RUI ZHU

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EDUCATION

The State University of New York at Buffalo (UB), Buffalo, NY   Aug 2017 – Feb 2020
Master of Science: Geographic Information Science   GPA: 3.88/4.00

Zhejiang University, China   Aug 2013 – Jun 2017
Bachelor of Natural Sciences: Geographical Information Science   Major GPA: 4.70/5.00

SKILLS & TOOLS

Languages: Python, R, Javascript, Java, C#
Data Management & Analytics: PostgreSQL+PostGIS, MySQL
Tools: ESRI ArcGIS software, R Studio, Jupyter, Eclipse, Visual Studio

WORK EXPERIENCE

Senior Research Aide   Mar 2019 – Jan 2020
UB School of Nursing, Buffalo, NY

- Interpreted sleep health survey data, proposed appropriate geographic data, linked the two kinds of data, summarized and constructed 20+ factors for linear regression
- Utilized **ArcGIS Pro** to conduct geographically weighted regression with 10+ variables and did cluster analysis, produced suitable maps and prepared slides to deliver results to higher non-GIS management

Volunteer: Advanced Map Editor   Mar 2020 – Present
United States Geological Survey, Remote

- Collected, modified, deleted, and verified 3500+ features of post offices to ensure they are accurately located on map

PROJECTS

Spatial Database For Transportation   Mar 2020 – Jun 2020

- Designed and created a spatial database for U.S. cities, airports, and highways in **PostgreSQL**
- Used **PostGIS functions** of spatial queries and analyses to display relations between cities and highways
- Analyzed the connectivity between airports and implemented **Dijkstra** functions from **pgRouting** to evaluate the shortest path between two airports

Spatial Autocorrelation of Racial Segregation   Oct 2019 – Dec 2019

- Interpreted online census data, pre-processed TIGER/Line Shapefiles, and joined these two data to measure and map racial segregation in **ArcMap 10.2** at the level of county
- Worked with **spatial statistics toolbox** to analyze spatial autocorrelation of racial segregation, and created suitable maps to present locations where high/low racial segregation clusters

Optimizing the Solution of the Location Set Covering Problem (LSCP)   Mar 2019 – May 2019

- Based on **Python** module **Geopandas**, employed a convergent method with grid-based spatial representation to eliminate errors in the solution of the LSCP caused by point-based and polygon-based spatial representations
- Applied the optimized method to various standards and eliminated 100% of the errors

Walkability Visualization and Clustering   Oct 2018 – Dec 2018

- Designed and built an interactive web page with **Google Maps API** to present the distribution of walkability over Erie County, Buffalo at the level of block group
- Implemented **k-means clustering** on the walkability dataset and designed range sliders to customize the value of k and the threshold of walkability