# Gad Mohamed Gad

Computer engineer


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## EDUCATION

MASTERS | Lakehead University, Canada — 2021 - 2023
Major**: CS – AI specialization**
Thesis student - Research Assistant

BACHELOR | Nile University (transferred from MUST) — 2017 - 2021
Major**: Computer Engineering** | CGPA: 3.88
with a merit-based full scholarship for academic performance

BACHELOR | Misr University for science and technology — 2015 - 2017
Major**: Electronics & Communication Engineering** | CGPA: 3.95

## Publications

- *G. Gad, A. Annaby, M. Saeed, NK. Negied, "real time lane instance segmentation using SegNet and image processing" in IEEE Novel Intelligent and Leading Emerging Sciences, 2020.*
- *G. Gad, G. Eyad, B. Mokhtar "Towards optimized IoT-based context-aware video content analysis framework" in IEEE 7th World Forum on Internet of Things, 2021.*

## Skills

- **Languages** Python (mainly), C++, C, and Java
- **Keywords** Machine learning, Deep learning, computer vision, NLP, Data science
- Excellent command of English (IELTS: 7.5).

## Experience

**Software engineer at Delta-care** (part time) — Apr. 21- Aug. 21
- R&D for medical devices automation.

**Software Intern at Vortex** — Sept. 20- Jul. 21
- Working in the software department for the RoboSub 2021 competition AUV team.

**Machine learning intern at UN ESCWA and UN OICT** — Nov. 20- May 21
- Working on satellite imagery analysis for urban development.

**Blockchain researcher at WINC, Nile university (NU)** — June. 20- Jul. 20
- A joint research project (ASRT & NU) for modeling Covid-19 spread, and track cases.
- My duty was to design & implement a blockchain network using RSA encryption.

**Junior teaching assistant, Nile university** — Sept. 19- Jan. 20
- Supervised students in the linear algebra course projects.

## Awards & honours

- Vector Institute AI scholarship recipient 21/22 — Apr. 21
- TICO innovation competition award — Nov. 20
- Best Poster Award at the NRSC2020 conference — Sept. 20
- 3rd place in IT&CS track in the Egyptian junior researcher competition — Aug 20
- 1st place in "Networking" course project in the Undergrad Research Forum — Jul. 19
- Blockchain Developer exploratory & mastery badges from IBM — Feb. 19
- Scientific Research Fundamentals camp certificate from NU — Aug. 18

## MOOCS

- Deep learning specialization
- TensorFlow developer professional Cert.
- *Advanced data analysis nanodegree*
- AI for medicine specialization
- Software Testing MicroMaster
- Blockchain: foundation & use cases
- Introduction to Genomics technologies
- Responsive website development basics
- *AWS certified ML specialist*
- *Advanced machine learning specialization (ongoing)*

## Extracurricular activities

- Passed phase I and currently working on phase II of OpenCV international AI competition.
- Writer in Nu-Insider newspaper (university newspaper)
- Competed in ACM **competitive programming** competition and passed the qualifications phase to the ECPC.
- Competed in Google's Code Jam competitive programming competition and passed the qualifications phase.

# Picked projects

## Graduation project: Real-time Crash avoidance system using CV and AI :

- **GP1 –** implemented, tested, and presented perception algorithms: Lane detection, depth estimation, Traffic sign classification, and Car detection & tracking and control algorithms: Model predictive control (MPC).
- **GP2** – started with the objective of refining GP1 results by using deep-learning based methods and integrating results in an efficient pipeline. Many DL approaches were explored, YOLOv3 & LaneNet were used, and published a paper entitled: "*real-time lane instance segmentation using SegNet and **image processing***".

## Machine learning projects

- Lightweight video analysis optimized for IoT (research paper) (ongoing)
- Brain Tumor segmentation for MRI (ongoing)
- Chest x-ray medical diagnosis. With evaluation & visualization using AUROC & GradCAM
- Image captioning using transfer learning (pretrained InceptionV3) and LSTMs
- Lane instance segmentation
- Covid19 spread prediction using seq2seq model
- Text summarization of customer reviews with seq2seq with attention
- Face Recognition using Haar Cascade classifier and PCA
- Noisy MNIST classifications using KNN and evaluated with LOO cross validation, all without using and libraries.
- Risk modelling using tree-based models
- YOLOV3 detection pipeline using keras & Pytorch

## Other projects implemented throughout my study

- Server/client Machine Instruction Interpreter with CPP :
    - Following **OOP** concepts like abstraction, inheritance, polymorphism, and encapsulation
    - Used UML diagrams to demonstrate relation and communication between objects
    - Implemented features like multithreading, TCP socket connection, and affinity setting
- Designing ALU with different adder families (CLA, RCA) on Cadence Virtuoso
- Making a Sign language translator gloves : python, Arduino, MPU, Bluetooth

❖ **Projects can be found on GitHub and some are documented on my website**