

Mohammed A. Zaieda

COMPUTER ENGINEERING AND MATHEMATICS UG STUDENT

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Education

University of Cambridge, Magdalene College

CAMBRIDGE SECURITY INITIATIVE DIPLOMA

- Grade: B+
- International Security and Intelligence (ISI) Program and Conference

Cambridge, UK

5th. of July 2021 - 30th. of July 2021

The American University in Cairo

B.S. IN COMPUTER SCIENCE AND ENGINEERING AND MATHEMATICS

- Cum. GPA: 3.8 / 4.0
- Major GPA: 3.7 / 4.0

New Cairo, Egypt

Sep 2018 - May 2023

The American Creativity Academy

INTERNATIONAL BACCALAUREATE

- Bilingual IB Diploma
- Cum. IB: 34 / 45

Hawalli, Kuwait

Sep. 2016 - May 2018

The American Creativity Academy

HIGH SCHOOL

- American Diploma
- Cum. GPA: 4.03 / 4.0

Hawalli, Kuwait

Sep. 2014 - May 2018

Experience

AUC Material Energy Research Laboratories

DATA SCIENCE RESEARCH ASSISTANT

- Copper based bimetallic carbon dioxide reduction reaction using a machine learning model.
- Performed data analysis on data retrieved from papers for training the model.

New Cairo, Egypt

Mar. 2022 - Present

Blnk

PART TIME BACKEND DEVELOPER

- Created banking systems and a loan management system.
- Used Django and VueJS to create the admin panel.

Sheikh Zayed, Egypt

Oct. 2021 - Dec. 2021

Openware Information Systems Consulting Company

FULL STACK DEVELOPER INTERN

- Created a weather application using ReactJS and NodeJS.
- Implemented a global branch locator based on ESRI.

Kuwait City, Kuwait

Jun. 2021 - Aug. 2021

Grand International Company

MOBILE APPLICATION DEVELOPER INTERN

- Implemented a branch locator application for Zain Tel. Company using Flutter.
- Developed a MySQL database with an admin panel using Outsystems.

Shwaikh, Kuwait

Jun. 2021 - Aug. 2021

Hérmina Properties

PROPERTY CONSULTANT & REAL ESTATE AGENT

- Contracted with clients for real estate investments.

New Cairo, Egypt

Jan. 2019 - Apr. 2019

Skills

Programming	Python C/C++ x86-64 MIPS RISC-V Verilog (Nexys A7) STM32 nucleo board TIVA-C
Full Stack	NodeJS ReactJS Django Flutter HTML5 CSS3 JavaScript(ES6)
Soft Skills	Critical Thinking Leadership Teamwork
Languages	Arabic English

Technical Projects

Abstractive Text Summarization using Deep Learning

USED GOOGLE'S PRETRAINED TRANSFORMER (PEGASUS-LARGE)

- Performed two types of data augmentation on the XSum dataset.
- Changed the word embedding algorithm to Word2Vec instead of positional sinusoidal embedding.
- Performed hyperparameter tuning.

New Cairo, Egypt

May. 2022

COVID 19 Crowd Management System

CROWD MANAGEMENT SYSTEM IN LARGE PREMISES TO CONTROL THE NUMBER OF PEOPLE IN THE PREMISE

- Built an embedded system on STM32 nucleo board with multiple sensors.
- Used an ESP32 module along with ThingESP APIs for WhatsApp bot.

New Cairo, Egypt

May. 2022

Dijkstra's Implementation for Maze Routing

MAZE ROUTING ALGORITHM FOR GDSII PHYSICAL LAYOUT SYNTHESIS

- Written in C and supports up to 100 orthogonal routing layers.
- Applied higher cost for Vias as a way to prevent traversing through layers.
- Nets are adjacent and never intersect with a source, destination, and layer attributes.

Hawalli, Kuwait

May. 2021

Redundant Fork for Fault Tolerance

PARALLEL FORK - TWO CHILDREN FORK SYSTEM CALL

- Modified the Linux kernel to support a new system call called pfork.
- The pfork forks two children processes and specify one as runnable and the other as standby.
- Modified the core.c, sched.h, fork.c, and exit.c files to finalize the implementation.
- Added attributes in the process control block such as pfork status and pfork process ID.
- Compiled the Linux kernel on a Debian based virtual machine.

