Shengjie Liu

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EDUCATION

Sun Yat-sen University — Guangzhou

- B.S. in Geographical Information Science (Remote Sensing), GPA: 3.9/4.0 — Aug 2015 – Jun 2019
  - Thesis: Deep Learning for Land Use and Land Cover Classification
  - Advisers: Prof. Qian Shi, Prof. Zhixin Qi

PUBLICATIONS

Liu, S., Qi, Z., Li, X. and Yeh, A.G.O., 2019. Integration of Convolutional Neural Networks and Object-Based Post-Classification Refinement for Land Use and Land Cover Mapping with Optical and SAR Data. *Remote Sensing*, 11(6), p.690.

Liu, S., Luo, H., Tu, Y., He, Z. and Li, J., 2018, July. Wide Contextual Residual Network with Active Learning for Remote Sensing Image Classification. In *2018 IEEE International Geoscience and Remote Sensing Symposium*, Valencia, pp. 7145-7148.

PREPRINTS

Liu, S. and Shi, Q.. Multitask Deep Learning for Hyperspectral Image Classification. Submitted to *IEEE Geoscience and Remote Sensing Letters*, submitted after major revision. arxiv.org/abs/1905.04535

PROFESSIONAL EXPERIENCE

HKU Light Pollution ECF Team, The University of Hong Kong — Hong Kong

- Research Assistant, Department of Physics — Sep 2019 – Present
  - Investigations on light pollution in Hong Kong using satellite and site-based data
  - Principal Investigator: Dr. Jason C.S. Pun

OneSpace Technology — Chongqing

- Remote Sensing Engineer, Department of Spatial Information — Jul 2019 – Aug 2019
  - Crop type classification using Sentinel-2 satellite data
  - Water quality parameters estimation
  - Fine resolution PM2.5 monitoring using Zhuhai-1 hyperspectral data
  - Estimation of AOD using 6S radiative transfer model
  - Estimation of soil nutrient contents using Landsat-OLI imagery

Guangdong Provincial Key Lab. of Urbanization and Geo-simulation — Guangzhou

- Research Assistant (Part-time) — Oct 2017 – Apr 2019
  - Wide contextual residual network with active learning for remote sensing image classification
  - Combining optical and radar imagery from Sentinel for land use and land cover mapping
  - Multitask deep learning for hyperspectral image classification
  - Exploration of social segregation using mobility-activity data
  - Sustainable urban expansion of Zhuhai using GIS methods such as local Moran's I
  - Capturing the collapse and rise of the post-Soviet states using nighttime light data

GIS Lab, Sun Yat-sen University — Guangzhou

- Assistant Lab Manager (Part-time), School of Geography and Planning — Jul 2017 – Dec 2018
  - Maintained 82 computers and 2 multimedia systems for classes

Institute of Urbanization, Sun Yat-sen University — Guangzhou

- Research Assistant (Part-time) — Mar 2018 – Jun 2018
  - Discovered urban structure using mobility GPS data from cell phones with clustering analysis
  - Analysed the distribution of diseases using online medical record and network analysis

Center of Social Survey, Sun Yat-sen University — Zhuhai

- Interviewer (Internship), China Labor-force Dynamics Survey — Jun 2016 – Aug 2016
  - Face-to-face interviews with 70 families in 2 communities

RESEARCH EXPERIENCE

Remote Sensing Image Classification

- Remote Sensing Image Classification with Limited Labeled Samples
  - Active learning with convolutional neural networks
  - Object-based post-classification refinement for LULC mapping (superpixel-based regularization)
  - Multitask learning: utilized samples from multiple datasets to enhance machine generalization
- Multisource Data Fusion in Remote Sensing
  - Combining optical and radar imagery from Sentinel for LULC mapping
  - Local climate zones classification using Sentinel optical and radar data

Nighttime Light Remote Sensing

- Night Light in Socio-economic Studies
  - Capturing the collapse and rise of post-Soviet states from nighttime light data
  - Urban dynamics in Almaty from 1996 to 2011 using Landsat and nighttime light data
- Light Pollution
  - Identification of the source of light pollution using high-resolution imagery and nighttime light data

Urban Studies

- Urban Big Data Analytics
  - The effect and simulation of urban vitality using social media data: a case study of Guangzhou
  - The distribution and structure of human diseases using online medical records with network analysis
  - Exploration of social segregation using mobility-activity data: a case study of Hong Kong
- Urban Environment
  - Estimating PM2.5 directly from TOA reflectance using Zhuhai-1 hyperspectral data
  - Toward a sustainable urban expansion: a case study of Zhuhai, China

VOLUNTEER EXPERIENCE

Xiang Zhou Volunteers' Federation, Zhuhai

- Volunteer at Zhuhai Railway Station — Sep 2015 – Jun 2017
  - Help those in need to buy tickets on ticket machines
  - Provide information about train schedule and city guides in Mandarin, Cantonese and English
  - On Saturday or Sunday, more than 150 hours

AWARDS & SCHOLARSHIPS

- The 1st Orbita Hyperspectral Satellite Data Processing Paper Contest — Nov 2019
  - Second Prize (5,000 CNY)
  - Estimating PM2.5 directly from TOA reflectance using Zhuhai-1 hyperspectral data
- Alibaba Cloud German AI Challenge 2018 — Feb 2019
  - Remote sensing scene classification of local climate zones
  - Preliminary: 18/1329 (top 2%), Semifinals: 29/1329 (top 3%)
- Scholarship of the EMBA Alumni Association for Real Estate of Sun Yat-sen University — Dec 2018
- The First Prize of Excellent Undergraduate Scholarship, Sun Yat-sen University — 2017 – 2018

LANGUAGES

English: fluent; Chinese: native in both Cantonese and Mandarin / Putonghua

SKILLS

General: machine learning, deep learning, satellite image processing, spatial analysis

- Coding Languages: Python, C/C++, MATLAB, HTML5, LaTeX
- Software: ENVI, ArcGIS, GeoDa, QGIS, eCognition, OriginLab

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