

Zhen Liu

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EDUCATION

- Clark University, Worcester, MA 06/2021
- Master of Science (M.S.) in GIS (Geographical Information Science)
- Wuhan University, Wuhan, China 06/2019
- Bachelor of Engineering (B.E.) in Geodesy and Geomatics Engineering

SKILLS

- Programming: Python, JavaScript, C#, R, Java
- GIS: ArcGIS, ArcGIS Pro, QGIS
- Raster Analysis: ENVI, ERDAS IMAGINE, TerrSet, Google Earth Engine
- Web Mapping: Leaflet
- Database: SQL Server, PostgreSQL

EXPERIENCE

Research Assistant

- Clark Labs, Clark University, Worcester, MA** 11/2019-present
- Implemented Fully Convolutional Networks to detect Mangrove in the coastal area.
 - Filtered Landsat 8 images on AWS and design a database for automatic classification.
 - Developed open-source version of the website "Coastal Habitats and Conversion to Pond Aquaculture".
 - Processed result data and visualize data through bar charts and pie charts.

Summer Research Fellow

- Cloud to Street, New York, NY (Remote Work)** 5-8/2020
- First introduced Total Operating Characteristic to accuracy assessment for the company.
 - Standardized and documented the method in code (Java and Python).

Disaggregating Census Data in Somalia Using Random Forests

 3-5/2020

Advanced Remote Sensing, Clark University, Worcester, MA

- Disaggregated census data for population mapping using Random Forest with remote sensing and ancillary data in Python.
- Improved the method by considering population of internal displacement data.

Project Manager

Wuhan University, Wuhan, China

3D model of cylinder object reconstruction from photograph

 12/2018-8/2019

- For cylindrical objects, innovatively proposed the use of feature extraction to compensate for the uneven distribution of generated point clouds.

- Detected features of objects using ellipse fitting and plane fitting algorithms.

Project Manager

Wuhan University, Wuhan, China

Intelligent librarian searching and arranging system based on GIS and RFID 3/2017-6/2019

- Oversaw project design and led software development using C# and SQL.
- Designed functions to find the shortest distance using Dijkstra and Greedy algorithms.
- Awarded funding from the 2017 National Students' Platform for Innovation and Entrepreneurship Training Program.

Summer Intern

Shanghai Surveying and Mapping Institute, Shanghai, China

7-8/2018

- Preprocessed images for land monitoring (feature detection, feature matching, and cloud screening).
- Surveyed and scanned the metro station in Shanghai city, using total stations and 3D scanner.
- Processed 3D point cloud for Shanghai Metro Line 10 using 3DReshaper

PUBLICATIONS & PATENTS

- Liu Z. & Yang S.F., A rewinding device for RFID antenna
- Liu Z., Intelligent librarian searching and arranging system based on GIS and RFID

Field Study

- Spatial analysis (Course: Advanced Vector, Advanced Raster and Advanced Remote Sensing)
- Programming (Course: Web Mapping & Open Source GIS, Python Programming, Geospatial Analysis with R, Applied Machine Learning)
- Data Analysis (Course: Intermediate Quantitative Methods in Geography, Data Analysis with Python)

RECOGNITION

- Second place in 2021 AAG-GISSG Student Honors Paper Competition 2021
- Graduate Student Travel Award of Clark University 2020
- The Edna Bailey Sussman Fund 2020
- Academic Scholarship of Wuhan University, 1st class 2016-2017
- Scholarship from Hi-Target Surveying Instrument Co., Ltd 2015-2016