

Haitham Khedr

Cairo, Egypt • +201278834922 • haithamkhedr@gmail.com

 [haithamkhedr](#) |  [hkhedr](#)

RESEARCH INTERESTS

- My research interests lie at the intersection of machine learning, perception and control for Robotics
- Keywords: Deep learning, Reinforcement learning, Computer vision, Robotics

EDUCATION

- **Ain Shams University** - Computer Engineering, BSc, Distinction with honors (5th of class) *June 2016*
- **Udacity** - Self-Driving Car Nanodegree *October 2017*

ACADEMIC EXPERIENCE

AIN SHAMS UNIVERSITY – Teaching assistant *Cairo, Egypt | Sep 2016 – present*

- Taught Introduction to computer science, computer organization and electrical testing (Lab)

Medical Micro and Nano Robotics Lab (GUC*) – Undergraduate research intern *Cairo, Egypt | Aug – Dec 2015*

- Modeled and simulated the effect of electromagnetic forces on a Micro robot moving in bloodstream

* GERMAN UNIVERSITY IN CAIRO

PROFESSIONAL EXPERIENCE

Com-Iot - DL&CV Software engineer *Cairo, Egypt | Jan 2018 – present*

- Develop deep learning and computer vision algorithms for traffic safety solutions

Avelabs - R&D Software engineer *Cairo, Egypt | Sep 2016 – Dec 2017*

- Implemented traffic sign classification system using Tensorflow
- Implemented Lane detection pipeline using computer vision approach
- Used Single Shot Multibox Detector (SSD) for Vehicle detection and classification using Keras (python)

Mentor Graphics - Software engineering intern *Cairo, Egypt | Feb – Aug 2016*

- Designed, implemented and tested a C++/Qt tool which was successfully deployed and used by many developers
- Performed requirement Analysis and software Object Oriented design using UML class and sequence diagrams

PROJECTS

Brain-Controlled Robotic Arm (graduation project)

- The project aims at developing a Brain-Computer Interface (BCI) that uses spectral analysis of electroencephalogram (EEG) activity and image processing to control a robotic arm to reach objects in the external environment.
- Collected EEG activity from multiple users and trained a many learning algorithms to detect a certain pattern (P300)
- Implemented an algorithm to detect objects in a small environment using RGB-D camera.

Semantic Segmentation

- Implemented a fully convolutional network (FCN) to make a pixel-wise classification of road images

Traffic sign classification

- Implemented a traffic sign classifier for the GTSRB dataset using a convolutional neural network with Tensorflow (python). I achieved an accuracy of 95 %

Lane and vehicle detection

- Implemented a pipeline for lane finding and vehicle detection and tracking using HOG features and SVM

Model Predictive Control

- Used Model Predictive Control (MPC) to control a car in Udacity simulator

SOFTWARE

- **Programming languages:** C/C++, python, Java and Matlab
- **Version control:** Git and CVS source control
- **Applications:** Computer vision (OpenCV), Machine learning (Scikit-learn, Keras, Tensorflow)