019 – Present**

- PhD in Electrical and Computer Engineering
- Thesis title: A Machine-Learning-Based Neurocognitive Framework to Evaluate the Experience of Haptic Delay
- Grade Point Average (GPA) : 3.956/4
- Advisor: Dr. Mohamad Eid

Masdar Institute of Science and Technology, U.A.E. **Dec. 2014 – Dec. 2016**

- Masters in Microsystems (Electronics) Engineering
- Thesis on Printed Electronics
- Circuit design and layout experience in 65nm node
- In collaboration with MIT
- Grade Point Average (GPA) : 4/4
- Advisor: Dr.Jerald Yoo.

University of Sharjah (UoS), U.A.E. **Aug. 2009 – June 2014**

- Bachelor of Science in Electrical and Electronics Engineering
- Minor in Applied Physics
- Capstone on EEG signal processing.
- Grade Point Average (GPA) : 3.93/4

Cornell University, NY,USA **Summer 2013**

- Attended summer courses: Materials Chemistry – Intro. to cognitive science
- Attained grades : A- , A

Work and Research Experience

Research Associate, Khalifa University, Abu Dhabi, UAE **Sept. 2018 – Dec. 2018**

- Analog to Digital Converter design and simulation on 65 nm technology (GF and TSMC)
- A novel hybrid ADC design for controllable speed conversion

Digital Layout Engineer, Golden Electronics, Amman, Jordan **July 2017 – March 2018**

- CMOS Digital Standard cells libraries layout and schematic design
- Layout design skills in 28nm, 16nm, 14nm and 8nm technology nodes (TSMC, Samsung & GF)
- Optimization skills in area reduction and speed boosting.

Research Assistant, Masdar Institute, Abu Dhabi, UAE **Dec. 2014 – May 2017**

- Literature review on wearable electronics.
- Digital Circuit Design, Simulation and Layout on Cadence.
- Wearable Electronics simulation, fabrication and verification.
- Scanning Electron Microscopy (SEM) imaging.
- Participating in activities related to renewable energy, water & environment.

Intern, CERN, Geneva, Switzerland **June 2012 – August 2012**

- Summer student internship along with 200 other students from all over the world.
- Worked with a team of researchers, students and technicians on a nuclear physics experiment.
- Simulated part of the experiment using MATLAB and SRIM.
- Attended a series of lectures on topics of interests to CERN.

Senior Design Project **Sept. 2012 – May 2013**

- Design and implementation of a brain computer interface (BCI), speller application.
- EEG brain signals processing techniques using MATLAB.
- Translate EEG brain signals into letters to assist paralyzed individuals.

Research and Laboratory Assistance **May 2010 – July 2011**

- Worked at the UAE National X-Ray fluorescence laboratory.
- Preformed specimen preparation and analysis of samples environmental & archeological materials.
- Attended training course organized by the International Atomic Energy Agency (IAEA)

Publications

[1] **H. Alsuradi,** W. Park, and M. Eid, "Assessment of EEG-based Functional Connectivity in Response to Haptic Delay", Frontiers in Neuroscience, October 2022.

[2] **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, September 2022.

[3] **H. Alsuradi,** W. Park, and M. Eid, "Midfrontal Theta Oscillation Encodes the value of Haptic Delay", Scientific Reports, (2021)

[4] **H. Alsuradi,** W. Park, and M. Eid, "Midfrontal Theta Oscillation Encodes Haptic Delay", Scientific Reports, (2021)

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

[6] 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), (2021)

[7] 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, (2021)

[8] **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, 406-416 (2020)

[9] **H. Alsuradi**, W. Park, and M. Eid, "EEG-based Neurohaptic Research: A Literature Review," IEEE Access 8, 49313-49328 (2020)

[10] **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), 775-780

[11] **H. Alsuradi** and Jerald Yoo, " Screen Printed Passives and Interconnects on Medical Hydrocolloid Dressing for Wearable Sensors," Scientific Reports 9.1 (2019): 1-12.

[12] **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), May 2017

[13] 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)*, (Nov. 2016): 201 -204. **(Presenting Author)**

[14] 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 52 (10), 2690-2702

[15] 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* 317 (2013): 565-569.

Skills

Programing languages: Matlab, C++ , Python, HTML, Verilog.
Frameworks: Keras, TensorFlow, PyTorch
Packages: Pandas, NumPy, scikit-learn

Operating Systems: Windows, Linux: Ubuntu.
Simulation Tools: Cadence, Galaxy Custom Designer (Synopsys) COMSOL multi-physics.
Microscopy Tools: SEM and XRF.

Research: Analytical skills and the ability to organize ideas and info, Effective verbal and written skills. Time management, organizational, and team work.

Languages: Arabic (mother tongue), English (fluent - TOEFL iBT score 108)

Honors and awards

- GradSlam (three minutes thesis) Finalist at NYUAD 2022 [video].
- Global PhD Travel Award Spring 2021
- Global PhD Student Fellowships in Engineering 2019-2022
- Honors list during BSc. 2009 – 2013 and MSc. 2015—2016

Instructional activities

- TA for Computer Programming for Engineers course Fall 2021 at NYUAD.
- Mentored two capstone students on their project (Machine Learning models for classifying haptic delay) during the academic year 2020-2021
- Mentored three undergrad students during their summer internship during summer 2020 (Developing machine learning models for IMU data classification)
- Teaching assistant for Digital Integrated Circuits course in January 2016 (MSc.)

Invited Talks

- Invited lecture on “Introduction to Machine Learning” for Computer Programing for Engineers course at NYUAD: Fall 2022 and Fall 2021
- Invited seminar on “Using machine learning and EEG data to evaluate haptic experience” by the Early Engineers Research forum at NYUAD. [link]