

# 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**
- Cloud Services **AWS Machine Learning Speciality.**
- Development boards **Raspberry Pi, ESP32, Arduino, Jetson Nano**

## Experience

- Sept. 25 - Present **Volunteer** Lumiere. (Remote)  
Mentoring talented high-school students through AI research projects.
- Sept. 23 - Present **Teaching and Research Assistant**, Western University. (London, Canada)  
Conducting research in the following areas: Wifi sensing, federated learning, Interpretable deep learning, and differential privacy.
- Sept. 21 - Apr 23 **Teaching and Research Assistant**, Lakehead University. (Thunder Bay, Canada)  
Conducting research in the following areas: federated learning, knowledge distillation, and differential privacy.  
Teaching C language and Linux operating system to undergraduate students.
- Sept. 24 - April 25 **Lecturer** Western University. (London, Canada)  
Teaching C language and Linux operating system to undergraduate students.
- 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.

## Projects (continued)

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.
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

- G. Gad**, A. Farrag, A. Aboulfotouh, K. Bedda, Z. M. Fadlullah, and M. M. Fouda, "Joint self-organizing maps and knowledge-distillation-based communication-efficient federated learning for resource-constrained uav-iot systems," *IEEE Internet of Things Journal*, vol. 11, no. 9, pp. 15 504–15 522, 2024. [DOI: 10.1109/JIOT.2023.3349295](#).
- 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.
- 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.

## Miscellaneous Experience

### Extracurricular Activities

2024-present	Writer in Western university computer science department newsletter
2018-2020	Writer in Nu-Insider newspaper (university newspaper)
2018	104 <sup>th</sup> 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.