Dhiyaa Al Jorf

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Education

New York University Abu Dhabi (NYUAD), Abu Dhabi, UAE — August 2021 - May 2025
Bachelor of Science in Computer Engineering — *Current GPA: 4.0/4.0*
- Studies included two semesters abroad in New York, a short-term stay at NYU Paris, & a seminar in Greece

AbulAziz International Schools (AIS), Riyadh, KSA — August 2018 - May 2021
International High School Diploma with High Distinction — *GPA: 4.0/4.0*

Publications

Firas Darwish*, **Dhiyaa Al Jorf***, Eion Tyacke, Costanza Armanini, Farah E. Shamout, & S. Farokh Atashzar. "Leveraging Agonistic-Antagonistic Coactivation in Single-Grid HDsEMG for Hand Gesture Recognition." Ready for submission to *IEEE Robotics & Automation Letters*

* These authors are co-first authors

Research Experience

Clinical AI | *NYUAD* — August 2024 - Present
Research Assistant — *Abu Dhabi, UAE*

Funded by the Center for Artificial Intelligence and Robotics (CAIR).
- Reviewed, & extracted 20 papers on Covidence to co-author a research proposal, identifying major gaps in Uncertainty Quantification (UQ) for multimodal & cost-sensitive feature acquisition for BC diagnosis.
- Attended reading groups to discuss state-of-the-art (SOTA) research
- Moderated roundtable discussions with clinicians and AI experts during the Clinical AI Bootcamp to align research objectives with clinical practices and needs.
- Conducting an ongoing review, with 70 papers reviewed and extracted on Covidence so far.
- Working with a PhD student to compile review findings in a forthcoming paper in npj Digital Medicine.
- Translating existing models into JAX implementations to integrate UQ techniques.

Medical Robotics and Interactive Intelligent Technologies Lab | *NYU* — February 2024 - August 2024
Research Assistant — *New York, USA*

Funded by the Center for Artificial Intelligence and Robotics (CAIR).
- Co-first authored a research paper ready for submission to IEEE RA-L.
- Reviewed & Extracted around 20 papers to co-author a proposal, identifying agonist-antagonist coactivation as an untapped source of redundancy for electrode dropping in sEMG-based hand gesture recognition tasks.
- Experimented iteratively on the High Performance Cluster (HPC) with evolving architectures and XAI tools.
- Achieved SOTA performance (90% balanced accuracy) after reducing both architecture size and data requirements by 50%.

Applied Interactive Multimedia (AIM) Lab | *NYUAD* — February 2022 – July 2022
Research Assistant — *Abu Dhabi, UAE*
- Developed rehabilitation tasks using kinesthetic feedback via under-screen magnets to aid post-stroke recovery, in collaboration with Cleveland Clinic Abu Dhabi physicians
- Designed and developed serious games to help children develop handwriting skills, with input from education professionals at Cranleigh School Abu Dhabi

Awards & Honors

eBrain Lab LLM Fine-Tuning Competition | *First Place* — September 2024
1st place team in the LLM Fine-tuning competition scored on model size and performance on a medical MCQA task.

IEEEXtreme 16.0 & 17.0 Competitions | *Top 10% in the Middle East* — October 2022 & October 2023
4th and 3rd place teams in the UAE in 2022 and 2023 respectively

Dr. Gil Moore Award for Innovation | *Spaceport America Cup 2023* — June 2023
2nd/158, Runners-Up Award for the innovative design of the Haloship's parachute deployment mechanism.

AP Scholar with Honor Award | *The Collegeboard* — July 2021
5 in Physics C: Mechanics, Chemistry, Calculus AB, & perfect scores on Computer Science A (only 0.48% worldwide)

Kangaroo Math Competition | *Math Kangaroo × Mawhiba* — March 2020 & March 2021
Two Times Silver Medalist in KSA

Engineering Design & Innovation

Team Triton | *2024–2025 Mubadala's Higher Education Student Competition* September 2024 – Present

Participating in a national competition among UAE universities to design and develop an innovative floating ocean-surface trash-collecting robot. The robot is designed to operate either through teleoperation or full automation, addressing environmental concerns with cutting-edge technology.

- Created a realistic synthetic dataset for trash detection tasks using BlenderProc.
- Trained a YOLO11-based model on the dataset, achieving a 90% detection accuracy for nearby floating trash.
- Developed and implemented the ROS simulation environment for the robot, integrating it into a simulated pool environment to test and refine functionalities.

Intuitive & Reliable Prosthetic Control System | *Capstone Project* August 2024 – Present

Self-proposed capstone project to design a reliable and intuitive prosthetic control system within a VR environment as part of a capstone project.

- Reviewed & extracted 30 papers to identify gap in the reliability & intuitiveness of prosthetic control strategies.
- Designed and implemented a vision-based 3D object reconstruction pipeline for optimal gesture classification, leveraging an array of pretrained models later to be fine-tuned on a synthetically generated BlenderProc dataset.
- Developed the VR simulation environment in Unity and integrated it with machine learning models through Unity Sentis and UDP connections with Python processes.

Hold Down Release Mechanism | *NASA Jet Propulsion Lab* August 2022 – June 2023

nyuad.space Team Member *Los Angeles, USA*

Design project in collaboration between the nyuad.space aerospace team with NASA JPL mentors at Caltech as part of the JPL University Crowdsourcing Initiative (JUCI)

- Reduced system cost from $10,000 to $1000, while maintaining compliance with NASA flight readiness metrics.
- Conducted Finite Element Method (FEM) analysis to evaluate and validate the mechanism's structural integrity.
- Finalized multiple options of GD&T-compliant technical drawings according to manufacturing method.
- Presented our design to engineers at Caltech JPL in Los Angeles, California.

Haloship | *Spaceport America Cup 2023* August 2022 – June 2023

nyuad.space Team Member *New Mexico, USA*

Haloship is a rocket comprised entirely of mechanical sub-assemblies, allowing for packing into a suitcase, and is equipped with custom flight avionics, encompassing a flight computer and a high-speed data acquisition payload.

- Designed and developed the mechanical subassemblies of a rocket.
- Performed flight and Finite Element Method (FEM) simulations.
- Prepared and finalized detailed GD&T-compliant technical drawings for external manufacturing
- Successfully launched the rocket at the SA Cup 2023 in Las Cruces, New Mexico

Relevant Skills

Frameworks & Tools: PyTorch, Tensorflow, Jax, HuggingFace, Git, ROS
Programming: Python, MATLAB, C/C++, C#, Java
Languages: English: *Native* | Arabic: *Native* | French: *Intermediate*

Community Service

Afghanistan Female Student Outreach (AFSO) | *Teacher Assistant* September 2024 – Present

Teacher assistant for female students in Afghanistan studying differential calculus class. Taught weekly recitation sessions for differential calculus class and graded exams.

Habitat For Humanity, Bayt Eidis, Jordan | *Volunteer* March 2023

Volunteered in Jordan to help construct a community center for underprivileged families.

Mangrove Plantation Initiative | *Volunteer* November 2022

Contributed to the UAE's initiative to plant 100 million mangrove trees by 2030, helping plant 5,000 mangrove trees.

Extracurriculars

Climbing Wall Supervisor Assistant | *NYUAD Athletics* August 2022 - June 2023

Assisted in supervising sessions 2–4 hrs times a week, organizing events, and weekly equipment maintenance.

Dabke September 2021 – November 2022

Cultural Dance team under a Cultural Student Interest Group (SIG) at NYUAD with many performances at events.

The NYUAD Gazelle Newsletter | *Illustrator* September 2022 – December 2022

Illustrated art for 1–3 articles weekly.