

# Kaifa Lu-CV (2022-03-01)

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## KAI-FA LU (鲁开发)

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## RESEARCH INTERESTS

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- **Transportation Network Modeling and Optimization**
- **Artificial Intelligence-Enabled Urban Planning**
- **Urban Resilience**
- **Microtransit and Micromobility**
- **Machine Learning and Deep Learning**

## EDUCATION

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| <b>University of Florida</b> , Gainesville, Florida, USA  | 2021.08-now     |
| <i>Ph.D Student in Urban and Regional Planning</i>  |                 |
| Advisor: Prof. Zhong-Ren Peng   |                 |
| <b>Shanghai Jiao Tong University</b> , Shanghai, China  | 2018.09-2021.03 |
| <i>M.S. in Transportation Engineering</i>   |                 |
| Thesis: Characterization of Traffic-related Pollutant Distribution Patterns Under Urban Viaduct and Street Canyon |                 |
| <b>Central South University</b> , Changsha, Hunan, China  | 2014.09-2018.06 |
| <i>B.E. in Transportation</i>   |                 |
| Thesis: Optimization of Local Road Network and Vehicle Routing Problem in Changsha South Railway Station          |                 |

## JOURNAL PAPER PUBLICATIONS

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- [1] **Lu K**, Wang H, et al. Assessing the Effects of Non-local Traffic Restriction Policy on Urban Air Quality [J]. *Transport Policy*, 2022, 115, 62-74. (<https://doi.org/10.1016/j.tranpol.2021.11.005>)
- [2] Zhu X, **Lu K**, Peng, Z, et al. Spatiotemporal Variations of Carbon Dioxide (CO<sub>2</sub>) at Urban Neighborhood Scale: Characterization of Distribution patterns and Contributions of Emission Sources [J]. *Sustainable Cities and Society*, 2022, 78, 103646. (<https://doi.org/10.1016/j.scs.2021.103646>)
- [3] Zhao H, He H, **Lu K**, et al. Measuring the Impact of an Exogenous Factor: An Exponential Smoothing Model of the Response of Shipping to COVID-19 [J]. *Transport Policy*, 2022, 118, 91-100. (<https://doi.org/10.1016/j.tranpol.2022.01.015>)
- [4] Jia Y, **Lu K**, et al. Effects of Roadside Green Infrastructure on Particle Exposure: A Focus on Cyclists and Pedestrians on Pathways Between Urban Roads and Vegetative Barriers [J]. *Atmospheric Pollution Research*, 2021, 12: 1-12. (<https://doi.org/10.1016/j.apr.2021.01.017>)
- [5] Cai W, Wang H, Wu C, **Lu K**, et al. Characterizing the Interruption-Recovery Patterns of Urban Air Pollution under the COVID-19 Lockdown in China [J]. *Building and Environment*, 2021, 205, 108231. (<https://doi.org/10.1016/j.buildenv.2021.108231>)
- [6] **Lu K**, He H, Wang H, et al. Characterizing Temporal and Vertical Distribution Patterns of Traffic-emitted Pollutants near an Elevated Expressway in Urban Residential Areas [J]. *Building and Environment*, 2020, 172, 106678. (<https://doi.org/10.1016/j.buildenv.2020.106678>)

- [7] Wang D, Wang H, Li C, **Lu K**, et al. Roadside Air Quality Forecasting in Shanghai with a Novel Sequence-to-sequence Model [J]. International Journal of Environmental Research and Public Health, 2020, 17(24), 9471. (<https://doi.org/10.3390/ijerph17249471>)

## CONFERENCE PAPERS

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- [1] **Lu K**, Peng Z, He H, et al. Characterization of Traffic-related Pollutant Distribution Patterns in Urban Residential Areas with an Elevated Expressway [C]. Transportation Research Board 99th Annual Meeting, Washington D.C. 2020.
- [2] Mazimba M, Peng Z, He H, Zhao H, **Lu K**. Investigating Pedestrians' Exposure to Traffic-Related PM and BC at Intersections: A Case Study in Shanghai, China [C]. Transportation Research Board 100th Annual Meeting, Washington D.C. 2021. (<http://worldcat.org/issn/03611981>)

