

ABOUT ME

As a highly motivated computer engineer, I am confident in my skills in software engineering and academic research proving valuable to any team. Seeking to Create tailored solutions to novel problems.

EDUCATION

The American University in Cairo (AUC) 2017-2022

 Cairo

- > BSc in Computer Engineering
- > Graduated with High Honors. GPA: 3.6/4.0

International School for Elite Education 2011-2017

 Cairo

- > Graduated with High Honors

SELECTED PROJECTS

Machine learning based decompiler 2021-2022

- > Transformer based decompiler targeting android.
- > Novel tree graph generator for AST representation.
- > Designed to be a forensic malware tool.

Persistence of vision display 2021

- > Created high speed fan display and embedded system to fulfill millisecond timing constraints.
- > Featured embedded web server for user accessibility.

Machine learning library from scratch 2021

- > CUDA accelerated ML library.
- > Implemented training and inference framework for deep neural networks and convolutional neural networks.

Distance sensor from scratch 2021

- > Ultrasonic distance sensor.
- > Reverse engineered market boards to create a more accurate sensor.

RISC-V microarchitecture 2021

- > Implemented 6 pipeline RISC-V microarchitecture on an FPGA in Verilog fulfilling specification requirements.

Pacman clone 2018





- > Recreated first 3 levels of Pacman.
- > Complete with level editor and online user scoreboard.

Self Introduction Video

EXPERIENCE

Undergraduate teaching assistant

 AUC


- > Assembly&Comp Organization  2021-2022
 - > Guided students through ISA, ASM, caching concepts.
- > Computer Architecture  2020-2021
 - > Explained micro-architecture for pipelined CPUs.
- > Department Tutor  2019-2020
 - > Student driven "clinic" supporting students in studies.
 - > Aided first 4 levels of CS courses through sessions.
- > Programming Fundamentals  2018-2020
 - > Maintained university ACM scoreboard.
 - > Helped students understand OOP and programming concepts.

Lead research intern 2020-2021

 AUC

- > Led team of 4 to create a process that builds application specific RISC-V based CPUs.

AI development intern 2020-2021

 Tod-Z (remote)

- > Lead AI and machine learning development.
- > Built entire machine learning stack from concept to training to deployment.

Intern 2020

 Agile technologies (remote)

- > Built web store using OutSystems.
- > Regularly communicated for quality assurance.

EXTRACURRICULAR

ROV media head 2017-2019

 AUC

- > Led team of 5 to market and document Robotics club's remotely operated vehicle events.
- > Photographed and documented dozens of events and directed 4 marketing videos.

Assistant media head 2017

 AUC insider

- > Lead photographer for AUC news paper.
- > Published over a dozen photographs covering local events.

NASA camp 2015

 NASA,atlanta

- > Won "Best Camper" award.

PUBLICATIONS

A Neural Generation Framework for Android De-compilation

2022

- AAAI (pending)
- Completed Bachelor thesis
- Created a novel method for tree graph generation.
- Applied the novel method and transformer translation to Android decompilation.

Dive, Eat, Sleep & Repeat

2022

- Busniess Monthly Magazine
- Wrote an article on diving in the red sea during shark season.
- Released in the 2022 august issue of Business monthly.

Application specific chisel unused hardware optimizer

2020-2022

- (in progress)
- Working on framework to optimize out unused hardware according to application use case in chisel.

LANGUAGES (Lines of Code) >

Python(38k)

C++(35k)

L^AT_EX(25k)

Verilog(5k)

Java(5k)

Kotlin(2k)

Rust(2k)

Dart(2k)

Javascript(2k)

Bash(1k)

SQL(1k)

HOBBIES

Recreational scuba diver

- Licensed 2-star CMAS scuba diver.
- Over 200 dives in the red sea since 2009.

PC enthusiast

- Built own liquid cooled computer.
- Administering homelab with file, surveillance, DNS servers.

3D printing enthusiast

- Designed own 3D printed robot components.

Travel

- Traveled to most of Europe, the U.S.A, the Middle East and Africa

COMPETITIONS

HackTrick Hackathon

2022

- DELL EMC
- Built a reinforcement learning model to compete in material pipeline optimization challenges.

ICPC ACM

2019

- AUC
- Entered local ICPC ACM.
- Was the youngest participant.

Code Geist Hackathon

2019

- Seft Wahed
- Created an app and its pitch in 72 hours.
- Collaborated in a team of 4.
- Developed a platform to address littering.

MATE ROV

2017-2019

- MATE
- Joined university's Remotely Operated Vehicle team.
- Contributed to circuit and mechanical design.

Science Fair

2014

- Student Expo
- Won first place at high school level with a 4 wheeled remote controlled robot featuring a 3-axis arm.

SKILLS >

Git VCS

Linux

Docker

English

Arabic