

# Yuehui Qian | Curriculum Vitae

Department of Geographical Sciences  
University of Maryland at College Park

[yhqian@terpmail.umd.edu](mailto:yhqian@terpmail.umd.edu) | Tel: +1-2409179220

## Education

---

- Sept. 2021 - present     **Ph.D. student**, Department of Geographical Sciences, University of Maryland, College Park  
Advisor: Dr. Leila De Floriani  
GPA: 3.93/4.00
- Sept. 2018 – July. 2021     **M.S.**, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University  
Advisor: Dr. Xuefeng Guan, Dr. Huayi Wu  
Average score: 86.2/100
- Sept. 2014 – July. 2018     **B.S.**, School of Remote Sensing and Information Engineering, Wuhan University  
GPA: 3.71/4.00

## Research Interests

---

Spatial data representation and processing, terrain modeling and spatial data structures, spatio-temporal data mining, machine learning.

## Peer-reviewed publications

---

- ◆ Yuehui Qian, Weiran Xing, Xuefeng Guan, Tingting Yang, & Huayi Wu. 2020. Coupling cellular automata with area partitioning and spatio-temporal convolution for dynamic land use change simulation. *Science of The Total Environment*, 137738. DOI: <https://doi.org/10.1016/j.scitotenv.2020.137738> (SCI paper, IF=6.551)
- ◆ Weiran Xing, Yuehui Qian, Xuefeng Guan, Tingting Yang, & Huayi Wu. 2020. A novel cellular automata model integrated with deep learning for dynamic spatio-temporal land use change simulation. *Computers & Geosciences*, 137, 104430. DOI: <https://doi.org/10.1016/j.cageo.2020.104430> (SCI paper, IF=2.991)
- ◆ Tingting Yang, Xuefeng Guan, Yuehui Qian, Weiran Xing, & Huayi Wu. 2019. Efficiency evaluation of urban road transport and land use in Hunan Province of China based on hybrid data envelopment analysis (DEA) models. *Sustainability*, 11(14), 3826. DOI: <https://doi.org/10.3390/su11143826> (SCI paper, IF=2.576)

## Presentations

---

- ◆ Yuehui Qian 2020. Dynamic land use simulation based on spatial partition and spatio-temporal convolution. The third "Urban Remote Sensing" seminar, Shanghai, China (**Oral presentation invited**) (10/30/2020-11/01/2020).
- ◆ Yuehui Qian, Weiran Xing, Xuefeng Guan, Tingting Yang, & Huayi Wu. 2019.

Simulation of *urban expansion* using *self-organizing map neural network* and *spatio-temporal convolution*. 2019 China Annual Conference on Theories and Methods of Geographic Information Science, Shanghai, China (**Oral presentation invited**) (10/18/2019-10/20/2019).

- ◆ Weiran Xing, **Yuehui Qian**, Xuefeng Guan, Tingting Yang, & Huayi Wu. **2018**. Based on *random forest* and *long short-term memory (LSTM)* for dynamic simulation of land use. 2018 China Annual Conference on Theories and Methods of Geographic Information Science, Taiyuan, Shanxi province, China (**Oral presentation invited**) (11/02/2018-11/04/2018).

## Project Experience

---

- ◆ **2021-present, Geospatial data representation and analysis through the stellar decomposition (Grant No.: NSF-IIS - 1910766).**

This NSF-funded project focuses on developing scalable data representations, and algorithms for processing and analyzing scattered big geospatial data. I wrapped two software tools, the Terrain trees library (*TTL library*) and the Simplification on the IA data structure (*Simplification IA software*) so that they can be used in Python programs. These two tools can make scattered geospatial data representation and processing more efficient in Python programs.

- ◆ **2017-2021, Key service and application demonstration of spatial information in economic regional construction and management of urban agglomerations. The National Key Research and Development Program of China (Grant No.: 2017YFB0503802).**

Combining high-resolution remote sensing images and multi-source socioeconomic data, the built-up areas were classified. I am the *designer and implementer* of this model. The research results have been published in an internationally renowned multi-disciplinary journal, *Science of the Total Environment* (IF = 6.551).

- ◆ **2016-2017, Recognition of human hand movement based on optical flow estimation. Project of Innovation and Entrepreneurship Training for Undergraduates Wuhan University (No. S2016725).**

With an improvement of the Lucas-Kanade method for optical flow estimation, the motion trajectories of gestures were extracted more accurately. I am a *key participant* in this research group. We have completed the final report of this research.

## Scholarships & Awards

---

### Scholarships for High Academic Achievement:

- Dean's Fellowship, Department of Geographical Sciences, University of Maryland, United States (2021)

- National Scholarship, Ministry of Education, P. R. China (Top 2.5%, 2020)
- The First-Class Academic Scholarship, Wuhan University, P. R. China (2020)
- National Encouragement Scholarship, Ministry of Education, P. R. China (2020)
- First-Class Scholarship, Wuhan University, P. R. China (2019)
- National Encouragement Scholarship, Ministry of Education, P. R. China (2019)
- Third-Class Scholarship, Wuhan University, P. R. China (2019)

#### **Honorary Titles:**

- Outstanding Graduate of Wuhan University (2021)
- Merit Student of Wuhan University (2020)
- Outstanding Graduate of Wuhan University (2018)
- Merit Student of Wuhan University (2018)
- Excellent Student Cadre of Wuhan University (2017)
- Outstanding Students of Wuhan University (2017)

#### **Competition Awards:**

- Third Prize in the 10<sup>th</sup> Central Chinese Mathematics Contest in Modeling (2017)
- Second Prize in the 8<sup>th</sup> Mathematics Competition of Chinese College Students (2016)
- Second prize in the 5<sup>th</sup> Mathematics Competition of University Students in Hubei Province (2016)

#### **Technical Skills**

---

- Programming Languages: Python, MATLAB, C++
- Tools/Techniques: TensorFlow, Keras, Apache Spark; Apache Sedona, ArcGIS, AutoCAD, ENVI, ERDAS, Linux