Ahmed Harbi *Software Engineer*

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Exempt Single Egyptian LinkedIn GitHub HackerRank LeetCode

PROFESSIONAL EXPERIENCE

Jul 2022 – present
Cairo, Egypt

Valeo, *Junior Algorithm Engineer*
- Develop software in the ADAS (Advanced Driving Assistance Systems) field.
- Develop Autonomous Driving vehicle algorithms based on object models constructed from vehicle multi-sensors data (camera, radar, laser, ultrasonic sensors).
- Write and analyze requirements specifications.
- Design software architecture and reusable software components/algorithms.
- Develop & test the state-of-the-art algorithms enabling Automated Driving Parking Systems.

Examples: MAPs constructions, slot detection, motion planning, obstacles avoidance
- Develop the autonomous driving algorithms to steer and drive objects/robots/cars through a virtual map

Jul 2019 – Jul 2019
Cairo, Egypt

IBM, *Artificial Intelligence Analyst Trainee*
- Passing the IBM Academic Certificate Exam for Artificial Intelligence Analyst 2019 Mastery Award.
- Building Chatbots using IBM Cloud.
- Working with IBM Knowledge studio to get insights from PDFs and Word Files.
- Working with IBM Watson Assistant to increase the intelligence of the chatbots.

EDUCATION

Sep 2016 – Jul 2021
Ismailia, Egypt

B.Sc. in Communication and Electronics Engineering, *Faculty of Engineering, Suez Canal University*
- CGPA 2.24 / 4.00 *(Good)*
- Coursework: Communication systems, Electronics, Waves, Satellite communication, Networks, and Neural Networks.
- Graduation Project: Pharmacy Smart System: Designed and implemented a deep learning-based software to detect and recognize handwritten medical prescriptions. *(GPA: 4.00 / 4.00 (A))*

CERTIFICATES

ISTQB Certified Tester Foundation Level
ISTQB®

Machine Learning Nanodegree
Udacity

Mathematics for Machine Learning
Imperial College London via Coursera

Embedded Systems - Shape The World
The University of Texas at Austin via Edx

Deep Learning Specialization
DeepLearning.AI via Coursera

Introduction to Embedded Systems Software & Development Environment
University of Colorado via Coursera

Artificial Intelligence Analyst - Mastery Award
IBM

SKILLS

Programming Languages
- *C / Embedded C*
- *C++*
- *Java*
- *Assembly*
- *MATLAB*

Microcontrollers
- *ARM Cortex-M4 TM4C123GH6PM*
- *AVR ATmega32*
- *Raspberry Pi*
- *Arduino*

Machine Learning Frameworks
- *TensorFlow*
- *Keras*
- *Scikit-Learn*

Scripting Languages
- *Python*
- *Shell (Bash)*
- *Makefile*

Simulation and analysis tools
- *Simulink*
- *LabView*
- *Proteus*
- *KiCad*

Knowledge
- *ADAS Algorithms*
- *Sensor Fusion*
- *Kalman Filters*
- *Self-Driving Cars Algorithms*
- *Mapping and Localization Algorithms*

Software Engineering practices and tools
- *Git*
- *Linux/Unix*
- *Software Testing*
- *Embedded Systems Layered Archticture [APP - HAL - MCAL]*

Microcontroller Peripherals
- *DIO*
- *ADC*
- *Interrupt*
- *Timers*
- *UART - SPI - I2C*
- *CAN - LIN - FlexRay*

PROJECTS

Jun 2020 – Jul 2021 **Prescription-HTR,** *Graduation Project Role*
Handwritten text recognition system designed to detect and recognize drug names out of Egyptian medical prescriptions based on CRNN model, trained on IAM English Handwritten Words Dataset, followed by CTC decoding algorithm and a language model for spell correction. *(Python, OpenCV, TensorFlow, Editdistance).*

Mar 2021 – Jun 2021 **Channel Coding Simulation**
Simulating Channel Coding techniques Linear and cyclic Block Coding, Convolutional coding, and LDPC. *(Matlab)*

Sep 2020 – Jan 2021 **Digital Modulation Simulation**
Designing and Simulating Digital Modulation Types ASK, FSK, PSK, M-ary PSK, QAM, M-ary QAM. *(LabView)*

Sep 2020 – Jan 2021 **IEEE 802.11a WLAN Model**
IEEE 802.11a WLAN physical layer model simulation, with a demonstration of adaptive modulation and coding. *(Matlab)*

Sep 2019 – Jan 2020 **Butterworth Bandpass Filter**
Designing and simulating Passive Butterworth Bandpass Filter. *(Multisim)*

Jul 2018 – Aug 2018 **Morse Code by Arduino**
Arduino transmitter which converts English words into Morse Code then represents it in light and sound form with laser and buzzer, Arduino receives words through serial Bluetooth communication. Designed an android mobile application, and desktop application to communicate with Arduino, also implemented OCR to detect digital or printed English words then send them to Arduino. *(Python, C++, OpenCV, Pytesseract, PySerial, PyQt).*

Jan 2017 – Feb 2017 **ROV Image Processing**
Image Processing system designed to detect shapes of triangles and rectangles underwater, detect colors of red, yellow and blue, and OCR model to detect printed tag of a drowned airplane to assist ROV identifying the airplane. *(Python, OpenCV, Pytesseract).*

VOLUNTEERING

Aug 2019 – Oct 2019 **NASA Space Apps Cairo,** *Technical Support Specialist*

Sep 2018 – Sep 2019 **IEEE Suez Canal University Student Branch,** *Chairman*

Feb 2018 – Apr 2019 **MATE Arab Regional ROV Competition,** *Safety Judge*

Dec 2017 – Apr 2019 **Fab Lab Ismailia,** *Makers Hunter*

Aug 2018 – Jan 2019 **IEEEmadC,** *Student Ambassador*

Jun 2018 – Jan 2019 **IBM Digital Nation Africa,** *Student Ambassador*

Aug 2018 – Oct 2018 **NASA Space Apps Ismailia,** *Technical Lead*

Jun 2017 – Sep 2018 **IEEE Suez Canal University Student Branch,** *Technical Member*

Jul 2017 – Aug 2018 **SCU Racing Team,** *Technical Member*

LANGUAGES

Arabic
Native

English
C2 Profieiency Level - EF SET