# 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*
Merit Student(top 5%)

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

- 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?". (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

- 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

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|---|---|
| **(Deep)Machine Learning** | Segmentation and Object Detection with CNNs,<br>Generative Adversial Networks,<br>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(Fluent), 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.