## PAPERS IN REVIEW

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- [1] **Lu K**, Peng Z. Spatial Distribution of Traffic-related Particles in Street Canyon along with a Viaduct: The Influence of Geometry Configurations and Traffic Characteristics. Environmental Pollution, 2022.
- [2] Wang D, Wang H, **Lu K**, et al. Regional Prediction of Ozone and Fine Particulate Matter Using Diffusion Convolutional Recurrent Neural Network [J]. International Journal of Environmental Research and Public Health, 2022.
- [3] Zhao H, He H, **Lu K**, et al. Mobile Monitoring of the Distribution Pattern of Submicron and Coarse Particles in a Container Truck-concentrated Neighborhood [J]. Journal of Cleaner Production, 2022.
- [4] Jin M, Gallagher J, Peng Z, Liu X, **Lu K**, He H. Hyperlocal Spatiotemporal Distributions of Traffic-related Air Pollutants in Urban and Suburban Near-road Neighborhoods [J]. Atmospheric Pollution Research, 2022.

## TEACHING

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**University of Florida, Dept. Urban and Regional Planning, Gainesville, Florida, US**

- [1] Spring 2022      Transportation and Land Use Modeling      Teaching Assistant

**Shanghai Jiao Tong University, Dept. Transportation Engineering, Shanghai, China**

- [2] Spring 2018      Operations Research      Teaching Assistant

## AWARDS

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- [1] **The Second Prize** in the National Graduate Mathematical Contest in Modeling, 2019
- [2] **The Meritorious Winner** in the America Undergraduate Mathematical Contest in Modeling, 2017
- [3] **The First Prize** in the National Undergraduate Mathematical Contest in Modeling, 2016
- [4] **The Third Prize** in the National Undergraduate Mathematical Contest, 2015
- [5] **National Scholarship** (top 3%), **National Encouragement Scholarship** (top 5%)
- [6] **COSCO maritime scholarship** (top 5%), **First-class Scholarship** (top 10%)
- [7] **Outstanding graduates of Shanghai** (top 3%), **Outstanding Undergraduates of Hunan Province** (top 3%)

## RESEARCH PROJECTS PARTICIPATED

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- [1] Florida Department of Transportation, Federal Funded BUILD (Better Utilizing Investments to Leverage Development) Grant Project (BDV31\_TWO\_977-144), Examining Data Needs and Implementation Process of AV-based Microtransit Service: A Case Study in Lake Nona, 2021.06-2023.01, Under Research, Core Member
- [2] Florida Department of Transportation, Federal Funded BUILD (Better Utilizing Investments to Leverage Development) Grant Project (BDV31\_943-02), Microtransit and Micromobility Inventory in the State of

- Florida, 2021.07-2022.03, Under Research, Core Member
- [3] National Planning Office of Philosophy and Social Science, Major Projects of National Social Science Foundation (16ZDA048), Study on the Impact of Urban Transportation Policy and Facility Construction on Atmospheric Environment, 2016.10-2021.06, Under Research, Core Member
  - [4] Ministry of Science and Technology of the People's Republic of China, National Key R & D Program of China (2016YFC0200502), Vertical Observation Technologies of Atmospheric Pollution Based on Unmanned Aerial Vehicle and Heavy Load Airship, 2016.07-2021.03, Under Research, Member
  - [5] Shanghai Science and Technology Commission, Major Projects of Shanghai Think Tanks (BH0100011), Study on the Integrated Decision-making of Data-driven Intelligent Environment Protection Strategies in Shanghai, 2018.12-2020.06, Finished, Core Member
  - [6] Hunan Education Commission, Innovation and Entrepreneurship Training Programs for Undergraduates, RFID-based Automatic Toll System for Roadside Parking, 2016.06-2017.07, Finished, Core Member
  - [7] China Academic Degrees & Graduate Education Development Center, National Graduate Mathematical Contest in Modeling, Analysis on the Construction of Vehicle Driving Cycle, 2019.09, Awarded, Major Principal
  - [8] America Consortium for Mathematics and Its Applications, the Undergraduate Mathematical Contest in Modeling, How Far Autonomous Vehicles Go? 2017.01, Awarded, Core Member
  - [9] China Society for Industrial and Applied Mathematics, the National Undergraduate Mathematical Contest in Modeling, Impacts of Community Opening on Ambient Road Traffic, 2016.09, Awarded, Core Member

## **EXPERTISE**

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**Programming Language:** PYTHON, MATLAB, R, C

**Software:** CAD, ORIGIN, ARCGIS, FLUENT, MS OFFICE, TRANSCAD