Karim Botros
Mechatronics Engineer

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Linkedin & Git
Github Account
Linkedin Account

Personal Skills

Programming

Education

2017 - Now   **Master's Degree in Computer Vision and Robotics**   Université de Bourgogne
The master course aims to provide qualifications for entry into the professions in the areas of robotics, computer vision, image processing and medical imaging. Using the knowledge of engineering and technology to do research, design, and operate automated robotic systems efficiently and reliably.

2011 - 2016   **Bachelor's Degree in Mechatronics Engineering**   German University in Cairo
Five years Engineering program, Mechatronics major, which includes some advanced courses such as Classical Control, Non-linear Control and Dynamics, Autonomous Systems, Electrical Circuits, and courses of Engineering Design and Thermodynamics. A balanced combination of mechanics, electronics and computer engineering skills plus special courses for integrating these disciplines of engineering to be able to develop and implement complex systems.

2010 - 2011   **American Diploma**   Al Oruba International School
Graduated from High School American Diploma program at Saudia Arabia, Riyadh, conducted in English and recognized nationally and internationally.
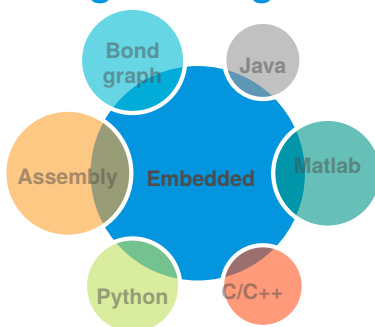
Experience

01/19 - Present   **Master Thesis in the R&D department**   LuxScan Technologies Luxembourg
Working on acquisition of hyper spectral images and testing many different solutions for wood classification problem, and figuring the best solution to process this data using machine learning and deep learning algorithms on different platforms.

06/18 - 09/18   **Internship in the R&D department**   LuxScan Technologies Luxembourg
Worked on identifying wood pith, locally and globally, automatic cropping and matching wood pieces together with pre-saved data, in real time, using sophisticated industrial language and library for computer vision.

02/14 - 05/17   **Lab Manager and Instructor**   FabLab Egypt
Lab Manager responsible for the maintenance of the digital fabrication machines and site management, also worked as Solidworks instructor, teaching engineering design and drawing using CAD.

01/15 - 6/16   **Lab Researcher**   Micro & Nano Robotics LAB
Conducted the bachelor project in this lab, "Wireless manipulation of biological cells" controlling these cells with paramagnetic biodegradable particles using magnetic field generated by magnetic coils controlled by DeltaRobot, similar to the Da Vinci robot controller station. I also mentored other bachelor projects.

OS Preference

GNU/Linux ★★★★☆
Windows ★★★★☆
Unix ★★☆☆☆
MacOS ★★☆☆☆

Places Lived

Languages

English ★★★★★
Arabic ★★★★★
German ★★☆☆☆
French ★★★★☆

Trainings

08/14 - 09/14 **Petroleum Field training in Egypt**   General Petroleum Company

- Thermodynamics.
- Instrumental department.
- Driller's engine and engine rebuild.
- Large Scale Engine maintenance and repair.

07/13 - 08/13 **Airfield Training at EGYPTAIR**   EgyptAir

- Pneumatics and cooling systems
- Plane braking system, wheels and tires.
- Turbine engines.
- Safety standards and tools.
- Navigation and control systems.

Projects & Challenges

- Prostate cancer segmentation using anonymized MRI DICOM images format *Click here to Check it*

- Blood flow quantization in the aorta using anonymized MRI DICOM images format *Click here to Check it*

- 3D Scanning and modelling "C++" using QT on windows platform.

- Visual Servoing and fine positioning of a turtlebot using ROS enviroment. *Click here to Check it*

- Road sign detector using Opencv library. *Click here to Check it*

- Face recognition application using Applied Math Approach "PCA" in Matlab. *Click here to Check it*

- Object tracking robot with PID control (robot car that keeps user desired distance between it and the object in front of it). *Click here to Check it*

- Dancing flower (a flower connected with motor and a MIC that detects a sound signal resulting in moving the motor, and thus making the flower to dance).

- Stop watch (building a stop watch with alarm, from counters, and decoders (ICs) and 7 segments leds).

- Built an autonomous car that detects a red dot on white paper by camera and follows it "firefighter robot" in real time.

- Built a DeltaRobot in my bachelor project that controls micro and nano paramagnetic particles for drug targeting and cancer treatment.

Honors & Awards

09/2014   **Best RC car design**   IEEE Award
                 Designing and manufacturing an RC car used in RC race. [Certificate]

                 Click to View Certificates   [Certificates]

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