

Youssef Hussein

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EDUCATION

University of Minnesota

Ph.D. in Computer Science

Minneapolis, MN

Sep. 2023 – Present

- **Conducting research** in the area of Big Data Management and Systems Architecture focusing on SpatioTemporal Data.

The American Univeristy in Cairo

Bachelor of Science in Computer Engineering, Minor in Mathematics

Cairo, Egypt

Sep. 2018 – July. 2023

- **Thesis** Basant Abdelaal, ... & Hussein, Y, "GPU Accelerated Dataflow Analysis" June 2023, Unpublished.
- **Dean List** Placed on the Dean's Honorary List in Spring & Fall 2021, Spring & Fall 2022 & Spring 2023.
- **Scholarshib** Received a fully funded merit scholarship from the AGFE foundation with a 3.5% acceptance rate.

PROFESSIONAL EXPERIENCE

Dell Technologies

Software Engineer Co-op/Intern

Cairo, EG

Mar 2022 - Mar 2023

- **Worked** as a Software Engineer Intern in Dell's 5G team on vital modules in C++ and directly contibuting to Dell's 5G platforms.
- **Collaborated** with a multi-national team in Egypt and Canada on deploying the 5G servers, maintianing continous deployment to pipelines, management of gRPC micro-services, and containerization of 30 modules using Docker & Podman.

Udacity Inc.

Programming Fundamentals Mentor

Emeryville, CA

Sep 2022 - May 2024

- **Guided** 60 students aged 12-17 through the CS Fundamentals Nanodegree for over 900 teaching hours across 15 weeks.

Silicon Arena LLC

Software Engineer Intern

Cairo, EG

Aug 2021 - Oct 2021

- **Served** as a Front-End Engineer Intern operating within an Agile framework to construct an open-source eCommerce website.

RESEARCH EXPERIENCE

University of Minnesota

Graduate Research Assitant and Fellow (Supervised by Prof. Mohamed Mokbel)

Minneapolis, MN

Sep 2023 - Present

- **iHARP: data infrastructure for polar scientists (ongoing)**
 - Developed and presented a web portal (iharpv.cs.umn.edu) for interactively querying and visualizing raster data.
- **KAFYTraj: An Extensible System For Trajectory Operations Using LLMs (ongoing)**
 - Building a suitcase of LLMs analogous to HuggingFace to build and extend multiple trajectory operations.
 - Packaging the system in an extensible easy-to-use python library pypi.org/project/KAFYTraj/

The American University in Cairo

Junior Research Assistant

Cairo, EG

Sep 2019 - Jul 2021

- **Tackled** a dual-criticality scheduling challenge in online and offline contexts utilizing multiple Reinforcement Learning (RL) models.
- **Developed** RL models using OpenAI Gym, RLlib, and Stable Baselines, involving the creation of over 5000 lines of Python code.
- **Evaluated** model performance and Hyperparameter Tuning, leveraging TensorFlow and TensorBoard for analysis.

Research Engineer

Aug 2020 - May 2021

- **Contribution** Led the development of an embedded application for a multidisciplinary research project integrating four subsystems to support sustainable land farming while minimizing water consumption.
- **Technical skills** Utilized Python libraries, such as Beautiful Soup and Pandas, to extract real-time data.

PUBLICATIONS AND CONFERENCES PRESENTATIONS

- Presenter **Hussein, Y**, Huang, Y., & Mokbel, M. (2024, June). "A Scalable System Infrastructure for Querying and Visualizing ERA5 Data". iHARP Second All Hands Meeting, Alaska, US.
- O. A. Hosny Sherif, ... A., & **Hussein, Y**, "Economic Land Utilization Optimization Model," Sustainability, vol. 15, no. 3, p. 2594, Feb. 2023, doi: 10.3390/su15032594
- Hosny, O., ... Sherif, A., & **Hussein, Y**. "Designing an automated multi-objective optimization model for integrated and sustainable farming", Construction Research Congress 2022. <https://doi.org/10.1061/9780784483961.005>
- Sakr, N., **Hussein, Y**, & Farid, K. (2021). "Dual-criticality scheduling on non-preemptive, dynamic processors using RL Agents", The third international workshop on dynamic scheduling problems (pp. 57-62). Poznań, Poland
- Presenter Sakr, N., Presenter **Hussein, Y**, & Farid, K. (2020, November 7-13). "A Data-Driven Approach to Scheduling Mixed-criticality Jobs [Conference session]". INFORMS Annual Meeting, Virtual.

SKILLS

- **Languages:** C++, Python, VBA, MySQL, Shell Scripting, Docker, Unit-Testing (GoogleTest).
- **Technologies:** Scrapy, TensorFlow, OpenAI Gym, RLlib, Stable Baselines, and Google Cloud Platform.