Hsu, **Po-Fang(Daniel)**

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Experience

Software Engineer — **Garmin (Asia) Corp.** — **Aug. 2017 -- Aug. 2019**

Division of Cartography Production, Automotive OEM — New Taipei, Taiwan

- Advanced Cartographer Assistance Systems, ACAS
  Developed the object detection and recognition models for interested features in cartography, such as
  - 114 kinds of traffic signs, traffic lights(including constructed a 60K stratified sampling dataset to adapt countryside/mountains, suburban and urban area, then getting a precision of over 93% and a recall of 83% for each of 55 major classes in the real scenario.), **#Faster-RCNN+R50+FPN(Pytorch)**
  - roadside parking lots(including constructed a 700 dataset, then getting an IoU score of 0.49.), **#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 efficially 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**

TWISC@NCHU — Taichung, Taiwan

- Developed a MQTT based communication architecture using on our smart grid. **#MQTT #Arduino #Raspberry Pi**
- Applied HMM to disaggregate power usages. **#HMM #Power Disaggregation**

Software Engineer, Intern — **Industrial Technology Research Institute** — **May. 2015 -- Dec. 2015**

INFORMATION AND COMMUNICATIONS RESEARCH LABORATORIES — Hsinchu, Taiwan

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

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.
- **Finallist, 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]
- **Finallist, 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]

Other Skills

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