

KARIM KOHEL

 karimkohel.com

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EMPLOYMENT

AI Engineer *Gravitate AI, USA* *Feb 2024 - Present*

- Authored & published a paper on a new multi-modal Computer Vision model architecture at IEEE research conference on eye gaze tracking and computer-human-interfaces. ([DOI](#), 2024)
- Built a computer vision scoring solution in collaboration with [Harvard Medical School](#) to aid medical practitioners in assessing their suturing skills during surgery, saving hours monthly of senior staff time.
- Maintained and enhanced the flagship classification model for [WurQ](#) enhancing the user experience by 25%.
- Designed the system architecture for the internal AI chatbot platform along with the system backend.

Research Associate *American University in Cairo, EGY* *Apr 2023 – Present*

- Built Autonomous vehicle testbed using Carla simulator to test robustness of ADAS system's computer vision model's robustness against adversarial attacks decreasing testing time by 50%.
- Built a real-time system that measures and processes eye tracking to investigate human psychology.
- Delivered 2 talks on the use and my implementation of eye tracking in skill acquisition research at the AUC cognitive psychology conference for field professionals.
- Co-authored a paper on the use of eye gaze tracking technology to explore human cognitive psychology, aimed at gaining a deeper understanding of how people interact with computer interfaces

Project Co-owner *Infoplay, SWE* *Feb 2023 – Oct 2023*

- Developed a custom Linux image for 100+ of Raspberry Pis, used in ferry boat fleet ad screens across Sweden
- created ad-player algorithm, design and scheduling system ensuring flexible queue control.
- Implemented custom management and deployment of remote player and system services via web-portal.

EDUCATION

UK *University of Northampton* *2018 – 2023*

Egypt *Arab Academy for Science, Technology & Maritime Transport*

- Dual B.S.E. degree in Computer Engineering, with Honours

EXTRA-CURRICULAR

Software & AI Team Leader *RobEn, EG* *2019 – 2023*

- Taught a team of 38 software engineers image recognition using Open-CV, G-streamer and TensorFlow
- Interviewed 150+ candidates for the team over 4 years, recruited 46 Core team members over 3 generations.
- Lead the team in 11 competitions including: [Arab IOT & AI](#), [Mate ROV](#) and [Military UAV competition](#).

TECHNICAL PROJECT EXPERIENCE

- [Synapse Analytics, EG](#) (2023). Interned for 4 months, designing the main ML model for a new feature added to the flagship company product, boasting an accuracy of 98.9%. Pytorch, Ansible, Prometheus.
- [Cornea](#) (2023). Built a custom multi-modal AI model architecture for Gaze tracking with multiple inputs to optimize use of a single generic web-cam, as a system service for any OS. Python, TensorFlow, sklearn.
- [Python Library ROVLIB](#) (2022). Built and published the multiplatform library ROVLIB to control and monitor under water vehicles using flight com. protocol MavLink on RasPi4. OpenCV, PyMavlink, systemd, sockets.

ADDITIONAL EXPERIENCE AND AWARDS

- [Research Paper Conference](#) (2021): Awarded best scientific paper at MTC scientific research conference.
- [Military UAV Competition](#) (2021): Won 3rd place at the MTC International Unmanned Arial Vehicle competition.
- [IBM Cloud Master](#) (2020): IBM Cloud mastery certificate holder for the IBM Cloud and Watson AI exam.

LANGUAGES AND TECHNOLOGIES

- Python, C/C++, JavaScript, Java, bash, Arduino C, x86 assembly.
- OpenCV, TensorFlow, Numpy, Pandas, Django, Frappe, Requests, Multiprocessing, Sockets, Selenium.
- Git, Linux, Docker, Ansible, Gstreamer, OMX, Prometheus.