Carlos Gálvez

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EXPERIENCE

APR 2017 - PRESENT	**Software Developer - Perception** at ZENUITY, Sweden Design and implementation of a fast prototyping vehicle platform to accelerate the development of self-driving cars. CAN/FlexRay/Ethernet vehicle interfacing. Software containerization using Docker. Continuous integration and automatic testing of software components in virtual environments. DrivePX 2 setup and deployment. ROS-based real-time visualization.
AUG 2015 - APR 2017	**Software Developer - Sensor Fusion** at VOLVO CAR CORPORATION, Sweden Development of algorithms for sensor data fusion, including lidar, radar and camera, in the context of Volvo Cars' autonomous driving project *Drive Me*. Experience in high-perfomance computing, safety-critical code as well as the ISO 26262 standard. Agile development and continuous integration workflow.
JUN 2014 - JUL 2014	**Research Engineer** at COMPUTER VISION AND ACTIVE PERCEPTION LAB, KTH, Sweden Development of an autonomous robot to perform 3D mapping with RGBD cameras in hardly accesible environments. Based on ROS, OpenCV and PCL.
OCT 2012 - OCT 2013	**Fellowship** at SIGNALS AND SYSTEMS DEPARTMENT, ETSIT-UPM, Spain Development of a vision-based parking occupancy estimation system, using OpenCV and Qt libraries. Involved in the national project *Ciudad 2020*, related to smart cities. Scientific paper published at IET-ITS [2].
OCT 2011 - OCT 2012	**Fellowship** at ELECTRICAL ENGINEERING DEPARTMENT, ETSIT-UPM, Spain Development and integration of a new educational hardware platform for the study of ARM microcontrollers at the Electronic Systems Laboratory.

EDUCATION

OCT 2016 - PRESENT	**Self-Driving Car Engineer Nanodegree** UDACITY. Deep Learning, Computer Vision, Sensor Fusion, Localization and Mapping, Control.
AUG 2013 - JUN 2015	**Systems, Control and Robotics, MSc** KTH ROYAL INSTITUTE OF TECHNOLOGY, Stockholm, Sweden. Master's Thesis on Sensor Fusion for Autonomous Driving [1]. Advisor: Prof. John FOLKESSON, Examiner: Prof. Patric JENSFELT. GPA: A.
AUG 2013 - JUN 2015	**Civilingenjörsutbilding, MSc Electrical Engineering** KTH ROYAL INSTITUTE OF TECHNOLOGY, Stockholm, Sweden.
JUL 2014 - AUG 2014	**Tohoku University Engineering Summer Programme (TESP)** TOHOKU UNIVERSITY, Sendai, Japan. Lectures and seminars related to Robotics. Project: lidar-based obstacle avoidance.
SEP 2009 - JUN 2015	**Telecommunication Engineering, (5-year programme, MSc accredited by ABET)** E.T.S.I. TELECOMUNICACIÓN, UNIVERSIDAD POLITÉCNICA DE MADRID, Spain. GPA: 9.20/10.0.

Projects

Jan 2017 - Feb 2017	**Vision-based lane marking and vehicle detection for autonomous driving**. Application of Computer Vision and Machine Learning techniques.
Dec 2016 - Jan 2017	**Behavioral cloning for autonomous driving**. Application of Convolutional Neural Networks to predict steering angle from images.
Nov 2016 - Dec 2016	**Traffic sign recognition using Deep Learning**. Achieved 95.8% accuracy on test set.
Mar 2015 - Jun 2015	**Face detector**. Image-based, combining Adaboost and Deep Learning.
Oct 2014 - Dec 2014	**Maze exploration robot**. Control, 3D object recognition, mapping, localization and planning.
Sep 2012 - Jan 2013	**Augmented Reality mobile application**. Real-time visual tracking and control of robots.
Sep 2011 - Jan 2012	**Adversarial learning through genetic algorithms**. Predator-prey robot learning simulation.

Honours and Awards

2015	Winner of the robot contest for the course *Robotics and Autonomous Systems*.
2009 - 2013	Extraordinary Academic Performance Scholarship (Madrid Government).
2009	Highest Honours in High School. Best academic record (GPA: 10.0/10.0).

Languages

Spanish:	Mothertongue	
English:	Fluent	*TOEFL iBT: 110/120, September 2012 (Spain)*
Swedish:	Advanced	*CEFR: B2, June 2015 (Sweden)*

Computer skills

Proficient	C/C++, Python, Docker, Matlab & Simulink, OpenCV, PCL, ROS.
Intermediate	Java, CMake, OpenGL, OpenCL, CUDA, Qt, Bash, Git, Gerrit, LaTeX, Linux.
Basic	HTML, CSS, JavaScript, J2EE, SQL, Android, ASM, VHDL.

Interests

Travelling, photography, hiking, cycling, reading, movies, music.
Learning through online courses (MOOC): Coursera, Udacity, edX, etc.

Publications

[1] **C. Gálvez**. "Grid-Based Multi-Sensor Fusion for On-Road Obstacle Detection: Application to Autonomous Driving". M.S. Thesis. KTH, Computer Vision and Active Perception, CVAP, 2015.

[2] **C. Gálvez**, J. Torres, and J. M. Menéndez. "Vacant parking area estimation through background subtraction and transience map analysis". In: *IET Intelligent Transport Systems* 9.9 (2015), pp. 835–841.