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Junsheng Fu

GitHub
LinkedIn
Patents

I am an experienced researcher, a quick learner and a problem solver, passionate about autonomous driving, with 8 patents applications and 4 papers. I like to think “what if” and “how to”, and enjoy applying Computer Vision and Deep Learning techniques to solve the challenges in autonomous driving.

Technical skills
Languages: Python, C/C++, Matlab
Frameworks: TensorFlow, Keras, CUDA, Numpy, Scikit-learn, OpenCV
Others: Camera calibration, Structure-from-motion, SLAM, Tracking, Machine Learning, Git, Linux

Projects

Vehicle detection and tracking Code, Video 4.2017
- Created vehicle detection and tracking pipeline with two approaches, deep neural networks (YOLO+TensorFlow) and support vector machines (HOG+OpenCV).
- Optimized and evaluated the model on video data from both highway and city driving.

Extended kalman filter-based tracking Code, Video 4.2017
- Designed and implemented an Extended Kalman Filter for object tracking with C++.
- Utilized fused sensor data from both LIDAR and RADAR sensors.

Lane departure warning Code, Video 3.2017
- Designed and implemented a lane-finding algorithm and a lane-departure-warning system.
- Identified lane curvature and overcame environmental challenges, e.g. shadows, pavement changes.

Driving behavioral cloning Code, Video 2.2017
- Built and trained a CNN to autonomously steer a car in a game simulator, using TensorFlow and Keras.
- Used optimization techniques such as regularization and dropout to generalize the network for driving on unseen tracks.

Experience

Tampere University of Technology **Doctoral Student** Finland | 1.2014-12.2017
- Implemented 6 autonomous driving demos with OpenCV and TensorFlow (videos).
- Working on camera pose estimation with LIDAR and street-view images.
- Served as teaching Assistant for “SGN-13006 Introduction to Pattern Recognition and Machine Learning”, and got the best course reviews award from students in 2016 Fall Semester.

Nokia Research Center (Nokia Tech) **Computer Vision Researcher** Finland | 3.2012-12.2015
- Designed and implemented a 3D Map Augmented Photo gallery application with **HERE** Map (video).
- Developed an Interactive Video Playback System with **HERE** Map (video).
- Implemented 3D reconstruction and visualization systems for indoor 3D smart sensing.

Tampere University of Technology **Research Assistant** Finland | 9.2010-12.2011
- Designed and implemented a real-time video denoising filter with C.
- Embedded a denoising filter into H.264/AVC codecs.

Demola **Software Engineer** Finland | 3.2010-8.2010
- Implemented a face tracking application in Nokia N900 mobile phone with OpenCV and QT.

Education

Tampere University of Technology, Finland - *Computer Vision*, **Ph.D.**	GPA: 4.83 / 5	2017
Tampere University of Technology, Finland - *Signal Processing*, **M.Sc**.	GPA: 4.45 / 5	2012
Hangzhou Dianzi University, China - *Telecommunication*, **B.Eng.**	GPA: 85 / 100	2009
Udacity - *Self-Driving-Car Engineer* Nanodegree		2017