Haowen Luo

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EDUCATION

Department of Geography and Resource Management,
The Chinese University of Hong Kong

- M.Sc. in GeoInformation Science — Hong Kong, Sep 2019 – Jun 2020
  - Expected to be awarded in Nov 2020.
  - Cumulative GPA: **3.9**/4.0.
  - Main Courses: GIS-T, Digital Remote Sensing Image Analysis, Spatial Decision Support System, Statistical Analysis of Geographic Data, Geospatial Big Data for Urban Planning, etc.

School of Geography and Planning,
Sun Yat-sen University

- B.Sc. in Geographic Information Science — Guangzhou, Sep 2015 – Jun 2019
  - Cumulative GPA: **3.8**/4.0.
  - Main Courses: Advanced Mathematics, Advanced Programming, Object Oriented Programming, Data Structure, Computer Graphics, Database Theory, GIS Software Engineering, etc.

PROFESSIONAL EXPERIENCE

Department of Geography and Resource Management, The Chinese University of Hong Kong

- Research Assistant — Hong Kong, Oct 2020 – Present
  - Developed deep learning model for PM2.5 feature extraction.
  - Built a probability model to applied gradient descending algorithm for multi-objective land use spatial optimization.

Institute of Future Cities, The Chinese University of Hong Kong

- Student Helper — Hong Kong, Sep 2020 – Oct 2020
  - Labeled the local climate zone samples.

Center of Integrated Geographic Information Analysis (CIGNA), Sun Yat-sen University

- Research Assistant (Student Helper) — Guangzhou, Jul 2017 – Jun 2019
  - Helped to process the cellular signaling data in Guangzhou, and developed a software for cellular signaling data analysis and visualization by QT, OpenGL and GDAL;
  - Applied deep learning to remote sensing image classification;
  - Processed and analyzed street view imagery data.

Institute of Urbanization, Sun Yat-sen University

- Research Assistant (Student Helper) — Guangzhou, Jul 2017 – Feb 2019
  - Developed data crawlers to collect data, including intellectual property records, POIs, etc;
  - Visualized research results and developed interactive maps by Mapbox and Echart;
  - Processed the cellular signaling data in Guangzhou with Tianhe-2;
  - Analyzed data from a Chinese online diagnosis platform, and explored the spatial relevance of Internet consultation by spatial autocorrelation, graph theory and other methods.

Greenhope Technology Co. Ltd

- New Media Operation Intern — Guangzhou, Nov 2018 – Dec 2018
  - Translated scientific papers in ophthalmology into Chinese; Edited and typeset Wechat Push Message.

Augur Intelligence Technology Co., Ltd

- Data Analyst Intern — Guangzhou, Sep 2018 – Oct 2018
  - Helped to developed real estate database for Guangzhou Land Resources and Urban Planning Bureau, responsible for data cleaning and entry of land parcels and natural buildings;
  - Applied data cleaning methods to the project by programming in Python.

GIS Lab, School of Geography and Planning, Sun Yat-sen University

- Teaching Assistant (Student Helper) — Guangzhou, Jul 2017 – Aug 2018
  - Built FTP sharing service for teaching; Helped to maintain and update software and hardware.

PUBLICATIONS

CONFERENCES

[1] S. J. Liu, H. Luo, and Q. Shi*, "Active Ensemble Deep Learning for Polarimetric Synthetic Aperture Radar Image Classification," *IEEE Geoscience and Remote Sensing Letters*, 2020. doi: 10.1109/LGRS.2020.3005076

[2] S. Liu, H. Luo, Y. Tu, Z. He* and J. Li*, "Wide Contextual Residual Network with Active Learning for Remote Sensing Image Classification," *IGARSS 2018 - 2018 IEEE International Geoscience and Remote Sensing Symposium*, Valencia, 2018, pp. 7145-7148. doi: 10.1109/IGARSS.2018.8517855

AWARDS

- Department of Geography and Resource Management MScGIS Admission Scholarship 2019 – 2020
- The Third-prize Scholarship in Sun Yat-sen University. 2016 – 2017
- IEEE GRSS Data Fusion Contest 2020: Global Land Cover Mapping with Weak Supervision. Mar 2020
  - Rank 4(Development Phase)/7(Track 1)/11(Track 2) in 159 registrations (33 teams entered the final phase).
- Alibaba Cloud German AI Challenge 2018: AI For Earth Observation. Feb 2019
  - Rank 18(Preliminary)/29(Semi-Finals) in 1329 teams.
- Honorable Mention Award in the 2nd SYSU Public Governance Data Analysis Competition. Jun 2018
  - One of the top-10 awardees in the competition.

