Wenyuan KONG

Email: kongwenyuan@pku.edu.cn

Education

School of Earth and Space Sciences, Peking University Sep 2019- Jun 2022
Master of Science, Major in Cartology and GIS **Beijing, China**
Overall GPA: 3.77/4.0; **Ranking**: 1/24
Honors & Awards
Postgraduate Scholarship 2019
Award for Scientific Research 2020

School of Resource and Environmental Sciences, Wuhan University Sep 2015- Jun 2019
Bachelor of Science, Major in Geographic Information Science **Wuhan, China**
Overall GPA: 3.94/4.0, **Major GPA**: 3.96/4.0; **Ranking**: 1/79
Honors & Awards
National Scholarship (3/81) (the highest scholarship for undergraduate student) 2016
Yu Gang and Song Xiao Scholarship (1/81) (the highest scholarship for sophomore GISers) 2017
Lei Jun Scholarship (1/81) (the highest scholarship for junior GISers) 2018

Publications

- **Wenyuan Kong,** Zhaoyun Jiang, Shizhao Sun, Zhuoning Guo, Weiwei Cui, Ting Liu, Jian-Guang Lou, Dongmei Zhang, "Aesthetics++: Refining Graphic Designs by Exploring Design Principles and Human Preference", published by *IEEE Transactions on Visualization and Computer Graphics*
- **Wenyuan Kong,** Dong Chen, Qian Xu, Chengqi Cheng "Correlation Analysis of Crime Rate and Personal Life indicators Based on Spatial Analysis Model", published by *GEOMATICS WORLD*
- **Wenyuan Kong,** Teng Fei*, Thom Jencks, "Emotion and color in paintings: a novel temporal and spatial quantitative perspective". On arXiv: http://arxiv.org/abs/2102.00407
- **Wenyuan Kong,** Caiying Liao, Qian Xu, Jiabei Wang, Teng Fei*, "An In-Depth Analysis of Parking Patterns in a Typical Chinese Danwei via Customized Data Collection App", published by *International Journal of Geo-Information*
- **Wenyuan Kong**, Jingyi Cheng, Xin Liu, Meng Bian, Teng Fei*, "Incorporating nocturnal UAV side-view images with VIIRS data for accurate population estimation: a test at the urban administrative district scale", published by *International Journal of Remote Sensing*
- **Wenyuan Kong**, "Accessibility Evaluation and Planning System of Resident Service Facilities: A Case of Study of Wuhan", published by *Sci-tech Innovation and Producticity*
- **Wenyuan Kong**, "Subjective Assessment on Accessibility of Residents' Service Facilities in Wuhan City", published by *Sci-tech Innovation and Producticity*

Internship Experience

Machine Learning for Design Refinement July 2020-Sep 2021
Fulltime Intern with Big Data Mining Group at Microsoft Research Asia (MSRA)
Proposed an approach to refine aesthetics of given graphic designs
- Modified the given graphic design under the guidance of design principles to generate candidates, controlling the number of low-quality and casually generated candidates with a decrease of 90%
- Devised a two-branches CNN scoring module to evaluate candidates, by which the pixel information and the bounding box information are considered simultaneously

- Implemented a prototype system on presentation slides, one type of graphic designs frequently leveraged in visual expression, to verify the effectiveness of the proposed approach, proving that it takes less than 30% of the time spent when operating manually
- Explored techniques widely deployed in computer vision, acquired state-of-the-art research in automatic refinement suggestions and data-driven approaches

Research Experiences

A Parallel Computation Protocol Model based on Earth Grid Aug 2021- Apr 2022
Independent Researcher
- Achieved to subdivide and aggregate the computing dataset to reuse the RDD (Resilient Distributed Datasets) efficiently
- Assigned the unique identification to data on a global scale to retrieve data accurately and 20 times faster
- Proposed a local computing scheme by which the time of broadcasting data can be saved thus improved computational efficiency by about 50%

Analysis of Parking Patterns Aug 2019- Aug 2020
Independent Researcher
- Filled in the research gap of parking situation in Chinese Danwei by a case study of the Information Campus of Wuhan University
- Designed an Android App to video while recording the location information of parked cars and leveraged an OCR algorithm to identify license plates from video frames to match it with the GPS
- Classified parking spots and cars to identify the parking patterns, and proposed management suggestions based on the findings

Interpret Population Density in Wuhan Using UAV Images and Night-time Lights Oct 2017-Oct 2018
Independent Researcher
- Testified the hypothesis that the panoramic images of night-time light captured by UAV (unmanned aerial vehicle) work well in estimating population density (R-square = 0.81), and the combination of multi-angular night-time remote-sensing data sources works even better (R-square = 0.93)
- Conducted the research as a team leader by which the ability of cooperation and leadership was proved
- Defogged UAV images to alleviate the influence of weather conditions, thus avoided collecting data repeatedly
- Proposed reasonable variables to represent information contained in UAV image

Skills & Others

Computer skills: Python, C++, C#, C, Java, JavaScript, MATLAB
Language: English