张炅焱 ZHANG, JIONGYAN

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EDUCATION BACKGROUND

Technische Universität München, Germany **2021.10 - 2023.09**

Cartography Program, **Scholarship of Cartography in TU Munich for 1st, 2nd Semester**

Technion - Israel Institute of Technology, Israel (Exchange program) **2022.03 – 2022.07**

החלטות בלבליות (Introduction to Economic Decision Making for Engineers)

École polytechnique, France (Exchange program) **2022.01 - 2022.03**

Algorithmique parallèle et distribuée (Parallel and distributed algorithms)

Wuhan University, China **2017.09 – 2021.06**

遥感科学与技术(Remote Sensing Science and Technology – Geographic Information Engineering Track)

- Wuhan University Scholarship [2017 2018]
- Wuhan University Elite Student [2017 2018]
- S and H prize of MCM/ICM [2018 2019]
- Third prize of Mathorcup University Mathematical Modeling Competition [2019]
- Second prize of China International Mathematical Modeling Competition [2019]
- H prize of Asia and Pacific Mathematical Contest in Modeling [2019]
- **Excellent Bachelor Graduate Thesis of Wuhan University [2021]**

WORK EXPERIENCE

Environmental Systems Research Institute, Inc. (ESRI), R&D Center (Beijing) **2021.04 – 2021.08**

- Prepare data for the experiment, Data pre-processing.
- Develop and optimize medical digital image processing algorithms in spatial/frequent domains.
- Assist to develop the NodeJS backend server for the project.

Wuhan University (Academician of CAS, Prof. Gong, Jianyan; Prof. Qin, Kun) **2021.03 – 2021.06**

Assist in teaching and schoolwork tasks of the course *Foundation of Geographic Information System*.

ISIP Lab, Wuhan University (Prof. Qin, Kun) **2020.09 – 2021.06**

- Research the complex network theory based on the flight network and correlated datasets.
- Assist to develop the NSFC platform for displaying network relationship via frontend development.
- Assist to apply for National Natural Science Foundation of China.
- Negotiate the data transaction contract with OAG (a financial flight data supplier).

RESEARCH EXPERIENCE

1. Research on the relationship between COVID-19 and the global flight network 2020.04 – 2021.06

Analyse the impact of the epidemic situation on the flight network in 2020. Based on the characteristics of the flight network from January to April in 2020, we use the complex network theory to extract the network patterns.

2. Development of travel assistance app for the disabled 2020.04 – 2020.11

The project attempts to use barrier-free data in Wuhan, providing guidance for the disabled to travel. I mainly conduct the path-finding algorithm research and implementing Android application development.

3. Research on indoor positioning and navigation 2019.07 – 2020.07

The project aims to developing an indoor positioning and navigation system in a large shopping mall by using as few external hardware as possible. I am responsible for deploying algorithms on the central server.

4. Research on Night-time Remote Sensing 2018.04 – 2019.04

Based on the remote sensing data of night-time light obtained by DMSP / OLS system, this project analyses the development status of emerging cities in recent years.

5. Human behaviour judgment, clustering and analysis based on human trajectory 2018.01 -2019.07

The project tries to record human daily trajectories to analyse their habits and use deep learning to explore the daily pattern. I mainly conduct data analysis and the development of Android data acquisition software.

COURSE PROJECTS

3D Scanning & Motion Capture *https://github.com/hinczhang/3D-Scanning-and-Motion-Capture* Implement Multiview Stereo and bundle adjustment via C++ (with help of OpenCV and ceres).	**Algorithmique parallèle et distribuée** *https://github.com/hinczhang/INF560* Use MPI, OpenMP and CUDA to parallelize the Barnes Hut algorithm for the n-body problem.
Machine learning for 3D Geometry *https://github.com/hinczhang/Machine-Learning-for-3D-Geometry* Combine Morphing and Sampling Network (MSN) and SoftPool++ to operate 3D completion.	**Graduate Thesis** *https://github.com/hinczhang/Graduate-Thesis* Use the complex network theory to analyze the flight network and use RNN to predict the flight.
Pattern Recognition *https://github.com/hinczhang/ObjectRec* Use YOLOv3 and DNN of OpenCV along with QT to develop a camera GUI to recognize objects.	**Comprehensive Practise of GIS** *https://github.com/hinczhang/OSPyQGIS* Develop a Plug and Play software based on QGIS and PyQT with the plugin function.

TECHNOLOGY STACKS

1. **The Programming Languages I usually use:** JavaScript, C/C++, Python, Java
2. **The Framework I usually use:** Vue, Android, OpenCV, Hadoop, MPI, OpenMP, QT, CUDA, MFC, NodeJS, QGIS/ArcGIS Dev., Flask, PyTorch, OpenLayer, Echarts, MySQL/PostgreSQL/MongoDB.
3. **The Technology I like:** 3D, Data Science, Deep Learning, Modelling, Computer Vision, Image Processing, Parallelism, Fullstack Dev., Database