

AHMED MAGD ALY

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RESEARCH INTERESTS

Deep Learning, Reinforcement Learning, Self-supervised Learning, Computer vision, Robotics
(ordered according to my interest in the topic)

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST)	Aug 2021 - Present
M.Sc. in Robotics	
<ul style="list-style-type: none">Thesis: BEV generation of ego-vehicle's surroundings using Diffusion modelsCurrent CGPA: 4.00/4.30	
Innopolis University	Aug 2020 – June 2021
M.Sc. in Robotics and Computer Vision (transferred after 1 st year)	
<ul style="list-style-type: none">CGPA before leaving: 4.67/5.00	
Nile University	Graduated Fall 2020
B.Sc. in Mechatronics Engineering	
<ul style="list-style-type: none">Thesis: Intelligent EMG-Assisted Continuous Knee Motion [Link]CGPA: 3.98/4.00 (2nd/+100 students)	
Misr University for Science and Technology (MUST)	Aug 2015 – Jun 2016
B.Sc. in Engineering (transferred after 1 st year)	
<ul style="list-style-type: none">CGPA before leaving: 4.74/5.0 (1st/+250 students)	

Relevant Coursework (for more details about the content click [here](#)):

Programming for AI (current grade 110/100, A+), Deep Learning (A), Computer Vision (A+), Artificial Intelligence and Machine Learning (A), Introduction to Visual Intelligence (A-), Deep Learning for Computer Vision (S), Probability and Statistics (S), *Machine Learning (A), *Dynamics of Nonlinear Robotics Systems (A), *Fundamentals of Robot Control (A), *Convex Optimization and Computational Intelligence (A), *Sensing Perception and Actuation (A), and the other fundamental course during B.Sc. mostly with (A+), Advances in CNNs(auditing), Bayesian Machine Learning(auditing), Deep Reinforcement Learning (Final Semester)

* means that this course was taken at Innopolis University with grading system: A, B, C and D

HONORS & AWARDS

Scholarships:

• M.Sc. Full scholarship recipient at KAIST	2021
• Full scholarship recipient at Innopolis University	2020
• Funding support from the Academy of Scientific Research and Technology (ASRT) in Egypt, for my graduation project.	2020
• Bank of Egypt full scholarship recipient for B.Sc. at Nile University	2016

Contests:

• Finalist in IDAO (International Data Analysis Olympiad – Organized by Yandex Russia) BegInnors team [Link]	2021
• 1st place in deep learning contest (domain generalization) for master students in Innopolis University. My model achieved the same score during training and testing domains. [Link]	2020
• Best project in Rigid Body Dynamics in undergrad	2018

Honorary Titles:

• Graduating from Nile University with highest honors	2020
• Recipient of the Dean's Honor award – Nile University	2019

RESEARCH EXPERIENCE

Graduate Student Researcher

Aug 2021 – Present

KAIST – VDC Lab, advised by Dongsuk Kum

Mapping the surroundings of the ego-vehicle in bird's eye view (BEV)

Undergraduate Researcher

Jun 2019 – Jul 2020

Nile University - SESC, advised by Hossam Hassan Ammar

Worked on multiple research topics related to robotics, as mentioned in my publication section

Participating in Undergraduate Research Forum (UGRF)

Feb 2016 – Jul 2019

Nile University

Conducted research activities in a number of course projects, and presented their posters during the event.

PUBLICATIONS

5. A Bangunharcana, **A Magd**, KS Kim. Paper_name_left_off_for_anonymity. *Submitted and currently under review for the Conference on Computer Vision and Pattern Recognition (CVPR) 2023.*
4. A Bangunharcana, **A Magd**, KS Kim. SSu-ReAl : Self-Supervised Multi-Frame Monocular Depth via Recurrent Alignments. *Submitted and currently under review for the International Conference on Robotics and Automation (ICRA) 2023.*
3. AS Sayed, AA Mohamed, **AM Aly**, YM Hassan, AM Abdulaziz, HH Ammar, R Shalaby. Experimental modeling of hexapod robot using artificial intelligence. In *the International Conference on Artificial Intelligence and Computer Vision (AICV) 2020*. [\[Link\]](#)
2. HA Elkholy, AT Azar, **A Magd**, H Marzouk, HH Ammar. Classifying Upper Limb Activities Using Deep Learning. In *the International Conference on Artificial Intelligence and Computer Vision (AICV) 2020*. [\[Link\]](#)
1. AT Azar, **AM Aly**, AS Sayed, MEB Radwan, HH Ammar. Neuro-Fuzzy System for 3-DOF Parallel Robot Manipulator. In *Novel Intelligent and Leading Emerging Sciences Conference (NILES) 2019*. [\[Link\]](#)

SKILLS

Programming Languages:

Python, C++, C#, Java, MATLAB

Libraries:

PyTorch, TensorFlow, Keras, OpenCV, and packages related to data science, ROS

Software:

LabVIEW, SolidWorks, Fusion360, ANSYS, MSC Adams, MAXIMA

Languages:

Arabic (Native) – English (Advanced)

EXPERIENCE

- Wrote multiple paper review articles (e.g. [\[Link\]](#)).
- Presented many reviews on impactful research paper in the field (e.g. [\[Link\]](#))
- Implemented many AI papers (e.g. YOLO, ResNet, etc.)
- Completed +8 AI courses at KAIST and Innopolis, in addition to self-study from open-source material such as cs231n and the DeepMind x UCL RL course
- Participated in competitions during my undergrad (e.g. ACM competitive programming, walking robot competition)
- Enrolled in FESTO professional diploma, working on (programming robotics, PLCs, pneumatics and hydraulic circuits, and programming CNCs)

SELECTED PROJECTS

Some AI and Robotics Projects, visit my [github](#) page, and my [website](#) for demos

- Trained models for tasks such as lane segmentation, object detection, depth estimation, and optical flow estimation, image generation, neural machine translation, diffusion models, etc.
 - Implemented a computer vision algorithm for omnidirectional image stitching (360° stitching) and depth estimation for stereo cameras
 - Implemented a convex optimization algorithm for UAV obstacle avoidance path planning
 - Implemented a computer vision algorithm and hardware settings for UAV localization and autonomous landing on charging stations
 - Simulated robotic manipulators (6DOF KUKA, parallel manipulators, etc.) using Python and MATLAB
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Undergraduate Projects, for demos visit [website](#)

- Built an automated vacuum cleaner with PID motion control
 - Built a 6DOF robotic arm from scratch with a team during an Erasmus+ project
 - Applied PD, Feedback linearization + PD and Robust controls on SCARA manipulator
 - Built the “2048” game with python
 - Designed a potato harvester machine using SolidWorks
 - Simulated and studied different motions for Stewart Platform (a parallel manipulator) using MSC Adams
 - Video encryption using MATLAB
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Freelancing:

- Designing a linear peristaltic pump operated with a non-standard four-stroke engine for FX GROUP (a startup group at Latvia) 2019. [\[Link\]](#)
- Programming a PLC to automate a production line for pipes in one of the factories in Egypt (2019)