# 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*

**NYU Tandon School of Engineering** Fall 2023, Spring 2024
*Study Away*

## Experience

**MERIIT Lab** × CAIR | *Research Assistant* February 2022 - Present
The CAIR is a joint research group between NYU and NYUAD electrical and computer engineering, psychology, and computer science faculty. My work falls under their human-machine interface research cluster.

- Conducted research on selective input channel elimination in sEMG data for flexor and extensor muscle groups during gesture recognition.
- Developed a generalized predictive model using transfer learning to generate subject-specific models for gesture recognition based on sEMG data.
- Utilized model visualization techniques to identify important channels contributing to model predictions.
- Performed muscle synergy analysis using NMF to validate visualization results and interpret channel importance.
- Conducted ablation studies to evaluate the impact of dropping specific channels on model performance.
- Enhanced model efficiency by removing redundant channels in the sEMG dataset.

**NYUAD.SPACE** | *Research Assistant* August 2022 - June 2023
nyuad.space is an Aerospace Engineering student-led team at the Engineering Design Studio (EDS) at NYUAD

- Successfully launched Project Haloship in the Spaceport America Cup 2023
- Designed, developed, and simulated structural components for the internal rocket skeleton of project Haloship
- Designed, developed, and simulated reusable recovery subsystem for project Haloship.
- Won the Dr. Gil Moore Aware for Technical Innovation for the design of the recovery subsystem
- Designed, developed, and tested reusable Hold-Down Release Mechanism (HDRM) for the Jet Propulsion Lab (JPL) as part of the JPL University Crowdsourcing Initiative (JUCI)
- Presented HDRM design at JPL headquarters in Los Angeles, California

**Applied Interactive Multimedia (AIM) Lab** | *Research Assistant* February 2022 – July 2022
The AIM lab is a research lab at NYUAD that works with diverse facets of interactive multimedia and haptics in applications such as medical training, entertainment, teleoperation, and interpersonal communication.

- Built a full-stack application for Katib, a device aimed at assisting post-stroke patients and children with motor disabilities (re)acquiring their writing skills
- Developed and tested a set of occupational therapy "games" aimed at post-stroke patients according to established procedures in partnership with physicians at Cleveland Clinic Abu Dhabi
- Modified the "games" to assist children in acquiring handwriting skills in partnership with education professionals at Cranleigh Schools Abu Dhabi
- Built tools for recording and processing data to utilize in the Katib platform

## Awards & Competitions

**IEEEXtreme 17.0 Competition** | *Third Place in the UAE* October 2023
Top 10% in the Middle East

**IEEEXtreme 16.0 Competition** | *Fourth Place in the UAE* October 2022

## Projects

**Portfolio Pier** March 2024 – April 2024
Applied Internet Technology course term project.

- Developed a website for building portfolio websites quickly and easily as a class project.
- Utilized NextJS for both front-end and back-end development and MongoDB for database interactions.
- Deployed the website on school servers.

**FizzbuzzDraw** March 2024 – April 2024
One of the Software Engineering course projects.

- Created a webapp game as a final class project for software engineering.
- Employed Flask for the backend, HTML/CSS for the frontend, and websockets for real-time interactions.
- Deployed each subcomponent within a Docker environment and the final project on Digital Ocean.
- Integrated standard software engineering tools/workflows including build tools, unit testing tools, linting tools, GitHub Actions, and published on PyPI.

**Ma Tahtahu Khat** October 2023 – December 2023
Natural Language Processing course term project aimed to create a toolchain to perform I'rab, or the Arabic grammatical process of extended sequence tagging.

- Utilized state-of-the-art morphological analyzers and disambiguators (SAMA & MADAMIRA)
- Implemented HMM bigram approach with post-processing to POS tag a given sentence.
- Featured engineering POS-tagged sentences to extract appropriate information.
- Implemented MEMMs and SVMs to produce appropriate semantic role labels for each word.

**The Beehive** October 2023 – December 2023
Embedded Systems course challenge that analyzes data from the given 3-axis linear accelerometer to perform gesture recognition. The goal of the project is to create reliable gesture encryption for data transfer between people.

- Communicate with peripherals using SPI, I2C, USART, etc.
- Implementing digital signal processing strategies to preprocess and filter the accelerometer data.
- Employ Domain Time Warping Algorithm within very limited memory constraints to find nearest training gesture to recorded time series.

**RISC Simulator with Cache Functionality** November 2023
Created as part of the Computer Architecture and Organization class

**Number Theory & Cryptography Toolkit** August 2022 – December 2022
Over the span of the semester, I built a series of tools related to the Number Theory & Cryptography course at NYUAD such as Baby-Step-Giant-Step to find the discrete logarithm of a point on an elliptic curve and Elliptic Curve Factorization Method.

## Leadership & Community Involvement

**Habitat For Humanity, Bayt Eidis, Jordan** | *Volunteer* March 2023
Volunteered in Jordan as part of NYUAD's Engineers for Social Impact (EfSI) program to assist in constructing houses and community spaces for the underprivileged families of Bayt Eidis. EfSI emphasizes the value of experiential learning to develop globally relevant, locally sustainable designs by encouraging and enabling interactions among the students and community members

**NYUAD Athletics** | *Climbing Wall Supervisor Assistant* August 2022 - June 2023
Assisted in supervising sessions, organizing events, and equipment maintenance

**The Gazelle Newsletter** | *Illustrator* September 2022 – December 2022
Illustrated weekly articles for the university newspaper