Nourhan Bayasi PhD Student and Vanier Scholar at UBC

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ACADEMIC EDUCATION

University of British Columbia - Canada

Expected Graduation: June 2024

PhD in Electrical and Computer Engineering (Learning Continually Under Changing Data Distributions)

CGPA: 94.1%

Khalifa University - United Arab Emirates

2013 – 2015

Master of Science in Electrical and Computer Engineering

CGPA: 3.7/4

Khalifa University - United Arab Emirates

2009 - 2013

Bachelor of Science in Communication Engineering

CGPA: 3.96/4

VOCATIONAL EDUCATION

Northern Council for Further Education (NCFE)

2018 - 2019

Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice, funded by Higher Colleges of Technology (HCT)

Northern Council for Further Education (NCFE)

2017 - 2018

Level 3 Award in Assessing Vocationally Related Achievement, funded by Higher Colleges of Technology (HCT)

WORK EXPERIENCE

University of British Columbia, Vancouver, Canada *Teaching Assistant*

June 2020 – Present

- Assessed and graded exams, quizzes, assignments, lab reports, and project reports under the guidance of the course professor.
- Organized the setup of lab equipment for seamless execution of lab sections as per course requirements.
- Delivered effective supervision and instruction to students during lab sections, tutorial sessions, and office hours, following the directives of the course professor.

University of British Columbia, Vancouver, Canada

June 2020 – August 2020

Graduate Academic Assistant

- Facilitated professor's transition to online teaching by designing a comprehensive course blueprint.
- Implemented a seamless blend of asynchronous and synchronous learning, selecting and integrating suitable tools for optimal course delivery.
- Prepared and organized presentation slides to enhance online teaching effectiveness.
- redesigned assessments to introduce flexibility and adapt to the online learning environment.

Higher Colleges of Technology, Sharjah, UAE

August 2018 – December 2019

Lab Instructor, Electrical Engineering Department

- Contributed to the development of labs and provided essential support for students in utilizing laboratory machinery, tools, and equipment.
- · Assisted students in the resourcing and implementation phase of various student projects.
- Engaged with students in Science Fairs and Emirates Skill Competition (secured top-three placements six times).
- Managed the reception, installation, and maintenance of laboratory equipment and supplies.
- Implemented a preventative maintenance schedule for equipment, maintaining comprehensive manuals and logs.
- Demonstrated the proper use of machines, tools, and equipment within the lab.
- Oversaw consumable materials inventory, ensuring adequate stock levels for supplies.
- Established and maintained systems for tracking borrowed equipment and tools.

- Reinforced safety protocols and housekeeping procedures within the laboratory.
- Taught various labs, including Digital Circuits, Electrical Circuits, Electronics I, Electronics II, PCB, Communication Systems, SDP, etc.

Higher Colleges of Technology, Sharjah, UAE

August 2017 - July 2018

Instructor, Technical Studies Program (Vocational Program)

- Led curriculum development efforts, planning, designing, and developing training materials and assessment instruments compliant with NCFE and EAL requirements.
- Conducted thorough needs assessments to identify learner needs and crafted effective learning options to address them.
- Delivered high-standard training aligned with qualification specifications, ensuring learners achieved defined learning outcomes.
- Utilized a variety of training aids and resources tailored to suit learner needs.
- Planned and executed assessment activities in accordance with program standards.
- Updated training curriculum based on feedback and evolving business needs, including preparation of materials and training rooms for workshops.
- Tailored workshop resources to accommodate learners with diverse backgrounds, learning styles, and special needs.

$\textbf{Institute of Applied Technology}, \, \textbf{Umm Al Quwain}, \, \textbf{UAE}$

September 2015 - July 2017

Workshop Engineer, Electrical Engineering Department

- Played a pivotal role in students' graduation projects, actively engaging in the entire process from planning to implementation.
- Participated in Science Fairs (won first prize four times).
- · Assisted course instructor in developing and implementing teaching modules and projects.
- Contributed to the development of labs and provided essential support for students in utilizing laboratory machinery, tools, and equipment.
- Managed the reception, installation, and maintenance of laboratory equipment and supplies.

