

# JIANDONG JIN

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## 🎓 EDUCATION

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**Peking University**, Beijing 2017.09 – 2020.07

*Master's Degree* in Computer Science

**Tongji University**, Shanghai 2011.09 – 2016.07

*Bachelor's Degree* in Transportation Engineering

**Udacity**, MOOC 2014.09 – 2017.12

*Nanodegree* Machine Learning, Code Reviewer

*Nanodegree* Self Driving Car

## 👤 PROJECT

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**Trace - What are people looking at when they are wandering ?** 2019.10 – present

*Human Behaviour, Visual Attention, Computer Vision, SLAM*

- This project aims at analyzing the crowd's visual attention on their walking environments. I choose several malls and stations to collect video data and then do some experiments.
- I reconstructed camera pose and 3D scenes from video by Structure from Motion method; Then I used a CNN model to estimate pedestrian's location and their gaze from images; I projected the pedestrian's location and gaze vector on the 3D scene's map, so that we can find out what's customer looking at when they are wandering in the mall.
- This project is still on-going, I'm planning to analysis the most frequently attention-ed areas, and try to find some pattern to explain attractiveness of visual features.

**Future Life Prototyping on Chifeng Road** 2019.07 – 2019.09

*Smart City, Spatial Programming, Data Modeling, Augmented Reality*

- This summer I had an internship at Tongji University College of Design and Innovation, instructed by Professor Xiaohua Sun. We developed a multi-screen system supporting the design, data monitoring, and management of the community.
- I designed community evaluation metrics related with transport, such as the travel isochronal circles, pedestrian comfort, road congestion, road health condition, traffic noises, etc. I also crawled research data online and from social media to build corresponding evaluation models. I used POIs data crawled from Gaode Map to analyze the formation of community, and also Weibo check-in data to conduct sentiment analysis. I developed a multiple-screen platform to control, monitor and interact with the community elements and assess the impact of planning. I also built an AR scene linked with community by Unity and Mapbox to improve the user interaction experience.
- This project is still on-going. We want to add more evaluation metrics related with community design and management such as plant area, air quality and odour level. We are also planning to collect more data to refine our evaluation model.

**Road Brain - Building a "digital twin" for a park** 2018.07 – 2018.09

*Smart City, Vehicle Re-Identification, Computer Vision*

- The main target of this project is to build a "digital twin" for a park, I started with building the 3d map of the park and using computer vision method to detect vehicles running in it and provide positioning service.
- I used visual SLAM method to build a dense 3D map for the park. Then I used Graph Neural Network(GNN) and feature-based tracking algorithm to detect and track car's 3d pose from the monocular camera. Afterward, a simple calibration algorithm is implemented for locating the cars in the 3D map.

- The whole pipeline can run in real-time. We can analyze the entire trajectory of a car even when it driving across multiple cameras. Since the whole system is camera-based, it can also work well in the underground parking lot, where the GPS service may not be available.

## **Crowd Dynamic - Predicting the crowd flow and evacuate them**

2018.03 – 2018.05

*Smart City, Traffic Flow, Network Analysis*

- In this project, I cooperated with my partner Fuwen Deng. We designed a large scale crowd evacuation strategy, which could take advantage of the urban transit system effectively.
- We collected large amount of multi-source data, for example taxi trajectory, geo-tagged Weibo (the Chinese Twitter) check-ins, metro card records and OSM road network data. After pre-process and data fusion, we analyze the features of crowd and build a model to predict crowd flow dynamically. We also design an effective strategy to evacuate crowd rapidly based on urban transit system.

## **INTERNSHIP**

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### **Apple, Siri NL Beijing Group, Research Intern**

2019.04 – 2019.07

*NLP, Dialogue Generation, Seq2Seq*

- During my internship, I mainly focused on Simplification task in NLP, which is modifying the content and structure of a text in order to make it easier to read and understand.
- I analyzed weakness of attention-based seq2seq model on sentence simplification, and try to extend the performance of seq2seq model by CRF keywords. Together with my mentor Lei Sha and Jianpeng Cheng, we propose an end-to-end keywords extracting model, which using LSTM+CRF model to tagging the keywords in utterance, then we using those features in decoding process to generate response.

### **Megvii Technology, Video Group, Algorithm Intern**

2019.03 – 2019.04

*Vehicle Re-Identification, Pose Estimation, Computer Vision*

- During my internship, I conducted several works including reproducing some current state of the art vehicle re-id and pose estimation methods, as well as designing the model evaluation pipeline.
- I reproduced and compared different vehicle re-id methods on our dataset, such as Siamese-CNN, Triplet Loss and Space-Time Prior method. In order to transfer the network on our real-world dataset, I use data augmentation method to re-train the model. I also reproduced some pose estimation and keypoints-based model. Finally I evaluated all those model on our dataset, and found that keypoints-based re-id method had better performance.

### **Shannon Technology, Knowledge Graph Group, Algorithm Intern**

2018.03 – 2018.06

*FinTech, NLP, Knowledge Graph, Web Crawling*

- I crawled massive finance-related data from internet to build a financial knowledge base.
- I took part in building a QA system based on knowledge base to retrieval interested financial topic and find trends in Chinese stock market.
- I took part in designing a text content grapher by Named Entity Recognition and Dependency Parsing, and test it on stock reviews and company news.

## **PUBLICATION**

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- Fuwen Deng, Jiandong Jin, Yu Shen, Yuchuan Du. "Towards a fatality-aware benchmark of probabilistic reaction prediction in highly interactive driving scenarios." 2019 22st International Conference on Intelligent Transportation Systems (ITSC). IEEE, 2019.

## **IT SKILLS**

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- Programming Language: Python > R > Javascript > C++
- Developing Stack: Web App, Docker, Unity

## ♡ HONORS

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<i>first prize</i> , National Intelligent Design Competition for Students, hold by Chinese Association for Artificial Intelligence	2019.09
<i>2nd place</i> , Hefei City Big Data and AI competition, (1/2685 teams)	2018.11
<i>1st place</i> , Chengdu City Intelligence-China Cup data competition, (1/3978 teams)	2017.05
<i>1st place</i> , Guiyang City Accident Reasoning Competition, (1/1500 teams)	2016.06
<i>Meritorious Honor</i> , Mathematical Contest In Modeling(MCM/ICM)	2014.01
<i>second prize</i> , National Competition of Transport Science and Technology for Students	2014.05

## ❏ OTHER INFO

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- Language: English(IELTS 7.0), Chinese Mandarin(Native Speaker)
- Hobby: Soccer, Swimming