

# Hsu, Po-Fang(Daniel)

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## Experience

### Software Engineer

Garmin (Asia) Corp.

Aug. 2017 -- Aug. 2019

New Taipei, Taiwan

Division of Cartography Production, Automotive OEM

- Advanced Cartographer Assistance Systems, ACAS

Developed the object detection and recognition models for interested features in cartography, such as

- 102 kinds of traffic signs, traffic lights(including constructed a 60K stratified sampling dataset and applied AdaBoost method to adapt countryside/mountains, suburban and urban area), **#Faster-RCNN+R50+FPN #AdaBoost #Pytorch**

- roadside parking lots(including designed & constructed a 700 dataset), **#DEEPLABV3+ #Tensorflow**

- road lanes and lane markings(prototypes with 15 classes including detected pick using Fourier transform, clustered with DBSCAN and classified with unweighted voting), **#VPGNet #Caffe**

then detected changes of features in different timeframe automatically to speed up the operation of computer assisted cartography by 30%~50% successfully. Finally, built up the active learning based feedback pipeline to collect more data efficiently for improving model. **#Camera Models(Calibration & Triangulation)**

- Extracted features from millions of street views segmented into semantically meaningful parts, then integrated GIS database to optimize routing on vehicle navigation. Improved 47.3% routing speed of road in specific area.

**#Statistical Analysis #OpenCV #Semantic Image Segmentation**

- Constructed CI/CD pipeline, then designed and deployed the microservices based "ACAS" on a GPU enabled Kubernetes cluster made of 3 physical distributed GPU-enabled nodes to serving 200K 5M pixels street images every day.

**#Jenkins X #Harbor #Kubernetes #CI/CD #PostgreSQL(NoSQL)**

- (Experimental) Integrated Garmin TW-MAP Knowledge Base API and Microsoft Bot Framework to develop a dialogue system for POI searching. **#Luis.ai #.Net**

- (Experimental) Applied and integrated Google Cartographer to construct 3D model of basement parking.

**#SLAM #Lidar #IMU #ROS #C++ #Lua**

### Adjunct Research Assistance

Academia Sinica

Jan. 2016 -- Jun. 2016

Taichung, Taiwan

TWISC@NCHU

- Developed a MQTT based communication architecture using on our smart grid. **#MQTT**

- Researched the privacy protection issue and implemented k-anonymity and  $\delta$ -privacy for our smart grid. **#Anonymisation**

- Applied HMM to disaggregate power usages. **#HMM #Power Disaggregation**

### Software Engineer, Intern

Industrial Technology Research Institute

May. 2015 -- Dec. 2015

Hsinchu, Taiwan

INFORMATION AND COMMUNICATIONS RESEARCH LABORATORIES

- Android App Development **#Android 6.0 (Card View & Weight & Navigation Drawer)**

- Location-based and Preference-Aware Recommendation **#Topic Model #Recommendation Systems #Bag-of-words**

## Education

Taichung, Taiwan

National Chung Hsing University

Sep. 2014 -- Jul. 2016

- M.S. in Computer Science and Engineering. Overall GPA: 3.88/4.3.

- Relevant Coursework: Pattern Recognition, Data Mining, Computer Security, Social Network and Computing, Bioinformatic Algorithm

- Publication: **Po-Fang Hsu**, Yao-Chung Fan, Huan Chen. On Semantic Annotation for Sport Video Highlights by Mining User Comments from Live Broadcast Social Network, BWCCA 2018

Miaoli, Taiwan

National United University

Sep. 2010 -- Jun. 2014

- B.S. in Computer Science and Information Engineering. Last 60 GPA: 3.4/4.0.

## Additional Experience and Awards

- 2017 Summer D4SG Fellowship, A Analysis of City-level Medical Referral System - A Case Study of Kaohsiung:** Data Engineer. With the guidance of DSP Inc. and Dep. of Health Kaohsiung City.

- Finalist, 2016 Taipower Open Data Hackathon:** Team Leader. Tried to reduce energy costs by virtualizing power consumption data collected by Taipower Inc. on web. [8/15]

- Finalist, 2016 Fishackathon in Taipei:** Team Leader. Developed a fish classification Android App using Bag of Words model. Intended to improve bycatch and overfishing by rapid fishes recognizing. [19/26]

- First Prize, 2014 NUU CSIE Special Projects on Information Competition:** Team Leader. Completed a social network platform for family member.[1/16]

## Other Skills

- Vantage English, TOEFL iBT: 72; Vantage Japanese, JLPT: Level N2; Native Mandarin Chinese