PROJECT

AN ADAPTABILITY STUDY OF URBAN POPULATION HEALTH AND PUBLIC HEALTH SYSTEM

- Tech Support Guangzhou, Mar 2018 – Apr 2019
  - Found the relationship between temperature, taxi to hospitals and urgent patient by the mathematical statistics method, explored the temporal and spatial distribution of sudden diseases under extreme weather through statistical and spatial analysis methods;
  - Built prediction model of sudden diseases under extreme weather based on multi-source spatial data;
  - National Undergraduate Innovative Experiment Project (No.201810558049). Received funding of 10,000 CNY from the Ministry of Education of China.

URBAN TRAFFIC CONGESTION IDENTIFICATION AND PREDICTION BASED ON SOCIAL MEDIA DATA

- Leader Guangzhou, Mar 2017 – Aug 2018
  - Developed novel method to build the model of urban traffic congestion identification and prediction from social media data, using web spider techniques, cluster analysis and factor analysis methods.
  - Analyzed data from Weibo using Text-CNN, visualized traffic congestion in Guangzhou city area.
  - National Undergraduate Innovative Experiment Project (No.201710558084). Received funding of 10,000 CNY from the Ministry of Education of China;
  - Won the Excellence Award. Received follow-up funding of 10,000 CNY.

RESEARCH EXPERIENCE

MEASUREMENT OF HUMAN PERCEPTIONS IN A LARGE-SCALE URBAN AREA

Guangzhou, Feb 2019 – May 2019

- Measure emotional perceptions of street-view images based on deep learning, explore the relationship between human perceptions and built-up environment, and analyze spatial dependence and spatial heterogeneity of human perceptions.
- Masked Mean Square Error is used as the loss function to reduce the number of models and training time. Threshold method is used to eliminate the noise data to make full use of incomplete samples.
- The final thesis. Won the Outstanding Thesis Prize.

DTRIP: A CUSTOMIZED TRIP ROUTE ARRANGEMENT SYSTEM BASED ON DEEP LEARNING

Guangzhou, Mar 2018 – Jul 2018

- Applied the Long Short-Term Memory (LSTM) model to analyze the comments in Mafengwo (a travel site), designed an algorithm to recommend sites and plan travel route;
- Built a website for interacting based on Flask, ArcGIS and JQuery.
- The final coursework of GIS Software Engineering.

IMPACT OF THE RAINSTORM ON ROAD SPEED

Guangzhou, Sep 2017 – Aug 2018

- Analyzed the impact of the rainstorm on road speed based on taxi-enabled GPS data and rainfall data.
- Developed data cleaning method to increase the usability, consistency of raw data;
- Built storm process model and applied cluster analysis method.

DEEP LEARNING FOR REMOTE SENSING IMAGE CLASSIFICATION

Guangzhou, Sep 2017 – Jul 2018

- Proposed a wide contextual residual network (WCRN) with active learning for remote sensing image classification, which achieved good machine generalization with a limited number of training samples.
- Participated in the design and implementation of WCRN;
- Developed Sample-Set Maker (in Python) to manage samples of RSI for deep learning.
- Published in IEEE International Geoscience and Remote Sensing Symposium (IGARSS) in 2018.

SKILLS

PROGRAMMING

- C/C++, Python, Matlab, HTML, JavaScript;

APPLICATION SOFTWARE

- ArcGIS, ENVI, SPSS, TEX, Office, Adobe Photoshop/Lightroom, etc;

LANGUAGE

- Cantonese(native), Mandarin(native), English(fluent).

TECH SITE

[1] Blog: http://blog.rimoe.xyz.

[2] Github: https://github.com/coderimoe.

[*Curriculum Vitae compiled on 2020-10-06*]