Muhammad AlAref

Computer Engineer

muhammad@alaref.me @
github.com/muhammad-alaref
linkedin.com/in/muhammad-alaref

Experience

Microsoft – Edge Shopping

Software Development Engineer II *Mar 2023 – Present*
Software Development Engineer *Feb 2022 – Feb 2023*

- Develop, test and maintain features facing millions of users.
- Investigate emerging technologies, e.g., LLMs, and develop demos and prototypes of possible ways to leverage them.
- Drive end-to-end production scenarios; from early design, throughout experimental shipping, to general rollout.
- Implement and analyze telemetry to measure impact and identify ways to maximize it.
- Refactor, restructure and optimize a large legacy codebase and figure out ways to continuously address technical debt.
- Boost team productivity by significantly improving dev builds (from minutes to seconds) and debugger integration.
- Tech-lead and mentor teammates into new work streams.

Zewail City – University of Science and Technology

Teaching Assistant *4 semesters, Sep 2019 – Jan 2023*

- 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*.
- Create GradeSync; a tool to sync grades from spreadsheets to Google Classroom (for lack of a better option).

Cairo University – Faculty of Engineering

Teaching Assistant *2 semesters, Sep 2019 – Jan 2022*

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

The American University in Cairo – CSCE

Teaching Assistant *1 semester, Sep 2021 – Dec 2021*

- Co-teach the *Operating Systems* course.

University of Ottawa – DEBI

Teaching Assistant *1 semester, Sep 2021 – Dec 2021*

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

Purdue University – CAM^2 Project

Distributed Back-end Engineer (remote) *Jul 2017 – Oct 2017*

- 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*, along with a web browser-based interface using *Bootstrap* and a command-line interface using *Click*.

Languages

English
Full Professional Proficiency

Arabic
Native Proficiency

Education

Zewail City – University of Science and Technology

Master of Artificial Intelligence *2021 – Present*

GPA: *4.0* • Interested in knowledge representation.

Cairo University – Faculty of Engineering

Bachelor of Computer Engineering *2014 – 2019*

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.

Online Platforms – Self-Study

- Knowledge Graphs *(Stanford Online)*
- 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)*

Skills

Good with *TypeScript/JavaScript*, *.NET*, *Git*, *Azure*, *C++*, *Python*, *TensorFlow*, *Spark*, *Flask* and *Linux*.
Dealt with *PyTorch*, *Java*, *Hadoop*, *Flink*, *OpenGL*, *SQL*, *NoSQL*, *jQuery*, *Bootstrap* and *Heroku*.
Familiar with *Amazon Web Services*, *Google Cloud Platform*, *Docker*, *Ruby on Rails* and *VHDL*.

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 image-processing application written in *Python* using *OpenCV* and *Kivy*.

Chess Hackster *Spring 2017*

Real-life [miniature] Harry Potter-style chess written in *C++* and *C#* using *Arduino* and *Raspberry Pi*.