Hamid Tahir

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SKILLS

Knowledge: Autonomous vehicles, mobile robots, SLAM, perception, sensor fusion, optimization, deep learning, sensor calibration and synchronization, lane detection and following, V2X interfacing, path planning and controls, embedded systems, operating systems
Tools & Languages: ROS, C, C++, MATLAB, C#, Python, Linux, OpenCV, PCL, Ceres, Prescan, Git, UE4
Hardware: Arduino, Raspberry Pi, NVIDIA Drive PX2, FPGA, Radar, LIDAR, Camera, GPS, IMU

EXPERIENCE

Mechatronics Vehicle Systems Lab: *Graduate Student* Sept. 2017 – Aug. 2019

- Development of autonomous vehicle platform from ordinary vehicle including software, hardware and simulation architecture design
- Sensor interfacing, calibration and synchronization of LIDAR, GPS/IMU, cameras, radars
- Testing of developed platform through lane keeping on real world roads
- Autonomous driving simulations using Prescan and Unreal Engine 4
- Research paper: *System Architecture for Smart Mobility of Intelligent Vehicles in Mixed and Confined Environments using Infrastructure Sensors* (under review)

NXP Semiconductors: *Embedded Vision Software Developer* May 2016 – Aug. 2016

- Implementation and parallelization of ADAS algorithms on NXP embedded platform with advanced optimization and profiling including floating point to fixed point conversion

SAP Inc: *Emerging Technologies Application Developer* Aug. 2015 – Dec. 2015

- Research and prototype development of database driven statistical analysis tools including webcam retina localization, speech controlled real-time data visualization, and accurate employee timesheet and location tracking using cellular devices and WIFI signals

Conavi Medical: *Medical Device Software Developer* Jan. 2015 – Apr. 2015

- Interfaced a System on Chip running .NET Micro Framework with Cyclone V FPGA using SPI protocol and self-designed command-based communication architecture
- Prototyping and signal testing on high voltage PCB hardware including soldering of surface mount components, datasheet analysis, and circuit diagram study

Citigroup Inc: *CCSMT Developer* May 2014 – Aug. 2014
Maplesoft: *Math Applications Developer* Aug. 2013 – Dec. 2013

PROJECTS

Lane Keeping, Deep Learning LIDAR Odometry, Sensor Calibration and Time Synchronization, Stereo Camera System, Competition Rescue Robot, Domino Laying Robot and more

- Visit my portfolio at hamidtahir.com/projects to view detailed information about my projects

EDUCATION University of Waterloo

MASc. Mechanical and Mechatronics Engineering Aug. 2019

- Courses: Vehicle System Dynamics, Multivariable Controls, Optimization, and Deep Learning

BASc. Mechatronics Engineering Apr. 2017