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EDUCATION BACKGROUND

Technische Universität München, Germany (Master) - Cartography **2021.10 – 2023.09**

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

École polytechnique, France (Master Exchange program) – Computer Science **2022.01 – 2022.03**

Algorithmique parallèle et distribuée (Parallel and distributed algorithms)

Wuhan University, China (Bachelor) – Remote Sensing Science and Technology **2017.09 – 2021.06**

- Wuhan University Scholarship [2017 2018] Wuhan University Elite Student [2017 2018]
- S and H prize of MCM/ICM [2018 2019] 3rd prize of Mathorcup 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]**

INTERNSHIP EXPERIENCE

✧ **Sophgo Tech. LLC. (Shanghai)** **2023.11 – Now**

Support the design and development of RISCV chip servers, facilitating the deployment of deep learning operators on the next-generation TPU.

- Support the expansion of matrix multiplication related operations for TPU's RISCV architecture.
- Design and expand LLVM's cross-compilation capabilities for the extented RISCV instructions.
- Implement the actual functionality of the corresponding RISCV instructions in QEMU for instruction functionality verification and bare metal simulation runs.

✧ **General Motors Cruise LLC. (Munich, Germany)** **2022.10 – 2023.09**

Design and update of the radar simulation system Cora (latest version: Cora 2) for auto-driving.

- Assisted in generating support tools, such as converters for USD format for use with radar simulation tools.
- Responsible for designing the C architecture for integrating and implementing solutions.
- Integrated GPU acceleration into the internal radar simulation toolchain, improving the use of third-party libraries.

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

Implement the algorithmic work for the cardiac health measurement software Piek, capable of calculating cardiac-related indices through a smartphone camera. The product, now been released on the Apple Store.

- Responsible for the collection and organization of experimental data, as well as its preprocessing.
- Developed and optimized medical image processing algorithms in both the spatial/temporal and frequency domains.
- Assisted in developing the backend NodeJS server for the project software.

RESEARCH EXPERIENCE

1. Temporal remote sensing image detection of natural disasters **2023.03 – 2023.05**

Utilizing generative and discriminative networks to learn from specific region's disaster-free (normal) remote sensing time-series images, and subsequently discriminate disaster features and regions in the affected images.
Github: *https://github.com/hinczhang/Temporal-Remote-Sensing-Image-Detection-of-Natural-Disasters (temporarily private repo)*

2. Drone surveillance video anomaly detection **2022.07 – 2022.11**

Use generative and discriminative networks to carry out self-supervised anomaly detection, which could be applied on the wild scenes and for urgent rescue.
Github: *https://github.com/hinczhang/Drone-Surveillance-Video-Anomaly-Detection (temporarily private repo)*

3. 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.

4. 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.

5. 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.

6. 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.

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 and SoftPool++ (As encoder) 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, MPI, OpenMP, QT, CUDA, Flask, PyTorch, SQL.

3. The Technology I like: 3D, Deep Learning, Modelling, Computer Vision, Parallelism, Fullstack Dev.