Muhammad AlAref

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PROFESSIONAL EXPERIENCE

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

- Increased reach of Edge Shopping, now facing *millions* of *daily active users.*
  - Owned and drove features end-to-end; from *initial conception* with LT and designers, through choosing suited *technologies and architecture*, passing *compliance reviews (security, privacy, a11y, …)*, to *experimental shipping* and *general rollout.*
  - Worked with *frontier LLMs*, like *GPT-3/4*, and leveraged them to *automate manual tasks* and *create demos and PoCs.*
  - Designed *metrics* and implemented *telemetry* to measure impact and detect any regressions.
  - Mitigated *live site issues* as soon as occur, and investigated *root causes* afterwards.
  - *Significantly* reduced coupons auto-apply time by identifying and skipping redundant ones.
  - Experimented with *personalization models* to identify dissatisfied users and avoid over-triggering.
- Increased the *productivity* and *agility* of all teams working on and using the platform.
  - *Proactively* reduced dev build times *from minutes to seconds.*
  - Integrated *live debugging* with Edge's dev tools (not that straightforward when working *inside the browser*).
  - Jumped into a *large legacy production repo*, and built enough rapport to, not only refactor, but *restructure the whole codebase* to make it more maintainable and modular.
  - Quickly ramped up on *adjacent codebases* and developed ways to integrate with them end-to-end.
  - Worked with teams *across different orgs* on marketing and promotional campaigns.
- *Tech-led* and *mentored* junior teammates into new cashback work streams.

ACADEMIC EXPERIENCE

Teaching Assistant	**Cairo University, Zewail City, AUC, uOttawa**	*4 semesters over 2019 – 2022*

- Co-taught and created new practical material (tutorials/labs) for plethora of courses ranging from the basics like *Programming Fundamentals* and *Operating Systems* to the more advanced ones like *Artificial Intelligence Techniques*, *Big Data Analytics*, *Pattern Recognition & Neural Networks*, *Fundamentals of Cybersecurity*, and *Cryptography.*
- Set up and maintained a *Hadoop/Spark on-premise cluster.*
- Created GradeSync – a tool to sync grades from spreadsheets to Google Classroom (for lack of a better option).

Distributed Backend Intern	**Purdue University**	*Jul 2017 – Oct 2017*

- Developed a distributed backend for the CAM^2 project in *Python* using *Apache Spark.*

EDUCATION

Master of Artificial Intelligence	**Zewail City**	*2021 – Present*
GPA: 4.0	**University of Science and Technology**	

- Research on leveraging *Knowledge Graphs* to improve efficiency of *Language Models* and prevent hallucinations.

Bachelor of Computer Engineering	**Cairo University**	*2014 – 2019*
Grade: Excellence with Honors	**Faculty of Engineering**	

- Elected *Class Representative* for the senior year and received *Certificate of Appreciation* from my class.
- Elected *Leader* of a 22-member team for a group project in artificial intelligence (Scrabble-playing agent).
- *Graduation project:* Low-price high-resolution CNC-based 3D scanner head using *laser triangulation* technology. Sponsored by *Si-Ware Systems* and *ITIDA.*

SKILLS & TECHNOLOGIES

- **Core** *TypeScript/JavaScript, Python, C#, C/C++, Java, Git, Linux, Bash, SQL*
- **Full-stack dev** *HTML & CSS, React, FAST, jQuery, Bootstrap, Webpack, Node.js, Express, .NET, Flask, Figma*
- **AI, ML, DL, Data Science, Distributed Systems** *TensorFlow, PyTorch, HuggingFace, Hadoop, Spark, DataBricks*
- **System Design, Automation, DevOps & CI/CD** *Azure, Azure, Docker, Puppeteer, Heroku*
- **Self-Study Dev Courses** *Agile Development (UC Berkeley), Software Construction in Java (MIT), Software Security (UMD), Software Testing Fundamentals (USM), Cloud Computing Concepts and Applications (University of Illinois)*
- **Self-Study Science Courses** *Knowledge Graphs (Stanford), Python for Data Science (UC San Diego), Project and Time Management (UC Irvine), Mathematics for Computer Science (MIT)*