Medhat Omr

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INTERESTS

Machine Learning (Statistical methods, and Deep Learning), Data Science and Big Data, Self-Driving Cars related skills such as Localization, Control, Path Planning, Navigation, and Computer Vision.

EDUCATION

Queen's University, Kingston, ON, Canada. Sep 2011 – Mar 2015

Ph.D. in Electrical & Computer Engineering GPA 4.15

- Advisor: Prof. Aboelmagd Noureldin

Ain Shams University, Cairo, Egypt. Sep 2003 – Jun 2008

B.Sc. in Computer & Systems Engineering GPA 3.95/4

- Class rank: 3 of 140

EXPERIENCE

TDK, Canada

Staff Algorithm Engineer, Navigation R&D Oct 2017 – Present

- Products: T-PN ME, CoursaSports, and Driving Navigation related R&D project
- In addition to the products above, I also build and maintain helping tools mainly written in C++14, and Python

Sr. Software Algorithm Designer, Navigation R&D Apr 2015 – Sep 2017

- Products: CoursaSports
- In addition to the product above, I also built one internal library from scratch in C, and rewrite another big library from C into C++14 for another application

Software Algorithm Designer, Navigation R&D Jun 2012 – Mar 2015

- Products: T-PN ME
- For more details on my rule in T-PN ME product line, please see Chapter 3 of my Ph.D. thesis [here]

ONLINE EDUCATION

Udacity, Self-Driving Car Engineer Online Nanodegree Jan 2017 – Jan 2018

Over 15 projects in one year

- Using deep learning to solve Traffic Sign Classification, and Driver Behaviour Cloning problems
- Using Computer Vision to implement an Advanced Lane Detection
- Using Machine Learning algorithms such as SVM, Decision Trees, and Ensemble Learning to solve Vehicle Tracking problem
- Implement a complete library in C++ for Extended Kalman Filter, Unscented Kalman Filter, and Particle Filter
- Implementing a Highway Path Planner involving Environmental Prediction, Behavior Planning, and Trajectory Generation
- Implementing Semantic Segmentation using Fully Convolutional Networks, Scene Understanding, and Inference Optimizations

COMPUTER SKILLS

Languages: C, C++11, Python, and MATLAB
Libraries: Scikit-learn, OpenCV, Keras, Tensorflow, TensorFlow Object Detection API, and PyTorch
Other Tools/Services: Git, GitHub, CMake, and AWS

PUBLICATIONS

5 Patents (1 issued and 4 provisional applications), 1 Journal Paper, and 5 Conference Papers all listed on my Google Scholar page here: https://goo.gl/3tdX5V

AWARDS & HONORS

- Mitacs and NSRC Awards, Electrical and Computer Engineering, Queens University 2012 – 2015
  For successfully doing research in partnership with an industrial partner.
- 200% working hours Award, Computer and Systems Engineering, Ain Shams University May 2010
  for outstanding achievement as a Teaching Assistant