Minwei Kong

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London School of Economics and Political Science, Houghton Street, London WC2A 2AE
Mainly interested in applying spatially-explicit GEOAI in Transportation Modelling and Environmental Analysis

EDUCATION

➢ The London School of Economics and Political Science — 2023/09 – Present

- MSc Geographic Data Science (Expected Sep. 2024)
- Relevant Modules: Applied Geographical Information Systems; Data for Data Scientists; Graph Data Analytics and Representation Learning; Techniques of Spatial Economic Analysis; The Economics of Urbanization; Reinforcement Learning

➢ Nanjing University — 2018/09 – 2023/06

- BEng Urban and Rural Planning (Jun. 2023)
- Average Mark: 88.4/100 (Major GPA: 89.4/100)
- Relevant Modules: Virtual City and Environment Modelling; Digital Techniques in Urban Planning & Design; Urban and Regional System Analysis; Urban and Regional Economics; Intelligent Transport and Innovative Trips; Fundamentals of RS and GIS

➢ Additional Skills

- Programming and Software skills: Python, R, ArcGIS/QGIS, HTML/CSS
- Data Science Skills: Spatial Econometrics, Machine Learning, Deep Learning, Reinforcement Learning; Web Scraping; WebGIS Development
- Hobbies**:** Chinese Zither (Level 10), Swimming, Marathon

PUBLICATION

- Kong, M.W., Hu, H., Zhang, H.Y. et al. (2023). Spatio-temporal evolution of urban low-carbon competitiveness in the Yangtze River Delta from 2000 to 2020. Geographical Research, 42(10), 2713-2737.

HONORS & AWARDS

- The First Prize in the Wuhan Planning Cup 1st Urban and Rural Planning Graduation Design (Thesis) Contest (Hosted by Human Resource Development Centre, Ministry of Natural Resources, China) — 2023/09
- The First Prize in 2023 Nanjing University Undergraduate Outstanding Graduation Thesis (Design) — 2023/09
- Best Presentation Award in Global Smart Cities Summit - The 3rd International Conference on Urban Informatics (GSCS & ICUI 2023) — 2023/08
- The First Prize in the 7th Chengyuan Cup: Planning Decision Support Model Design Competition (Hosted by World Urban Planning Education Network) — 2023/06
- The Grand Prize in National College Students Spatial Information Technology Competition (Hosted by Chinese Society for Geodesy, Photogrammetry and Cartography, CSGPC) — 2021/11
- Campus Noise Monitoring and Traceability System (NoiseLoc). Copyright Holder: Yi Qi, Minwei Kong, Ye Li, Hongyun Zhang, Zhen Zhou. (2022SR0258036) — 2022/02
- Honour Credential for Excellent Reporting, The 3rd National Symposium on Regional Ecology — 2022/11
- The First Prize Scholarship, Nanjing University — 2020/11
- Excellent Peer Counsellor, Nanjing University — 2022/08
- Outstanding Member, Nanjing University Student Union — 2019/06

RESEARCH EXPERIENCE

- **Current Interests and Projects** 2024/02 – Present

  In my recent research endeavors, I have focused on enhancing traffic safety, optimizing smart transportation infrastructure, and assessing the impact of environmental policies on electric vehicle adoption. I constructed a tailored Graph Neural Network model with my teammates to predict traffic accident severity by incorporating road geometry features to augment the message-passing process. In another group project, I implemented RL algorithms like DQN, A2C, and PPO to achieve optimal placement of electric vehicle charging stations with maximum utility. Furthermore, I independently investigated the impact of London's Ultra Low Emission Zone expansion in 2021 on the growth of electric vehicle adoption, using Fixed Effects, Difference-in-Differences, and Spatial Autocorrelation Regression methods. These projects have allowed me to leverage advanced machine learning techniques and spatial econometrics methods to address critical issues in transportation and environmental sustainability.
  Currently, I am writing my master's thesis, coupling Graph Neural Networks and Recurrent Neural Networks to predict hourly traffic emissions at roadside monitoring stations in London and identify key geospatial factors.

- **Neighborhood Effects on Public Sentiment: A Case Study Based on ChatGPT and Explainable Neural Network** 2023/02 – 2023/08

Team member; National First Prize; Supervisor: Prof. Jiangang Xu, Dr Yang Ju, Dr Yi Qi

- Extracting sentiment score of social media comment texts by ChatGPT during epidemic crisis in Shanghai, 2022
- Analyzed attributions of impact factors to public sentiment based on SHAP (SHapley Additive exPlanations) interpretable neural network
- Generalized the spatio-temporal impact mechanisms of built environment on sentiment

- **Research on Spatial-temporal Evolution of Urban Low-Carbon Competitiveness in the Yangtze River Delta** 2021/10 – 2022/11

Team leader; National-level Project of Undergraduate Training Program for Innovation and Entrepreneurship; Supervisor: Dr. Hong Hu; Supported by National Natural Science Foundation of China (NSFC)

- Constructed a comprehensive urban low-carbon competitiveness indicator system based on a large panel dataset
- Evaluated urban low-carbon competitiveness from 2000 to 2020 using the Gray Correlation TOPSIS method
- Analyzed and generalized evolutionary mechanisms by spatiotemporal clustering and exploratory spatiotemporal data analysis methods

- **Construction of a Campus Noise Monitoring and Traceability System** 2021/06 – 2021/11

Team leader; National Grand Prize; Supervisor: Dr. Yi Qi

- Built a spatial noise propagation and traceability model with real noise data on campus
- Created deep-learning models for sound intensity prediction and deployed the models to the website
- Co-developed an interactive web app and applied for a computer software copyright

INTERNSHIP EXPERIENCE

- **Huachengboyuan Project & Technology Group Co., Ltd. Jiangsu Branch** 2021/06 – 2022/08
  - Participated in constructing an industrial system in Huizhou Bay New City, Guangdong
  - Supported detailed planning of industrial layout and measuring associated economic benefits
- **Urban Planning And Design Institute Of Nanjing University Co., Ltd** 2022/02 – 2022/05
  - Analyzed urban spatial structure in Nanjing metropolitan area based on big data and complex network analysis
  - Constructed and maintained a GIS database of developable construction lands in the Yuhuatai District, Nanjing