Xiuyu Cao

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EDUCATION

School for Environment and Sustainability, **University of Michigan** Sep 2023 - April 2025 (expected)

MS in *Geospatial Data Sciences* Current GPA: 4.0/4.0

- Ongoing Thesis: A Novel Biomass Product Validated by the US Forest Inventory and Analysis Data

  Advisor - Kai Zhu

School of Geodesy and Geomatics, **Wuhan University** Sep 2019 - June 2023

Bachelor of Engineering in *Geodesy and Geomatics Engineering* GPA: 3.77/4.0

- Thesis: Shore-based GNSS-IR Tide Monitoring and Accuracy Assessment Under Extreme Weather Conditions Advisor - Xin Chang
- Awards: Outstanding Student (2021-2022); Third-Class Scholarship for Outstanding Students (2021-2022); Outstanding Student (2020-2021); Third-Class Scholarship for Outstanding Students (2020-2021); Third-Class Scholarship (2019-2020).

EXPERIENCE

Research Assistant, University of Michigan 2024 - 2025 (expected)

- Forest carbon accounting using forest inventory and remote sensing data for a sustainable forestry project.

Professional Practice, Wuhan University 2021 - 2022

- Used ENVI for remote sensing image processing, and performed comprehensive analyses using ArcGIS.
- Scanned architectural structures using a LiDAR 3D scanner, and performed point cloud processing and 3D modeling.
- Took aerial photos of an area using a UAV, and performed 3D modeling and geographic entity acquisition based on the UAV aerial images.

ACADEMIC PROJECTS

Advanced Geo-visualization Course Final Project Dec 2023

- Analyzed the differences and relationships between macro- (Daymet temperature data) and micro-climate (Landsat land surface temperature data) in New York City, and performed data visualization.

Advanced Geo-visualization Course Projects Oct 2023 - Dec 2023

- Developed a thematic map for the relationship between wildfire frequency and respiratory deaths in California.
- Developed methodology for processing LiDAR data from OpenTopography using the R package lidR, developed rudimentary method for deriving microclimate from macroclimate using LiDAR data.
- Visualized Flickr user trend in Michigan over the past twenty years.
- Conducted sentiment Analysis and visualization of the novel *The Remains of the Day.*
- Performed urban development analysis and visualization of Salt Lake City and the United States.

Quantitative Remote Sensing Course Final Project Feb 2022 - June 2022

- Achieved a data-driven remote sensing inversion of regional PM2.5 concentrations in Matlab through linear regression and random forest, and performed data visualization.

Physical Geodesy Course Final Project Sep 2021 - Jan 2022

- Calculated the Legendre functions and normal gravity in Python to work out gravity field parameters of the world and Taiwan respectively, and performed data visualization.

Indoor Positioning Course Final Project Sep 2021 - Jan 2022

- Collected data, designed a data processor, used Python to calculate the coordinates of data collected by UWBdevices, solved the coordinates of the Chan algorithm and LOP algorithm respectively, and performed trajectory plotting and accuracy evaluation of the results obtained by both methods.

Engineering Surveying Course Final Project Sep 2021 - Jan 2022

- Programmed a road curve calculator using Python, used Tkinter for GUI design, calculated coordinates of points on the road curve, and plotted the curve based on the input file.

SKILLS AND INTERESTS

Languages	Chinese (Native), English: TOEFL (109), GRE (163+169+4.0)
Programming	R, Python, MATLAB, C++, C#, JAVA
GIS & RS Software	ArcGIS, QGIS, ENVI, ERDAS Imagine
Interests	Saxophone, Traditional Chinese Painting, Volleyball, Basketball, etc.