

## 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

- 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

- 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

- (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 <sup>A</sup> T <sub>E</sub> X(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

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

ICPC ACM

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

Code Geist Hackathon

- 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

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

Science Fair

- 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

LANGUAGES >

English (native) Arabic (native)