Gad Gad

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Education

2023 – Present	🔖	**PhD, Computer Science, Western University, ON, Canada** Research and Teaching Assistant
2021 – 2023	🔖	**MSc, Computer Science, Lakehead University, ON, Canada** Research and Teaching Assistant
2015 – 2021	🔖	**BSc, Computer Engineering, Nile University, Egypt** Merit-based full scholarship for academic performance.

Skills

Languages	🔖	Python, C++, C
Tools & Libraries	🔖	Keras, Pytorch, sklearn, ROS, CUDA, Flask, SQLite, Docker
Cloud Services	🔖	AWS Machine Learning Speciality.
Development baords	🔖	Raspberry Pi, ESP32, Arduino, Jetson Nano

Experience

Sept. 23 - Present	🔖	**Teaching and Research Assistant,** Western University. (London, Canada) Conducting research in the following areas: Integrated Sensing and Communication (ISAC), Wifi sensing, federated learning, and differential privacy.
Sept. 21 - Apri 23	🔖	**Teaching and Research Assistant,** Lakehead University. (Thunder Bay, Canada) Conducting research in the following areas: federated learning, knowledge distillation, and differential privacy.
Apr. 21 - Aug. 21	🔖	**Software Engineer,** Delta-care. (Giza, Egypt) Developed the backend of an automatic microscope. Developed deep learning detection, tracking, and segmentation to automate human semen assessment.
Sept. 20 - Jul. 21	🔖	**Software Intern,** Vortex. (Alexandria, Egypt) Software development for Vortex RoboSub 2021 competition Autonomous Underwater Vehicle (AUV) team. Designed and implemented collaborative ROS nodes for smart underwater detection and motion planning.
Nov. 20 - May 21	🔖	**Machine Learning Intern,** UN ESCWA. (remote; Lebanon, New York) Satellite imagery analysis for urban development.

Projects

AWS	🔖	S3-triggered AWS Lambda-based PDF processor. Voice assistant based on Whisper and ChatGPT deployed on AWS. Fine-tuning pre-trained language models for semantic analysis of tweets.
Machine Learning	🔖	Image captioning, implementing Google's paper: Show and tell. Video captioning, extending on image captioning. Federated Learning with knowledge distillation & Differential privacy. Lane instance segmentation.

Projects (continued)

Data Science	▌ Website layout A/B testing. Investigating Simpson's paradox. Credit card default prediction.
Satellite Imagery	▌ Urban areas segmentation of 4-band multispectral images. Urban development detection and analysis. Landcover & crop classification using USDA CropScape.

Research Publications

Journal Articles

1. **G. Gad** and Z. Fadlullah, "Federated learning via augmented knowledge distillation for heterogenous deep human activity recognition systems," *Sensors*, vol. 23, no. 1, p. 6, 2023.

2. **G. Gad**, E. Gad, K. Cengiz, Z. Fadlullah, and B. Mokhtar, "Deep learning-based context-aware video content analysis on iot devices," *Electronics*, vol. 11, no. 11, p. 1785, 2022.

Conference Proceedings

1. **G. Gad**, G. Eyad, and B. Mokhtar, "Towards optimized iot-based context-aware video content analysis framework," in *IEEE 7th World Forum on Internet of Things*, 2021.

2. **G. Gad**, A. Annaby, M. Saeed, and N. Negied, "Real-time lane instance segmentation using segnet and image processing," in *IEEE Novel Intelligent and Leading Emerging Sciences*, 2020.

Miscellaneous Experience

Extracurricular Activities

2018-2020	▌ Writer in Nu-Insider newspaper (university newspaper)
2018	▌ 104th place at ECPC of ACM competitive programming competition.

Awards

2024	▌ 2nd place in UWORCS. Awarded by Western university.
2023	▌ Student Travel Grant to attend GLOBECOM23 (1,000 USD). Awarded by IEEE.
2021	▌ Vector Institute AI scholarship recipient (17,500 CAD). Awarded by Vector Institute.
2020	▌ Best Poster Award, NRSC 2020 conference (800 EGP).
	▌ 3rd place in IT & CS track, Egyptian junior researcher competition (2000 EGP).
	▌ TICO Innovation Award (500 USD).

Certification

2021	▌ AWS certified ML specialist. Awarded by AWS.
	▌ Software Testing MicroMaster. Awarded by University of Maryland University College.
	▌ Advanced data analysis nanodegree. Awarded by Udacity.
2020	▌ TensorFlow developer professional Cert. Awarded by Google.