TECHNICAL SKILLS

Software ProgrammingHardware ProgrammingSimulation• Python• Synopsys Custom Flow• Tinkercad• Matlab• Verilog• Multisim• C++• SystemVerilog• Simulink

HONORS AND AWARDS

Best Paper Award, ISIC Medical Image Analysis Workshop @MICCAI	2023
Best Paper Award, ISIC Medical Image Analysis Workshop @ECCV	2022
• Vanier Scholarship, Canada's most prestigious PhD scholarship (Ranked Top 1)	2022
 Four Year Fellowship (4YF) for PhD, University of British Columbia 	2022
• Dr. and Mrs. Brandwajn Graduate Award in Electrical and Computer Engineering, University	2021
of British Columbia	
 Faculty of Applied Science Graduate Award, University of British Columbia 	2021
 President's Academic Excellence Initiative PhD Award, University of British Columbia 	2021
Travel Award, Recipient of MICCAI Student Travel Grant	2021
• International Student Award, University of British Columbia 2021	- 2023
• Scholarship Award, PhD Studies, University of British Columbia 2020	- 2025
Best Paper Award, IEEE Transactions on Very Large-Scale Integration	2016
• Best Prototype Award, 2nd Place, Engineering Student Renewable Energy Competition @UAE	2013
University	
 Leadership Award, Best Student Category, Khalifa University 	2013

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Scholarship Award, Master Studies, Khalifa University
 President List Award, College of Engineering, Khalifa University
 Scholarship Award, Bachelor Studies, Khalifa University
 2013 – 2015
 2009 – 2013
 2009 – 2013

SELECTED PUBLICATIONS

JOURNALS

- **Nourhan Bayasi**, Ghassan Hamarneh, Rafeef Garbi. Continual-Zoo: Leveraging Zoo Model for Continual Medical Image Classification. Submitted to IEEE TMI in Nov. 2023.
- **Nourhan Bayasi**, Ghassan Hamarneh, Rafeef Garbi. GC2: A Novel Framework for Generalizable Continual Classification of Medial Data. Submitted to IEEE TMI in Nov. 2023.
- Nourhan Bayasi, Temesghen Tekeste, Hani Saleh, Ahsan H. Khandoker, Baker Mohammad, Mohammed Ismail. (2019). A Novel Algorithm for the Prediction and Detection of Ventricular Arrhythmia. Analog Integrated Circuits and Signal Processing (Springer). PP 413–426.
- Nourhan Bayasi, Temesghen Tekeste, Hani Saleh, Baker Mohammad, Ahsan Khandoker, Mohammed Ismail. (2015). Low-power ECG-based Processor for Predicting Ventricular Arrhythmia. IEEE Transactions on Very Large-Scale Integration (VLSI) Systems. 24(5): 1962-1974 [Best Paper Award]

