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Junsheng Fu

[GitHub](#)
[Patents](#)
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I am a Senior Algorithm Engineer and Computer Vision Researcher with 8 patents, 5 publications and 13 open source projects in the filed of autonomous driving and computer vision. I am experienced with both academic research and industry innovations, familiar with lidar/radar/street-view data processing, and have 4-year experience as a Computer Vision Researcher working with commercial HD map data in Nokia Research.

Technical skills
Languages: Python, Matlab, C/C++
Frameworks: TensorFlow, Keras, CUDA, OpenCV, Scikit-learn,
Others: Camera pose estimation, Deep Learning, Tracking, SLAM, Git, Linux

Projects

Real-time Vehicle Localization with a Particle Filter	[Demo](#)
Object Tracking with Extended Kalman Filter	[Demo](#)
Real-time Vehicle Detection with Deep Neural Network	[Demo](#)
Monocular Camera-based Lane Departure Warning	[Demo](#)
Use a Convolutional Neural Network to Drive a Car in Game Simulator	[Demo](#)
Object Tracking with Unscented Kalman Filter	[Demo](#)
Autonomous Driving with Model Predictive Control	[Demo](#)
Traffic Sign Recognition with Neural Network	[Demo](#)
Traffic Light Detection and Classification with Deep Neural Network	[Demo](#)
Drivable Road Semantic Segmentation with Fully Convolutional Network	[Demo](#)
Autonomous Driving with PID Controller	[Demo](#)
Highway Multi-lanes Path Planning in a Game Simulator	[Demo](#)
6-DoF Camera Pose Estimation with 3D Point Cloud	[Demo](#)

Experience

Zenuity **Senior Algorithm Engineer** Sweden | 1.2018-now
- Working on algorithm research and development for robust localization and perception for autonomous vehicles in variations of environmental and weather conditions.

Tampere University of Technology **Doctoral Student** Finland | 1.2014-1.2018
- Implemented 13 autonomous driving demos with OpenCV, Python, Keras, and TensorFlow ([videos](#)).
- Working on camera pose estimation with LIDAR and street-view data.
- 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 (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	2018
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		2018

Patents & Publications

- US20170132843A1, A Method and Technical Equipment for Determining a Pose of a Device, published 2017 (link).
- US 20160248985, Device with an Adaptive Camera Array, published 2016 (link).
- WO 2016102768 A1, Monitoring, published 2016 (link)
- EP 3051410 A1, An apparatus and associated methods for provision of wireless power, published 2016 (link)
- US 20160191796, Methods And Apparatuses For Directional View In Panoramic Content, published 2016 (link)
- US 20150155009, Method And Apparatus For Media Capture Device Position Estimate- Assisted Splicing Of Media, published 2015 (link)
- US 20140300775, Method and Apparatus for Determining Camera Location Information and/or Camera Pose Information According to a Global Coordinate System, published 2016 (link)
- US 20150109508, Method And Apparatus For Generating A Media Capture Request Using Camera Pose Information, published 2015 (link)
- J. Fu, L. Fan, K. Roimela, Y. You, and V.-V. Mattila: "A 3d Map Augmented Photo Gallery Application on Mobile Device", IEEE ICIP 2014, France (link)
- J. Fu, J.-K. Kämäräinen, A. Buch, and N. Krüger: "Indoor Objects and Outdoor Urban Scenes Recognition by 3D Visual Primitives", ACCV workshop 2014, Singapore (link)
- J. Fu, L. Fan, Y. You, and K. Roimela: "Augmented and Interactive Video Playback Based on Global Camera Pose", the 21st ACM Multimedia, 2013, Spain (link).
- L. Fan, J. Fu, Y. You, K. Roimela, P. Piippo and V.-V. Mattila, "Deja Vu: A 3D map augmented photo gallery application on mobile devices", In IEEE ICCV 2013, Demo session, Australia.
- J. Fu, E. Belyaev and K. Egiazarian: "Rate-distortion Oriented Joint Video Pre-filtering and Compression", the 10th conference of FRUCT, 2011, Finland (link).
- Junsheng Fu, Master Thesis 2011: A Real-Time Rate-Distortion Oriented Join Video Denoising and Compression Algorithm (link).

Honors and Activities

TUT Graduate School Scholarship	2016-2017
Nokia Foundation Scholarship	2014
Sisu Award, Nokia Research Center Multimedia Technology Lab	2013
Runner-up in IIDA Idea Innovation Competition	2011
Outstanding Graduate Award	2009
Chairman of Tampere Chinese Student and Scholar Association	2014-2015
Chairman of one Badminton Club in Tampere	2012