

# Shengjie Liu

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<b>EDUCATION</b>	<b>Sun Yat-sen University</b> Guangzhou <ul style="list-style-type: none"><li>▪ B.S. in Geographical Information Science (Remote Sensing), GPA: 3.9/4.0 Aug 2015 – Jun 2019<ul style="list-style-type: none"><li>• Thesis: Deep Learning for Land Use and Land Cover Classification</li><li>• Advisers: Prof. Qian Shi, Prof. Zhixin Qi</li></ul></li></ul>
<b>PUBLICATIONS</b>	<p><u>Liu, S., Qi, Z., Li, X. and Yeh, A.G.O., 2019.</u> Integration of Convolutional Neural Networks and Object-Based Post-Classification Refinement for Land Use and Land Cover Mapping with Optical and SAR Data. <i>Remote Sens.</i>, 11(6), p.690.</p> <p><u>Liu, S., Luo, H., Tu, Y., He, Z. and Li, J., 2018, July.</u> Wide Contextual Residual Network with Active Learning for Remote Sensing Image Classification. In <i>IGARSS 2018</i>, pp. 7145-7148.</p>
<b>PREPRINTS</b>	<p><u>Liu, S. and Shi, Q.,</u> Multitask Deep Learning for Hyperspectral Image Classification. Submitted to <i>IEEE Geoscience and Remote Sensing Letters</i>, in revision. <a href="https://arxiv.org/abs/1905.04535">arxiv.org/abs/1905.04535</a></p>
<b>PROFESSIONAL EXPERIENCE</b>	<p><b>HKU Light Pollution ECF Team</b>, The University of Hong Kong Hong Kong Sep 2019 – Present</p> <ul style="list-style-type: none"><li>▪ Research Assistant, Department of Physics<ul style="list-style-type: none"><li>• Investigations on light pollution in Hong Kong using satellite and site-based data</li><li>• Principal Investigator: Dr. Jason C.S. Pun</li></ul></li></ul> <p><b>OneSpace Technology</b> Chongqing Jul 2019 – Aug 2019</p> <ul style="list-style-type: none"><li>▪ Remote Sensing Engineer, Department of Spatial Information<ul style="list-style-type: none"><li>• Crop type classification using Sentinel-2 satellite data</li><li>• Water quality parameters estimation</li><li>• Fine resolution PM2.5 monitoring using Zhuhai-1 hyperspectral data</li><li>• Estimation of AOD using 6S radiative transfer model</li><li>• Estimation of soil nutrient contents using Landsat-OLI imagery</li></ul></li></ul> <p><b>Guangdong Provincial Key Lab. of Urbanization and Geo-simulation</b> Guangzhou Oct 2017 – Apr 2019</p> <ul style="list-style-type: none"><li>▪ Research Assistant (Part-time)<ul style="list-style-type: none"><li>• Wide contextual residual network with active learning for remote sensing image classification</li><li>• Combining optical and radar imagery from Sentinel for land use and land cover mapping</li><li>• Multitask deep learning for hyperspectral image classification</li><li>• Exploration of social segregation using mobility-activity data</li><li>• Sustainable urban expansion of Zhuhai using GIS methods such as local Moran's I</li><li>• Capturing the collapse and rise of the post-Soviet states using nighttime light data</li></ul></li></ul> <p><b>GIS Lab</b>, Sun Yat-sen University Guangzhou Jul 2017 – Dec 2018</p> <ul style="list-style-type: none"><li>▪ Assistant Lab Manager (Part-time), School of Geography and Planning<ul style="list-style-type: none"><li>• Maintained 82 computers and 2 multimedia systems for classes</li></ul></li></ul> <p><b>Institute of Urbanization</b>, Sun Yat-sen University Guangzhou Mar 2018 – Jun 2018</p> <ul style="list-style-type: none"><li>▪ Research Assistant (Part-time)<ul style="list-style-type: none"><li>• Discovered urban structure using mobility GPS data from cell phones with clustering analysis</li><li>• Analysed the distribution of diseases using online medical record and network analysis</li></ul></li></ul> <p><b>Center of Social Survey</b>, Sun Yat-sen University Zhuhai Jun 2016 – Aug 2016</p> <ul style="list-style-type: none"><li>▪ Interviewer (Internship), China Labor-force Dynamics Survey<ul style="list-style-type: none"><li>• Face-to-face interviews with 70 families in 2 communities</li></ul></li></ul>

## 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 WeChat 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

## AWARDS & SCHOLARSHIPS

- Alibaba Cloud German AI Challenge 2018 Feb 2019
  - Remote Sensing Scene Classification of Local Climate Zones
  - Preliminary: 18/1329 (top 2%), Semi-Finals: 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,  $\text{\LaTeX}$
- Software: ENVI, ArcGIS, GeoDa, QGIS, eCognition, OriginLab

*Last updated on 2019-10-04*