

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++, SQL**
- Tools & Libraries **Keras, Pytorch, sklearn, ROS, CUDA, Flask, SQLite, Docker**
- Cloud Services **AWS Machine Learning Speciality.**


Experience

- Sept. 23 - Present **Teaching and Research Assistant, Western University.**
Conducting research in the following areas: mmWave wireless communications, federated learning, and differential privacy.
- Sept. 21 - Apr 23 **Teaching and Research Assistant, Lakehead University.**
Conducting research in the following areas: federated learning, knowledge distillation, and differential privacy.
- Apr. 21 - Aug. 21 **Software Engineer, Delta-care.**
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.**
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.**
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.
- Data Science **Website layout A/B testing.**
Investigating Simpson's paradox.
Credit card default prediction.

Projects (continued)

- 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.

Talks and Presentations






- 1 **G. Gad** and Z. M. Fadlullah, *Applying computer vision and deep learning to semen morphology and motility analysis*, Oct. 2021.

Miscellaneous Experience






Extracurricular Activities

- 2018-2020  Writer in Nu-Insider newspaper (university newspaper)
- 2018  104th place at ECPC of ACM competitive programming competition.
- 2020  Round 1 of Google's Code Jam competitive programming competition.

Awards

- 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).
- 2019  1st place in "Networking" course project, Undergrad Research Forum.

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.
 Deep learning specialization. Awarded by deeplearning.ai