Muhammad Hamdy AlAref

Computer Engineer

(+20)1098534363
muhammad@alaref.me
github.com/muhammad-alaref
linkedin.com/in/muhammad-alaref

Experience

Software Engineer — *Feb 2022 – Present*
Microsoft – Advanced Technology Lab

Teaching Assistant — *Sep 2019 – May 2020 | Oct 2021 – Feb 2022*
Zewail City – University of Science and Technology

- Co-teach the *Artificial Intelligence*, *Big Data Analytics*, *Operating Systems* and *Programming Fundamentals* courses.
- Create new practical (tutorial/lab) material for the *Artificial Intelligence* and *Big Data Analytics* courses.
- Set up a *Hadoop/Spark on-premise cluster* for the *Big Data Analytics* course.
- Created GradeSync; a tool to sync grades from spreadsheets to Google Classroom (for lack of a better option).

Teaching Assistant — *Sep 2019 – Jan 2020 | Oct 2021 – Jan 2022*
Cairo University – Faculty of Engineering

- Co-teach the *Pattern Recognition & Neural Networks* and *Operating Systems* courses.

Teaching Assistant — *Sep 2021 – Dec 2021*
The American University in Cairo – CSCE

- Co-teach the *Operating Systems* course.

Teaching Assistant — *Sep 2021 – Dec 2021*
University of Ottawa – Digital Egypt Builders Initiative

- Co-teach the *Fundamentals of Cybersecurity* and *Cryptography* courses.

Distributed Back-end Engineer — *Jul 2017 – Oct 2017*
Purdue University – CAM^2 Project (remote)

- Researched the possibility of leveraging modern distributed big data frameworks for the *CAM^2* project.
- Developed a distributed version of the *CAM^2* back-end in *Python* using *Apache Spark*.
- Developed a *RESTful API* to unify access to the new back-end using *Flask*.
- Developed a web browser-based interface using *Bootstrap* as well as a command-line interface using *Click* for ease of use.

Skills

Good with *Python*, *C/C++*, *Java SE*, *TypeScript*, *JavaScript*, *Linux*, *Git*, *Spark*, *Flask* and *LaTeX*.
Dealt with *Hadoop*, *Flink*, *OpenGL*, *Spring*, *SQL*, *NoSQL*, *Node.js*, *jQuery*, *Bootstrap* and *Heroku*.
Familiar with *Amazon Web Services*, *Google Cloud Platform*, *Kubernetes*, *Ruby on Rails* and *VHDL*.

Languages

English — *Full Professional Proficiency*

Arabic — *Native Proficiency*

Education

Master of Artificial Intelligence — *2021 – Present*
Zewail City – University of Science and Technology

- Still searching for the right research topic for the thesis.

Bachelor of Computer Engineering — *2014 – 2019*
Cairo University – Faculty of Engineering

Grade: *Excellence with Honors*

- Elected *Class Representative* for the senior year.
- Elected *Leader* of a 22-member team for an academic project in artificial intelligence (Scrabble-playing agent).
- Received *Certificate of Appreciation* from my class.

Self-Study
Online Platforms

- Project and Time Management *(UC Irvine, Coursera)*
- Mathematics for Computer Science *(MIT, OCW)*
- Python for Data Science *(UC San Diego, edX)*
- Software Construction in Java *(MIT, edX)*
- Software Security *(University of Maryland, Coursera)*
- Agile Development Using Ruby on Rails *(UC Berkeley, edX)*
- Cloud Computing Concepts and Applications *(University of Illinois, Coursera)*

Academic Team Projects

Digitizer — *Graduation Project*
Low-price high-resolution CNC-based 3D scanner head using *laser triangulation* technology.
Sponsored by *Si-Ware Systems* and *ITIDA*.

House of Words — *Fall 2018*
Scrabble-playing agent with a front-end web game interface written in *C++* and *JavaScript*.

Code Fight — *Spring 2018*
Cloud-based IDE for real-time code collaboration written in *TypeScript* using *Node.js*, *jQuery*, *Bootstrap* and *Socket.IO*.

Autographer — *Fall 2017*
Photography post-processing application written in *Python* using *OpenCV* and *Kivy*.

Chess Hackster — *Spring 2017*
Real-life Harry Potter-style chess written in *C++* and *C#* using *Arduino* and *Raspberry Pi*.

Impossible Race — *Fall 2016*
Racing game written in *C++* using *OpenGL*.

Assymphony — *Fall 2016*
Multiplayer musical game written in *x86 assembly language*.

LogicSim — *Spring 2016*
Basic logic simulator written in *C++* using *SFML*.