CONFERENCE PAPERS

- Nourhan Bayasi, Siyi Du, Ghassan Hamarneh, Rafeef Garbi. (2023). Continual-GEN: Continual Group Ensembling for Domain-agnostic Skin Lesion Classification. @ISIC Medical Image Analysis Workshop, MICCAI. proceedings of the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) Workshop (Eighth ISIC Skin Image Analysis).
- Siyi Du, **Nourhan Bayasi**, Ghassan Hamarneh, Rafeef Garbi. (2023). AViT: Adapting Vision Transformers for Small Skin Lesion Segmentation Datasets. In proceedings of the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) Workshop (Eighth ISIC Skin Image Analysis) [Best Paper Award]
- Siyi Du, **Nourhan Bayasi**, Ghassan Hamarneh, Rafeef Garbi. (2023). MDViT: Multi-domain Vision Transformer for Small Medical Image Segmentation Datasets. In proceedings of the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI).
- Siyi Du, Ben Hers, **Nourhan Bayasi**, Ghassan Hamarneh, Rafeef Garbi. (2022). FairDisCo: Fairer Al in Dermatology via Disentanglement Contrastive Learning. In proceedings of European Conference on Computer Vision (ECCV) Workshops [Best Paper Award]
- **Nourhan Bayasi**, Ghassan Hamarneh, Rafeef Garbi. (2022). BoosterNet: Improving Domain Generalization of Deep Neural Nets Using Culpability-Ranked Features. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR).
- **Nourhan Bayasi**, Ghassan Hamarneh, Rafeef Garbi. (2021). Culprit-Prune-Net: Efficient Continual Sequential Multi-Domain Learning with Application to Skin Lesion Classification. Springer. In proceedings of Medical Image Computing and Computer Assisted Intervention (MICCAI).
- Temesghen Tekeste, **Nourhan Bayasi**, Hani Saleh, Ahsan Khandoker, Baker Mohammad, Mahmoud Al-Qutayri, Mohammed Ismail. (2015). Adaptive ECG Interval Extraction. In proceedings of IEEE International Symposium on Circuits and Systems (ISCAS).
- Nourhan Bayasi, Temesghen Tekeste, Hani Saleh, Baker Mohammad, Mohammed Ismail. (2015). A 65-nm Low Power ECG Feature Extraction System. In proceedings of IEEE International Symposium on Circuits and Systems (ISCAS).
- Nourhan Bayasi, Hani Saleh, Baker Mohammad, Mohammed Ismail. (2014). 65-nm ASIC Implementation of QRS Detector based on Pan and Tompkins Algorithm. In proceedings of the International Conference on Innovations in Information Technology (IIT).

- Nourhan Bayasi, Temesghen Tekeste, Hani Saleh, Ahsan Khandoker, Baker Mohammad, Mohammed Ismail. (2014). Adaptive Technique for P and T Wave Delineation in Electrocardiogram Signals. In the 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS).
- Nourhan Bayasi, Hani Saleh, Baker Mohammad, Mohammad Ismail. (2013). The Revolution of Glucose Monitoring Methods and Systems: A Survey. In the IEEE 20th International Conference on Electronics, Circuits, and Systems (ICECS).

BOOK CHAPTERS

- Hani Saleh, **Nourhan Bayasi**, Baker Mohammad, Mohammed Ismail. (2018). Self-powered SoC Platform for Analysis and Prediction of Cardiac Arrhythmias. Springer.
- Mohammad Alhawari, Dima Kilani, Temesghen Habte, Yonatan Kifle, **Nourhan Bayasi**, Nicholas Halfors, Baker Mohammad, Hani Saleh, Mo- hammed Ismail. (2019). Self-Powered SoC Platform for Wearable Health Care. The IoT Physical Layer. Springer.

US PATENTS

- **Nourhan Bayasi**, Temesghen Habte, Hani Saleh, Ahsan Khandoker, Mohammed Ismail. (2020). Medical Device and Method for Detecting a Ventricular Arrhythmia Event. United States. Patent no. 10548499. Issued.
- Temesghen Habte, **Nourhan Bayasi**, Hani Saleh, Ahsan Khandoker, Baker Mohammad, Mahmoud Al-Qutayri, Mohammed Ismail. (2019). Med- ical Device having Automated ECG Feature Extraction. United States. Patent no. 10194821. Issued. Nourhan Bayasi, Temesghen Habte, Hani Saleh, Ahsan Khandoker, Mohammed Ismail. (2017). Medical Device for Detecting a Ventricular Ar- rhythmia Event. United States. Patent no. 9717438. Issued.

OTHER ACTIVITIES

Program Committee & Reviewer, ISIC Medical Image Analysis Workshop @MICCAI	2023
Journal Reviewer, Artificial Intelligence in Medicine	2022 – 2023
Journal Reviewer, Computerized Medical Imaging and Graphics	2022 – 2023
Electronics Expert, Emirates Skills National Competition, UAE	2017
• Standard Leader, AdvancED Academic Accreditation, Institute of Applied Technology, UAE	2016
STEAM Program Developer, Engineering, Institute of Applied Technology, UAE	2016
Chairman, IEEE Khalifa University Student Branch	2010