Dhiyaa Al Jorf

github.com/DoodyShark doodyshark.github.io linkedin.com/in/dhiyaa-al-jorf da2863@nyu.edu

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 (Current)

Skills

Programming: C/C++, C#, Java, Python, JavaScript, PHP, HTML/CSS, G-Code, Verilog/VHDL
Tools: Git/GitHub, Simulink, MATLAB, Fusion360, VS Code, Onshape, Simscale, LTSpice, PlatformIO, Arduino, Unity, Xilinx, Microsoft Office
Operating Systems: Windows, MacOS, Linux (Ubuntu)
Languages: English: *Native* | Arabic: *Native* | French: *Intermediate*

Experience

MERIIT Lab | *Research Assistant* February 2022 - Present
The MERIIT Lab develops intelligent human-centered robotic systems, neural interfaces, advanced control modules, bio-signal processing algorithms, and smart wearables to augment human capabilities beyond natural competence.

- Training transformer models on EMG and sEMG signals to decipher electrical signals into hand gestures for prosthesis control
- Incorporating LLMs into the system for higher performance

NYUAD.SPACE | *Researcher* 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

Projects

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 involved in assigning diacritics and POS to words given their morphology and role.

- Utilize state-of-the-art morphological analyzers and disambiguators (SAMA & MADAMIRA)
- Implement HMM bigram approach with post-processing to POS tag a given sentence.
- Feature engineering POS-tagged sentences to extract appropriate information.
- Implement MEMMs and SVMs to produce appropriate semantic role labels for each word.
- Employ bash scripts to streamline morphalogical disambiguation, POS tagging, feature extraction, and semantic role labeling (training & testing).
- Final accuracy metrics of 78.95 %.

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
- Elliptic Curve Factorization Method
- Quadratic Seive Factorization
- Factor-Base Discrete Log
- Miller Rabin Primality Test
- RSA Encryption/Decryption tool

A Fine Day August 2021 – December 2021

A course term project aimed to create a gamify post-stroke rehabilitation exercises while collecting patients' precise data.

- Incorporated hand-tracking by integrating the Ultraleap Unity libraries into the game
- Created gamified exercises according to standerdized occupational therapy exercises

Inverse & Forwards Kinematics October 2021

Created for Computer Programming for Engineers class

- Perform forwards and inverse kinematics on a mutli-segment robot operating in 2D space
- Develop a graphics library for displaying the robot rasterized on the terminal screen

WashAD November 2021

Created as a submission to the HackNYUAD Hackathon 2021

- Developed a web app prototype of a laundry management system for the university dorms
- Implemented a flexible slot creation algorithm for each laundry machine
- Created a dummy server capable of keeping track of which slots are booked and which are free

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

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

Climbing Wall Supervisor Assistant August 2022 - June 2023

- Assisted in supervising climbing sessions to ensure the safety of climbers
- Assisted in organizing climbing events and competitions
- Performed weekly equipment maintenance checks

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