

# IBRAHIM ESSAM ABDELMONEM

## Mechatronics & Robotics Engineer.

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## EXPERIENCE

### R&D Engineer

#### Avelabs

09/2018-Ongoing

Cairo, Egypt

- Developer Advocate For Yonohub ( A cloud-based system for Autonomous Vehicles, ADAS, and Robotics [yonohub.com](https://yonohub.com) ).
- Creating tech content for publication as articles, tutorials and showcase apps to effectively demonstrate use cases of Yonohub.
- Developing new Blocks from the state of the art ML/DL and ADAS Algorithms.
- Preparing Hardware for Local Deployment (Nvidia Jetson AGX Xavier, Raspberry Pi).
- Preparing AVS Datasets for Yonohub, e.g. KITTI, DeepDrive, ApolloScape and Comma.ai
- AV's Sensor Product Algorithms Development Engineer.
- Creating ROS packages for the product.
- >\_ Key Technologies: Autonomous Vehicles, ROS, ML/DL, Cloud, Embedded Boards

### Bachelor Thesis and Internship

#### Daimler AG - Mercedes-Benz R&D

02/2017-08/2017

Sindelfingen, Germany

- Developeing a Test Robot for Touch Devices Testing.
- Hardware (Robot Construction,Kinematics and Touch Devices)
- Software (CANoe,CAN-bus,Databases and The Test System)
- Making Tests on The Touch Devices with the Robot to analyze the state and develop improvements.
- Implementing new Algorithms and Data structures for the Robot in MATLAB.
- Programming a Graphical User Interface for the System
- Optimizing the test system to fulfill the requirements of Daimler AG.
- >\_ Key Technologies: Delta Robots, MATLAB, CANoe

### Suspension and Steering Team

#### GUC Innovators - Shell Eco Marathon Competition

03/16 - 02/17

Cairo, Egypt

- Design and Manufacturing of Car's Steering and Chassis.
- >\_ Key Technologies: SolidWorks, MATLAB

### Commercial Aircraft Maintenance Internship

#### Egypt Air

06/16 - 07/16

Cairo, Egypt

- Training on Avionics and Jet Engines maintenance.

### Junior Teaching Assistant

#### The German University in Cairo

10/14 - 02/15

Cairo, Egypt

- Teaching CS01 Students Programming Concepts and Assisting them during the Labs.
- >\_ Key Technologies: Java

## EDUCATION

### BSc. Mechatronics Engineering

#### The German University in Cairo

2018

Cairo

- Excellent with Honors

## ONLINE DEGREES

### Robotics Software Engineer Nanodegree Certificate — [Description](#)

- ROS Essentials.
- Localization.
- Mapping and SLAM.
- Path Planning and Navigation.

### Sensors Fusion Nanodegree - Udacity Certificate — [Description](#)

- Lidar Obstacles Detection, Plane Segmentation and PointsCloud Clustering.
- Camera and Lidar Fusion.
- Radar Obstacle Detection.
- Kalman Filters.

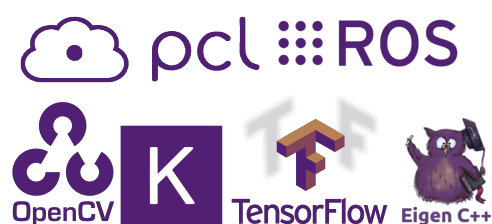
### C++ Nanodegree - Udacity Certificate — [Description](#)

- C++ Foundations.
- Object-Oriented Programming (OOP).
- Memory Management.
- Concurrency.

## PROGRAMMING LANGUAGES

C++ Python Java MATLAB Bash

## FRAMEWORKS AND LIBRARIES



## PROJECTS

- BaristaBot a robotics simulation package based on ROS and Gazebo. [Github](#)
- CarSim SFML and ROS based Car Simulator. [Github](#)
- Concurrent Traffic Simulation. [Github](#)
- Linux System Monitor C++. [Github](#)
- Route Planning Project using A\* C++. [Github](#)
- Unscented Kalman Filter to estimate the state of multiple cars. [Github](#)
- Particles Filter C++ Implementation. [Github](#)
- Time To Collision System (TTC) based on Lidar and Camera. [Github](#)
- PointClouds Obstacles Detection, Segmentation and Clustering [Github](#)
- Jupyter-ROS (Contributor) ROS Support for jupyter notebooks [Github](#)
- Longitudinal and Lateral Control in CARLA Simulator [Github](#) — [Video](#)
- Deep Reinforcement Learning DQN Agent Playing Space Invaders [Github](#) — [Video](#)
- Road Semantic Segmentation Using Fully Convolutional Network (FCN) [Github](#)
- Building and Simulating TurtleBot using ROS and Raspberry Pi [Github](#) — [Video](#)
- Optimal LQG Control of Wind Turbine using Kalman Filter
- Non-Linear Controller (Feedback Linearization) for 2D Plotter Robot Arm
- PID Control of Two-Wheeled Self balancing Robot . [Video](#)
- Yu-Gi-Oh Video Game in Java [Github](#) — [Video](#)

## HONORS & AWARDS

Academic Achievement Full Scholarship

[The German University in Cairo](#)

 2013-2018

 Cairo, Egypt

Ranked 7th in Thanwya Amma (High School)

[The Egyptian Ministry of Education](#)

 2013

 Cairo, Egypt

## TECHNOLOGIES



## ONLINE COURSES

- State Estimation and Localization for SDC
- Introduction to Self-Driving Cars
- ROS1x: Hello (Real) World with ROS
- Electric and Conventional Vehicles
- Machine Learning with TensorFlow on GCP
- Python Parallel Programming Solutions
- Intro to FPGA Design for Embedded Systems
- Agile Software Development
- Control of Mobile Robots

## LANGUAGES

- Arabic ★★★★★
- English ★★★★★
- German ★★★★★