

# CHEN CHU

State Key Laboratory of Resources and Environmental Information System  
Institute of Geographic Sciences and Natural Resources Research  
Chinese Academy of Sciences  
chuchen0411@igsnrr.ac.cn  
<https://chuchen2017.github.io/>

---

## EDUCATION

---

<b>University of Chinese Academy of Science</b>	<i>Beijing, China</i>
MPhil, Geographic Information Science	<i>2021-2024</i>
Advisor: Prof. <b>Feng Lu</b> and Assoc. Prof. <b>Hengcai Zhang</b>	
State Key Laboratory of Resources and Environmental Information System	
Institute of Geographic Sciences and Natural Resources Research	
 <b>Yunnan University</b>	 <i>Kunming, China</i>
B.S., Geographic Information Science	<i>2017-2021</i>
Advisor: Assoc. Prof. <b>Fei Zhao</b>	
School of Earth Sciences	
Ranking: 1 / 33	

---

## AWARDS AND HONORS

---

2023	First Class Director's Scholarship of IGSNRR, CAS (top 15%)
2023	First Class Academic Scholarship of IGSNRR, CAS
2023	Merit Student of University of Chinese Academy of Science
2022	First Class Academic Scholarship of IGSNRR, CAS
2022	Merit Student of University of Chinese Academy of Science
2022	Outstanding Student Award of University of Chinese Academy of Science
2021	Principal's Scholarship of Yunnan University (10 out of all 4000+)
2021	Outstanding Bachelor's Thesis Award of Yunnan Province
2020	National Scholarship (Top 0.5%)
2020	Excellent Student Cadre of Yunnan Province

---

## RESEARCH INTERESTS

---

- Human Mobility Modeling
- GeoAI
- Machine Learning / Deep Learning
- Spatial Data Mining
- Interpretable Spatiotemporal Prediction

- Spatial Statistic
- Location Encoding

---

## PUBLICATIONS

---

- 2023 **Chen Chu**, Hengcai Zhang, Feng Lu. TrajGDM: A New Trajectory Foundation Model for Simulating Human Mobility. ACM SIGSPATIAL 2023 Student Research Competition, Nov 2023.
- 2023 **Chen Chu**, Hengcai Zhang, Feng Lu. Simulating human mobility with a trajectory generation framework based on diffusion model. International Journal of Geographical Information Science (Under review, 2<sup>nd</sup> round), Nov 2023.
- 2023 **Chen Chu**, Hengcai Zhang, Feng Lu. DeepIndoorCrowd: Predicting Crowd Flow in Indoor Shopping Malls with an Interpretable Transformer Network. Transactions in GIS, 27, 1699–1723.
- 2023 **Chen Chu**, Hengcai Zhang, Feng Lu. Impacts of the Russia-Ukraine Conflict on Global Air Transportation: from the View of Mass Flight Trajectories. Journal of Air Transport Management (Under review, 2<sup>nd</sup> round), Nov 2023.
- 2022 **Chen Chu**, Hengcai Zhang, Feng Lu. Inferring Consumption Behavior of Customers in Shopping Malls from Indoor Trajectories. Journal of Geo-Information Science, 24(6): 1034-1046, 2022.
- 2021 **Chen Chu**, Fei Zhao (Supervisor), Rui Liu, et al. Assessing Light Pollution Using POI and Luojia1-01 Night-Time Imagery from a Quantitative Perspective at City Scale. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 14, 7544-7556, 2021.
- 2022 Zhengbao Sun, Lizhen Wang, **Chen Chu**. Outlier Reconstruction of NDVI for Vegetation-Cover Dynamic Analyses. Applied Sciences, 12(9), 4412, 2022.
- 2023 Fei Zhao, Zhiyan Peng, Qian Jiangkang, **Chen Chu**. Detection of geothermal potential based on land surface temperature derived from remotely sensed and in-situ data. Geospatial Information Science, 1-17, 2023.

---

## PRESENTATIONS

---

- 2023 **ACM SIGSPATIAL 2023 Student Research Competition**. TrajGDM: A New Trajectory Foundation Model for Simulating Human Mobility. Nov 13, 2023, Hamburg, Germany.

- 2023 **The 18<sup>th</sup> Annual Conference on Geographic Information Theory and Methods.** A Generative Trajectory Generation Model. May 20, 2023, Guilin, China.
- 2021 **The 17<sup>th</sup> Annual Conference on Geographic Information Theory and Methods.** Inferring Consumption Behavior of Customers in Shopping Malls from Indoor Trajectories. Sep 8, 2021, Hangzhou, China.

---

## RESEARCH EXPERIENCE

---

### **Digital Mapping and Integrated Network Managing Technologies for Large Underground Space**

*2021.10-2025.10*

- Funded by National Key Research and Development Program of China.
- Designed the data collecting method and formed standardized underground 3D datasets.
- Developing a unified spatial encoding method for 3D space.

### **Intelligent Features Extraction and Spatial-Temporal Information Fusion for Digital Twin**

*2022.10-2026.10*

- Funded by National Key Research and Development Program of China.
- Developing feature extraction and generation methods based on artificial intelligent algorithms.

### **Intelligent Indoor Positioning and GIS**

*2017.10-2021.10*

- Funded by National Key Research and Development Program of China.
- Developed an indoor trajectories clustering algorithm based on DBSCAN algorithm.
- Proposed an indoor human mobility modeling framework.

### **ACM SIGSPATIAL GISCUP 2021**

*2021.5-2021.8*

- Designed a multi-modal fusion network to predict taxis' estimated time of arrival.
- The prediction accuracy ranked 39 among all 1172 teams.

### **An Intelligent Transportation Managing System Based on Video GIS (host)**

*2019.7-2021.6*

- Funded by National College Student Innovation and Entrepreneurship Training Program.
- Developed a vehicle identifying and tracing system with YOLO and DeepSORT.
- Developed a server based intelligent transportation managing system based on GeoServer and Flask.

**Lancaster University, Environmental Science Summer School**

*Lancaster, UK  
2019.7-2019.8*

- Researched and modeled the effect of pollution on a location river with spatial analysis.
- Delivered a speech at the closing ceremony of the summer school as the student representative.

---

## **TECHNICAL SKILLS**

---

**Programming languages:** Python (PyTorch), R, JavaScript, C#, C/C++

**Geospatial software:** ArcGIS Pro, QGIS

**TOEFL:**104 (Speaking:24, Writing:26, Reading:28, Listening:26)