Personal Info

Name: Abdelrahman Shaker
Date of birth: 01/10/1994
Nationality: Egyptian
Residence: Masdar City, Abu Dhabi, UAE (Golden Visa Holder)
Phone number: (+971) 52-7096639
Email address: abdelrahman.m.shaker@gmail.com
GitHub website: https://amshaker.github.io/
LinkedIn profile: www.linkedin.com/in/abdel-rahman-shaker-74274b9b

Profile Summary

Have a mixed experience between conducting pure academic research and contributing to international products in the industry. My research interest is Computer Vision, specially designing accurate, lightweight, and memory-efficient 2D and 3D architectures for edge devices. Seeking for a graduate fellowship program related to the field of Computer Vision/AI during my Ph.D. journey.

Education

MBZUAI	**Ph.D. in Computer Vision** - CGPA is 3.95/4.00 (A).	**08/2021 – Present**
Ain-shams University	**Master degree in Computer Sciences** - Master Courses (2017 / 2018). - CGPA is 3.71/4.00 (A-).	**03/2018 – 08/2020**
Ain-shams University	**Bachelor degree in Computer Sciences** - Excellent with honors grade. - Dept Rank: 1st (out of 149 students).	**09/2012 – 08/2016**

Work Experience

Valeo Egypt	**Machine Learning / SW Engineer**	**11/2019 – 7/2021**
Ain-shams University	**Teaching / Lecturer Assistant**	**03/2018 – 7/2021**
Valeo Egypt	**Deep Learning Researcher** Internship at CDV-R&D Excellence team	**01/2019 – 04/2019**
Mercedes Benz-GAS	**Software Engineer**	**09/2016 – 01/2017**
ABB	**Software Engineer** Internship	**08/2016 – 09/2016**

Selected Publications

- *SwiftFormer: Efficient Additive Attention for Transformer-based Real-time Mobile Vision Applications*, Accepted in ICCV conference, 2023.
- UNETR++: Delving into Efficient and Accurate 3D Medical Image Segmentation, Submitted to IEEE TMI.
- *EdgeNeXt: Efficiently Amalgamated CNN-Transformer Architecture for Mobile Vision Applications*, Published in ECCVW, 2022.
- *Generalization of Convolutional Neural Networks for ECG Classification Using Generative Adversarial Networks,* Published in IEEE Access Journal, 2020.

Projects

- **XrayGPT:** Conversational medical vision-language model, capable of analyzing chest radiographs and providing insightful answers to open-ended questions based on the given x-ray [project].
- **Driver Monitoring System (DMS):** Integral contributor to DMS Daimler project, focusing on driver recognition and alertness within an integrity OS framework. I focused on integrating components from ECP, Vision, and Algorithms teams, aligning with customer requirements (SRS). Demonstrated proficiency in cross-functional collaboration, intricate integration, and advanced hardware utilization.
- **Insta-YOLO:** A novel one-stage end-to-end DL model for real-time instance segmentation, the box regression of YOLOv3 is replaced by a polygon regression in the localization head in addition to proposing new localization loss. The model is 1.75x faster than YOLACT with comparable accuracy.
- **Seat Occupancy Detection:** Detect & classify the car seats in order to know how to open the airbag for more safety. I increased the Average Precision (AP) by 4.0% for different versions of YOLOand CenterNet by proposing a different data augmentation method that is based on mixing image normalization techniques.
- **Object Recognition using Radar:** Using TI radar sensors interior of the car, I introduced a prototype of classifying the objects from the heatmaps.
- **Occupancy Grid Mapping:** Autonomous driving requires detailed knowledge about the environment. A common approach to accomplish this task is to use occupancy grid maps (OGM). We built our own OGM based on LIDAR data. I reduced the time from 3.18 MS to 1.28 MS by updating only the polygon of the affected points instead of updating the whole convex hull.
- **Arrhythmia Classification:** In my master thesis, I proposed a generalization method using GANs based on different deep learning architectures (CNN, LSTM, and CNN+LSTM) that improved the overall accuracy and precision of the public MIT-BIH benchmark.

Teaching History

- **Teaching courses:** Machine Learning, Deep Learning, and Computer Vision.
- Mentor in Kaggle competitions for deep learning projects at Ain Shams University.
- Supervisor for several Machine Learning & Computer Vision graduation projects.

Technical Skills

Programming Languages: Python and C++. **Frameworks**: PyTorch and Tensorflow.
Concepts: OOP, Data structures, Analysis and design algorithms, and agile methodologies.

Awards & Honor Certificates

- Ranked 1st in Deep Learning course during Ph.D. at MBZUAI.
- First place in Ibtiecar competition 2017 (Hold by the Egyptian Ministry of Communications)
  - Ibtiecar is a competition held every year for excellent graduation projects for all engineering and computer sciences colleges in Egypt. We had achieved first place in the Data Science track.
- Coursera certificate for completing the following specializations: -
  - TensorFlow in Practice specialization from deeplearning.ai
  - Deep Learning specialization from deeplearning.ai
  - Machine Learning specialization from the University of Washington
- Ranked in the top 3 in the Algorithms and Operating System courses.

Academic Supervisor

- Prof. Dr. Fahad Khan (fahad.khan@mbzuai.ac.ae)

Languages

- Arabic: Native or bilingual proficiency.
- English: Professional working proficiency.