

# Miss Yunting Song

Email: ytsong@terpmail.umd.edu

## EDUCATION

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Wuhan University (WHU), Wuhan, China Sep. 2014 - Jun. 2018  
B.S. in Remote Sensing Science and Technology

## RESEARCH INTERESTS

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Spatial analysis and visualization, Scientific visualization, Computational topology, Geometric modeling, Spatial data structures

## COMPUTER SKILLS

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C/C++, MATLAB, Java, SQL, JavaScript, CSS, HTML, R, Python, Scala, AutoCAD, ENVI, ERDAS, ArcGIS, MySQL, Unity, VirtuoZo, DPGrid, Geoway

## AWARDS AND HONORS

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Elite Student Honor, School of Remote Sensing and Information Engineering, WHU Dec. 2016  
B Merit Scholarship, WHU Sept. 2016&Sept. 2015  
Excellent Student Cadre, School of Remote Sensing and Information Engineering, WHU May 2016  
Merit Student Honor, School of Remote Sensing and Information Engineering, WHU Dec. 2015

## RESEARCH EXPERIENCE

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***Project Leader*** Feb. 2017 - Jun.2018

Research project with Professor Ling Peng of Chinese Academy of Sciences on developing analytical model of urban development on the basis of spatiotemporal big data

- The project is a part of Undergraduate Innovative Practice Training Program of Chinese Academy of Sciences
- The research objective of the project is Tianjin Eco-city, including environment, resources, public transport and urban component management
- Making comparative analysis of various algorithms
- Used the data of arriving time of buses and the IC card records to evaluate the robustness and suitability of current bus lines and to propose improvements.
- Raising models for evaluating the service level of bus lines and of one community.

***Research Member***

Feb. 2017 - Jan.2018

Research project with a post-doctor Wenliang Lin of Beijing University of Posts and Telecommunications on research wavelet behavior prediction and sparse representation of location big data with the purpose of precision marketing

- Using wavelet analysis for spatiotemporal series analysis
- Finding a hidden pattern of dataset by selecting limited data to express location-event
- Getting data via TDOA algorithm, making data clustering and dimensionality reduction of position data based on K-means, building a mining model to analysis and extract the district area gathering and flow characteristics to forecast consumers' consumption behavior

***Research Member, Professor Huayi Wu's Lab***

Aug. 2016 - Jun. 2018

Research project with Doctor Zhipeng Gui on rebuilding GeoSquare System with REACT

- Developed a search page of the database of WMS resources, a RESTful web service via Java and a front-end page via REACT

***Research Member, Professor Huayi Wu's Lab***

Apr. 2016 - Jun. 2018

Research project with Doctor Zhipeng Gui on developing GeoCommerce Visualization Analysis System

- Developed gravity trajectory chart and visualized standard deviational ellipse
- Utilized some open-source JavaScript libraries including jQuery.js and D3.js
- Arranged Apache Spark Cluster and calculated gravity center and SDE via Scala
- Developed a RESTful Web Service via Java
- Optimized the system via adding more interactive functions
- Utilized Spark-jobserver to supply Spark web services

***Core Research Member, National Innovation & Entrepreneurship Training for Undergraduate Student Program*** Sept. 2015 - Mar. 2018

Research project with Doctor Zhipeng Gui on relevant research of China regional economic development based on Geographical and Temporal Weighted Regression

- Analyzed 16 million records of registration data of all enterprises in China from 1960 to 2015 via MySQL and R
- Made research plan and collaborated with four members
- Made visualization of analytic result via echarts and concluded the influence on GRP of different Chinese regions from time, location and other factors

***Intern, Shanghai Baihong Software Sci. & Tech. Co., Ltd.*** Sept. 2015 – Jun. 2016

- Used MySQL to collect data within spatio-temporal data development platform based on 4G
- Coded the analysis model via Apache Spark and Scala
- Contributed to the construction of the visualization system

***Research Member on Time and Space Distribution Rule of Forest Fire and Its IF Based on Geographical Detector*** Feb. 2015 – Jun. 2015

- Processed data via ArcGIS, including discretization of the data and selecting the proper discretization methods
- Analyzed data via excel using Geographical Detector

## **PUBLICATION**

- Yunting Song, Zhipeng Gui, Huayi Wu, Yangjiaxin Wei (2017). “A Web-based Framework for Visualizing Industrial Spatiotemporal Distribution Using Standard Deviational Ellipse and Shifting Routes of Gravity Centers” ISPRS Geospatial Week 2017 Conference Proceedings
- Shuhan Lou, Ling Peng, Yunting Song, Xuantong Chen, Chengzeng You (2018). “Optimization of Bus Service with a Spatiotemporal Transport Pulsation Model.” the Future of Information and Communications Conference (FICC) 2019 (In press)

## **PRESENTATION**

- “A Web-based Framework for Visualizing Industrial Spatiotemporal Distribution Using Standard Deviational Ellipse and Shifting Routes of Gravity Centers”, 2017 ISPRS Geospatial Week, September 18-22, 2017, Wuhan, China

## **RELATED EXPERIENCE**

***Captain***, Basketball Team of School of Remote Sensing & Information Engineering, WHU Oct. 2014 – June. 2017

- Arranged routine training, recruitment and competitions with other teams

***Director of Press Corps***, Luojiaxinyuan, a Part of School Publication, WHU Oct. 2014 – Apr. 2016

- Wrote news releases, interviewed psychology professionals and cultivated new members of our associations
- Awarded the excellent team honor to our association