Jinyuan Shao

MS Student - Major: Ecology
Focus: Remote Sensing and Computer Vision

Chinese Academy of Sciences

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Education

Institute of Urban Environment, Chinese Academy of Sciences — **Xiamen, China**
University of Chinese Academy of Sciences — **Beijing, China**
M.Sc in Ecology, focus: remote sensing and computer vision — *09/2018-07/2021*
China National Scholarship.(top 0.2%)

Supervisor: Prof. Quanyi Qiu & Prof. Lina Tang

Huaqiao University — **Xiamen, China**
B.Eng in Information Engineering, focus: point cloud processing — *08/2014-07/2018*
Thesis: Extracting Trees From Urban Point Cloud"(Conducted in Xiamen University)

Publications

Published

- **Jinyuan Shao**, Lina Tang, Ming Liu, Guofan Shao, Lang Sun, and Quanyi Qiu. "BDD-Net: A General Protocol for Mapping Buildings Damaged by a Wide Range of Disasters Based on Satellite Imagery". **Remote Sensing**, 2020, 12(10), 1670. (JCR Q2, IF: 4.509)
- **Jinyuan Shao**, Quanyi Qiu, Yao Qian, and Lina Tang. "Optimal visual perception in land-use planning and design based on landsenses ecology". **International Journal of Sustainable Development & World Ecology**, 2020, 27(3): 233-239. (JCR Q2, IF: 2.772)
- Qiang Zhou, Yuanmao Zheng, **Jinyuan Shao**, Yinglun Lin, and Haowei Wang. "An Improved Method of Determining Human Population Distribution Based on Luojia 1-01 Nighttime Light Imagery and Road Network Data—A Case Study of the City of Shenzhen". **Sensors**, 2020, 20(18), 5032.. (JCR Q2, IF: 3.275)
- Lang Sun, Lina Tang, Guofan Shao, Quanyi Qiu, Ting Lan, and **Jinyuan Shao**. "A Machine Learning-Based Classification System for Urban Built-Up Areas Using Multiple Classifiers and Data Sources". **Remote Sensing**, 2020, 12(1), 91. (JCR Q2, IF: 4.509)

In Preparation

- Sheng Fang, Kaiyu Li, Zhe Li, **Jinyuan Shao**. "SNUNet-CD: A densely connected siamese network for Change Detection of VHR Images" **IEEE Geoscience and Remote Sensing Letters** (under review)
- Peng Sun*, **Jinyuan Shao***, Quanyi Qiu, Lina Tang, Hao Shen. "SIP: Species information prediction framework for forest ecosystem". (under review)(* equal contribution)
- Peng Sun, **Jinyuan Shao**, Hao Shen. "Do species with similar neighbor have similar plant attributes in forest communites?". **Nature Ecology&Evolotion** (under review)

Research Experiences

Platform for urban ecological risk prediction — **National Key R&D Program of China**
Sub-topic: Quick response to urban natural disasters — *Program participant*

- Designed a model to recognize damaged buildings after natural disasters with CNNs and dual temporal images.
- The model was applied to disaster response in Guangdong Province.
- Published one paper as the first author.

The compactness of Chinese urban spatial form **National Natural Science Foundation of China**
Sub-topic: Principles of urban landscape design *Program participant*

- Proposed an optimal visual perception strategy for urban designers.
- Published one paper as the first author.

Urban intelligent management system based on IoT **Strategic Priority Research Program**
Sub-topic: Machine learning-based classification system for urban built-up areas *Program participant*

- Kernel density estimation for urban point data(such as POI).
- Ensemble learning for urban-built area recognition using multi-source data.
- Published one paper as a co-author.
- Cloud removal for remote sensing imagery via generative adversarial network.

Extracting Trees From Urban Point Cloud **Bachelor Thesis**
Fujian Key Lab of Sensing and Computing for Smart City(SCSC), Xiamen University *02/2018-06/2018*
Supervisor: Prof. Cheng Wang

- Learned about the fundamental principles of deep learning and point cloud.
- Made labels of tree from point cloud for deep learning.
- Developed a model for recognizing trees from urban point cloud based on Pointnet.

Reviewing Experiences

- Reviewed a manuscript for Journal of Forestry Research.

Internships

Zhongke Chengxin Satellite Technology Co., Ltd **Shanghai, China**
Research Intern: Object Detection in Satellite Images *09/2019-12/2019*

- Developed an object detection algorithm for satellite images based on YOLT.
- Worked on Archaeological-prospection with object detection.

China Academy of Urban Planning & Design **Beijing, China**
Research Intern: Urban Planning with Artificial Intelligence *03/2019-06/2019*

- Analyzed features of the population of Heilongjiang province based on geospatial data.
- Developed a tourist counting system from the camera of attractions based on YOLOv3.

Rewards

- China National Scholarship, 2020.(top 0.2%)
- Merit Student, University of Chinese Academy of Sciences, 2019-2020.(top 5%)
- Grade Scholarship, University of Chinese Academy of Sciences, 2020-2021.(top 10%)
- Academic Scholarship, University of Chinese Academy of Sciences.(each year)(top 10%)

Skills

(Deep)Machine Learning	Segmentation and Object Detection with CNNs, Generative Adversial Networks, Support Vector Machines and Random Forest.
Mathematics	Probability theory, Statistics, Linear algebra, Calculus
Programming	Python, C++, R, JavaScript, Bash
Deep Learning Frameworks	Pytorch,Keras
Operation Systems	Linux, Mac OS
Geoscience	QGIS,ENVI,ArcGIS,Google Earth Engine
Tools	Git/Github, Jupyter, LaTeX, Matlab
Language Skills	English(IELTS indicator 7.5), Chinese(Native), Korean(Basic)

Aside from Research

- The host of the Spring Festival Gala at IUE(Institute of Urban Environment, Chinese Academy of Sciences).
- The volunteer programming teacher of a elementary school in Xiamen, China.