Hawalli, Kuwait

May. 2021

Gender Voice Recognition

MACHINE LEARNING PROJECT TO IDENTIFY THE GENDER OF THE SPEAKER

- Used Tensorflow, Numpy, Pandas, Librosa, and Keras frameworks in Python.
- Created H5 models for the weighted prediction of signal processing.
- Broke down the specifications of each .wav file and measured the natural frequency of the audio file.

New Cairo, Egypt

Apr. 2021

DFT, IDFT, and FFT Implementation

DIFFERENT FOURIER TRANSFORM ALGORITHMS ON AUDIO WAV FILE

- Applied 128-point DFT on sampled audio file.
- Plotted the real and Imaginary form of the DFT and IDFT.
- Modified the window function to reduce DFT leakage on the polar form.

Dubai, United Arab of Emirates

Mar. 2021

Tomasulo Simulator

TOMASULO SIMULATOR BASED ON THE CDC 6600 ARCHITECTURE WITHOUT ROB

- Produced the clock cycles needed for each instruction and handled RAW, WAR, and WAW hazards
- Calculated branch mispredictions and handles jump instructions

New Cairo, Egypt

Mar. 2021

RISC-V 32I Processor

VERILOG MODULES GENERATED ON A NEXYS A7 BOARD

- Pipelined RISC-V processor of the integer instruction set.
- Hazard detection unit, forwarding unit, and arithmetic operations supported.
- Single memory approach with 5 staged pipeline.

New Cairo, Egypt

May. 2020

Direct Map Cache Simulator

SIMULATE THE NUMBER OF TOTAL MISSES AND HITS OF DIRECT MAP CACHE

- Produced the total clock cycles and number of memory access and writes.
- Handled misses and hits to sync with clock cycles needed with a graphical interpretation of the expected trend.

New Cairo, Egypt

Apr. 2019

BIOS Bootloader x86-64

PROGRAMMED A THREE STAGED BOOTLOADER FROM SCRATCH

- Booted from a virtual floppy and virtual hard drive using page table implementation.
- Based on the BIOS firmware with PIC, IDT, and GDT supported.

New Cairo, Egypt

Mar. 2019

Hooking the Fork System Call

WROTE A ROOTKIT DESIGNED TO REPLACE THE FORK SYSTEM CALL

- Modified the NR Clone entry in the system call table to point to custom method.
- Disabled KASLR and ran the kernel module to replace any fork system calls with a different system call.

New Cairo, Egypt

Feb. 2019

Extracurricular Activity

IEEE AUC Student Branch

CHAIRMAN AND PRESIDENT

- Organized events and assigned tasks to the upper board.

New Cairo, Egypt

Aug. 2021 - Dec. 2021

Student Union

INTERNAL OPERATIONS GENERAL MANAGER

- Created admin panels for the SU packs and the SU market.

New Cairo, Egypt

Aug. 2021 - Jan. 2022

Vodafone CVM

PRESENTER AND RESEARCHER

- Proposed recommendation for the company to rebound their revenues after COVID-19.
- Created a mathematical and graphical study targeting the main reasons behind the inactivity of clients.

New Cairo, Egypt

Apr. 2021

Computer Science and Engineering Association

MARKETING AND MULTIMEDIA DIRECTOR

- Created flyers and banners for events hosted by CSEA.
- Managed a team of graphic designers.

New Cairo, Egypt

Feb. 2021 - Sep. 2021

IEEE AUC Student Branch

PUBLIC RELATIONS AND MULTIMEDIA DIRECTOR

- Hosted a Cyber Security event featuring Eng. Bahaa Othman.
- Affiliated with STP Ain Shams for a computer science hackathon.

New Cairo, Egypt

Sep. 2020 - Aug. 2021

Model United Nations

DELEGATE

- Participated as an MUN delegate in different commissions.

Hawalli, Kuwait

Sep. 2016 - May 2018

Certifications

- 2021 **SCE**, School of Continuing Education Leadership Course
- 2021 **CREH**, Certified Red Hat Network Hacker
- 2021 **CCSP**, Certified Cloud Security Professional
- 2020 **CEH**, Certified Ethical Hacker

AUC, New Cairo

zSecurity, Udemy

EHacking.com

zSecurity, Udemy