Jinyuan Shao

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Education

Purdue University — **West Lafayette, United States**
PhD in Forestry and Natural Resources; Purdue Ross Fellowship — *08/2021-present*
Focus on: Deep Learning; Remote Sensing; LiDAR; Forestry
Faculty Advisor: Prof. Songlin Fei

University of Chinese Academy of Sciences — **Beijing, China**
M.Sc in Ecology; National Scholarship for Graduate Students(top 0.2%) — *09/2018-07/2021*
Focus on: Remote Sensing; Earth Vision; Deep Learning: Ecology

Huaqiao University — **Xiamen, China**
B.Eng in Information Engineering — *08/2014-07/2018*
Graduation project: Street Tree Extraction on mobile LiDAR Point Cloud

Awards

- 1^{st} Place in Purdue FNR poster competition, 2023.
- Purdue Charles H. Michler Scholarships, 2022. (Award two students each year)
- IndianaView Student Scholarship, 2022&2023. (Indiana outstanding students in Remote Sensing)
- Purdue Ross Fellowship,2021-2025. (top PhD applicants).
- National Scholarship for Graduate Students,2020. (top 0.2%)
- Merit Student, University of Chinese Academy of Sciences, 2019-2020. (top 5%)
- Level Scholarship, University of Chinese Academy of Sciences, 2019-2020. (top 10%)
- Level Scholarship, University of Chinese Academy of Sciences, 2020-2021. (top 10%)
- Academic Scholarship, University of Chinese Academy of Sciences. (each year)(top 10%)
- Zhongke Dingshi Scholarship, University of Chinese Academy of Sciences, 2021. (top 10%)

Publications

1. **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 Q1, IF: 5.349)
2. **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: 3.716)
3. Yi-Chun Lin, **Jinyuan Shao**, Sang-Yeop Shin, Zainab Saka, Mina Joseph, Raja Manish, Songlin Fei and Ayman Habib. "Comparative Analysis of Multi-Platform, Multi-Resolution, Multi-Temporal LiDAR Data for Forest Inventory". **Remote Sensing**, 2022, 14(3), 649. (JCR Q1, IF: 5.349)
4. Sheng Fang, Kaiyu Li, **Jinyuan Shao**, Zhe Li. "SNUNet-CD: A Densely Connected Siamese Network for Change Detection of VHR Images". **IEEE Geoscience and Remote Sensing Letters**, vol. 19, pp. 1-5, 2022. (JCR Q2, IF: 3.833)
5. Guofan Shao, Hao Zhang, **Jinyuan Shao**, Keith Woeste, Lina Tang "Strengthening Machine Learning Reproducibility for Image Classification". **Advances in Artificial Intelligence and Machine Learning**, 2022; 2 (4): 32
6. 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: 3.847)
7. 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 Q1, IF: 5.349)

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.

Journal Reviewer

- Pattern Recognition
- Journal of Forestry Research
- International Journal of Disaster Risk Reduction

Work Experiences

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.

Teaching Experiences

FNR 210 - Natural Resource Information Management **Purdue University**
Leading TA *2022&2023 Spring*

- GIS basics lecturing
- ArcGIS Pro teaching

Skills

(Deep)Machine Learning	Image Segmentation and Object Detection; Point Cloud Segmentation; Remote Sensing Change Detection; Support Vector Machines and Random Forest.
Mathematics	Probability, Statistics, Linear algebra, Calculus
Programming	Python, R, Bash, JavaScript
Geospatial Tools	ArcGIS Pro, QGIS, Google Earth Engine
Point Cloud Tools	CloudCompare, LASTools
Tools	Git/Github, Jupyter, LaTeX, Matlab
Language Skills	English(Fluent), Chinese(Native)