

EDUCATION

Boston University *PhD - Computer science* Boston, Massachusetts USA
Distributed Systems Researcher - Advised by Prof. Ibrahim Matta GPA: 3.69/4.0 2019 - present

German University in Cairo Cairo, Egypt
Bachelor's degree - Computer Science and Engineering GPA: A 2014 - 2019

RESEARCH EXPERIENCE

Scheduling in Serverless Multi-Cloud Scenarios Current Ongoing Research
We are designing a smart scheduler for the setting of serverless multi-cloud. The goal of the scheduler is to select which region or cloud to send the next functions in the queue to. The choices made by our scheduler improve the throughput of the overall system over the state of the art.

Multiparty Computation with Jiff *Hariri Institute. Previous research.* April 2018 - June 2018
Participated in research with the SAIL team (Software Application and Innovation Lab) at the Hariri Institute at BU, supervised by Prof. Azer Bestavros and Prof. Andrei Lapets. Contributed to Jiff, a library that allows JavaScript users to implement applications of Multiparty Computation (MPC). Contributed to the core library and utilized the library to implement more than 7 MPC applications.

INTERNSHIP EXPERIENCE

FABRIC Testbed *Student Researcher* March, 2021 – Present. Remote, USA.
FABRIC Testbed provides cloud computing infrastructure, as well as software for interacting with the infrastructure. I work on designing tutorials for the FABRIC software, as well as experiments. This can help users run their own experiments, as well as explore the capabilities of the infrastructure. I also help with testing the FABRIC software, and I contribute to the software.

Sequel Solutions *Backend Developer, Internship* May, 2020 – June, 2020. Cairo, Egypt
Worked on developing the back-end for a real time chat application. Added features that were requested, like video calling, the seen feature, sending image files, etc.
Main software used: Nodejs, Socket.io, openvidu.

Trufla *Full Stack Web Development, Internship* June, 2017 – August, 2017. Cairo, Egypt
Worked on the company's dockerized AWS staging servers. Added ES6 support to their Angular 1 app.
Created an API that calculates an estimate of a driver's grid rate. Created auto-complete APIs. Did numerous front-end fixes.

PUBLICATIONS

Solving the 2021 DEBS grand challenge using Apache Flink June, 2021 : ACM DEBS '21
We look at air quality sensor data (in AQI) of cities. The task was to use Apache Flink to find the cities that have improved the most in air quality, and the cities that have achieved the longest sequence of good AQI values.

PROJECTS (UNIVERSITY)

Real Estate Broker *GoLang backend & Android App (Kotlin)*
An android application and a GoLang chatbot backend. A real estate broker bot that records property details from sellers and uses the data to recommend properties to buyers. Users are sellers and buyers.

School Network *SQL & PHP*
A school network website. User roles: admin, student, parent, teacher. Students can enroll in schools and solve assignments posted by teachers.

Car Chase *OpenGL*

Single player 3D runaway car with collectibles, obstacles and levels.

Scalable Messenger *Java*

A desktop-based text messenger. Multiple instances of the backend can be run and the load is balanced automatically. Used the reactor design pattern.

Unity3D Games *Unity3D & C#*

Interactive Movie Game (Group Project).

Two Platform Games.

PROJECTS (PERSONAL)

Web-based Messenger *MEAN Stack*

A private messaging application made using the MEAN stack. It was developed in 5 days as an interview project for Truffa. The source code is on Github.

Multiplayer Card Game (Tarneeb) *MEAN stack*

A browser-based multiplayer card game made with the MEAN stack. Designed to responsively work on phone browsers. Developed by two of my colleagues and me in two months just for fun.

TEACHING & ACTIVITIES

Junior Teaching Assistant *German University in Cairo*

(CSEN 102) Introduction to Computer Science (Python), Winter 2015

(CSEN 202) Introduction to Computer Programming (Java), Spring 2016

Bug Reporting and Q&A *Online Presence*

KDE Bug Tracking. Bugs reported (currently 36).

Launchpad.net Bugs Reported (currently 15).

AskUbuntu (currently Q:138, A:123).

StackOverflow (currently Q:22, A:26).

Awards

CIB Bank 4th place in “The Battle Of Games” competition for developing a single player turn based strategy Unity3D game.

IGCSE Top of Egypt in O-Level Mathematics.