

# Ahmed Elshaarany

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## Computer Skills

Platforms\Tools: TensorFlow, Keras, PyTorch, OpenCV, ROS, Git  
Languages: Python, C++, MATLAB  
Operating Systems: 🐧 Ubuntu, 🍏 MacOS, 🖥️ Windows 10

## Education

### University of California, Santa Cruz

M.Sc., Computer Science, Dec '18  
GPA: 4.0

### Faculty of Engineering, Cairo University

M.Sc., EECE, Aug '14  
GPA: 3.8

B.Sc., EECE, May '10  
GPA: 3.85 (5<sup>th</sup> of my class)

## Certificates

### Udacity Nano-degree:

Sensor Fusion, Feb '20  
Deep Learning, Feb '19  
Self-Driving Car Engineer, Oct '17

### DeepLearning.AI:

Deep Learning Specialization, Jan '19

## Work Experience

### Robotics Engineer, May Mobility

📍 Ann Arbor, MI, USA 📅 Jan '20 - present  
o Develop and test **C** code for Lidar driver  
o Capture Lidar data for testing and validation  
o Implement and test processing of images for vision deep learning model

### Autonomous Driving Simulation - Artificial Intelligence Engineer, Aptiv

📍 Troy, MI, USA 📅 Apr '19 - Jan '20  
o Build **singularity** containers for High Performance Computing (HPC)  
o Meet with global algorithm teams to understand HPC application requirements  
o Develop HPC **slurm** scripts to run large number of simulations  
o Interface Simulink auto-generated **C++** code with other applications  
o Write **Python** scripts to analyze the simulation results  
o Write **MATLAB** scripts to generate Simulink models

### Connected Vehicle Security Research Intern, Onboard Security

📍 Wilmington, MA, USA 📅 Jun '18 - Sep '18, Jun '17 - Sep '17  
o Extend tests and features of the **V2X Validation Tool**  
o Prepare a demonstration to present the tool at **BlackHat US 2018**  
o Develop software tool to perform pen-testing on DSRC technology in **Python**  
o Assemble software defined radio based hardware as part of the testing tool  
o Present weekly progress and demo at the research team meeting  
o Manage project and collaborate with interns

### Deep Learning Object Detection Research Intern, BMW Car IT

📍 Ulm, Germany 📅 Oct '17 - Mar '18  
o Explore and present Google Object Detection API to the team  
o Gather and apply data pre-processing to labeled images datasets  
o Train deep neural network (DNN) on detecting cars, trucks, and pedestrians  
o Research DNNs for training on heterogeneous labeled images datasets  
o Build enhanced "Faster R-CNN" model for training on heterogeneous datasets  
o Achieve higher performance with the novel model compared to the original  
o Publish "Object Detection and Classification on Heterogeneous Datasets" at **ICPRAM '19**

## Projects

- o Semantic segmentation to label road pixels in images using **TensorFlow**
- o Vehicle detection using **Machine Learning** and **Computer Vision**
- o Advanced Lane Detection using camera images and **OpenCV**
- o Deep CNN for end-to-end steering angle prediction using **Keras**
- o Kalman sensor fusion tracking filter with Lidar and Radar data in **C++**

## Coursework

Machine Learning  
Analysis of Algorithms  
Programming Languages

Data Mining  
Advanced Programming  
Data Structures

## Awards

### Udacity :

- o Intel Edge AI Scholarship Program Dec '19

### University of Maryland :

- o ECE TA Teaching and Development Program Fellow Sep '15
- o ECE Distinguished Graduate Teaching Assistant Award May '15
- o Clark School of Engineering Distinguished Graduate Fellowship Aug '14

### Cairo University :

- o Center of Wireless Studies (CWS) Research Assistantship Jan '13
- o EECE Teaching Assistantship Mar '12

### IEEE Egypt Gold :

- o Best Graduation Project in Telecommunication at EED Aug '10

## Academic Experience

### TA, Introduction to programming in Java, CS, UCSC

- 📍 Santa Cruz, CA, USA 📅 Apr '18 – Jun '18
- o Run lab sections to provide assistance on programming assignments
- o Hold weekly office hours to help students review class material
- o Meet with prof. Dustin Adams weekly to discuss class progress

### RA, High Performance Computing, ECE, University of Maryland

- 📍 College Park, MD, USA 📅 May '15 – May '16
- o Research high performance computing for exascale memory systems
- o Meet with prof. Bruce Jacob weekly to discuss research progress

### TA, Digital Circuits and Systems Lab, ECE, University of Maryland

- 📍 College Park, MD, USA 📅 Aug '14 – May '15
- o Help students build combinational logic and sequential logic circuits
- o Explain how to design advanced analog and digital components
- o Teach students how to use oscilloscopes and function generators

### RA, Signal Relaying Techniques, Center of Wireless Studies

- 📍 Giza, Egypt 📅 Jan '13 – Aug '14
- o Research signal relaying techniques in cognitive radio networks
- o Simulate and model networks in MATLAB
- o Publish results in papers at **IWCMC 2014** and **CROWNCOM 2015**

### TA, Electrical Telecommunications, EECE, Cairo University

- 📍 Giza, Egypt 📅 Mar '12 – Aug '14
- o Explain the main concepts of analog and digital communication
- o Teach students to use MATLAB to simulate communication networks
- o Run hardware labs to provide assistance on building circuits