JIAWEI (Jay) LU

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EDUCATION

Arizona State University   **Arizona, U.S. 2018-Present**
Ph.D. student of Engineering in Transportation, Transportation Engineering

Southeast University   **Nanjing, China 2015-2018**
Master of Engineering in Transportation, Transportation Engineering

Southeast University   **Nanjing, China 2011-2015**
Bachelor of Engineering in Transportation, Traffic Engineering

PUBLICTIONS

Journal Publications (*corresponding author)

- Wu, X.B., **Lu, J.***, Wu, S. and Zhou, X.S., 2021. Synchronizing time-dependent transportation services: Reformulation and solution algorithm using quadratic assignment problem. *Transportation Research Part B*.

- Tang, Q., Hu, X., **Lu, J.** and Zhou, X., 2021. Analytical characterization of multi-state effective discharge rates for bus-only lane conversion scheduling problem. *Transportation Research Part B*.

- Ou, J., **Lu, J.**, Xia, J., An, C. and Lu, Z., 2019. Learn, assign, and search: real-time estimation of dynamic origin-destination flows using machine learning algorithms. *IEEE Access*.

- Ji, Y., **Lu, J.**, Chen, X. and Hu, B., 2016. Prediction model of bus arrival time based on particle swarm optimization and wavelet neural network. *Journal of Transportation Systems Engineering and Information Technology*.

- Simon, X. Z., Cheng, Q., Wu, X., Li, P., Belezamo, B., **Lu, J.**, and Abbasi, M., 2022. A meso-to-macro cross-resolution performance approach for connecting polynomial arrival queue model to volume-delay function with inflow demand-to-capacity ratio. *Multimodal Transportation*.

Manuscripts Submitted for Journal Publication

- **Lu, J.**, Nie, Q., Mahmoudi, M., Ou, J., Li, C. and Zhou, X.S., 2022. Rich arc routing problem in city logistics: Models and solution algorithms using a fluid queue-based time-dependent travel time representation. *Transportation Research Part B* (under review).
  Link: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4060911

- **Lu, J.**, Li, C., Wu, X. and Zhou, X.S., 2022. Traffic system state identification with integrated traffic state, model parameter and queue profile estimation: Nonlinear programming reformulation with differentiable traffic state variables across resolutions. *Transportation Research Part B* (under review).
  Link: http://dx.doi.org/10.13140/RG.2.2.36688.38400

Conference Proceedings

- **Lu, J.**, Chen, X., Nie, Q., Hong, R. and Xia, J., 2018. K Shortest Path Searching for Time-Dependent Road Networks. *In CICTP 2017: Transportation Reform and Change—Equity, Inclusiveness, Sharing, and Innovation.*

- **Lu, J.**, Wang, Y., Zhang, N., Chen, X. and Xia, J., 2018. Generating Alternative Pre-Trip Guidance for Metro Users by Considering Travel Time and Trip Feeling. *In CICTP 2017: Transportation Reform and Change—Equity, Inclusiveness, Sharing, and Innovation.*

- **Lu, J.**, Xue, H., Chen, G., Zhou, Y. and Xia, J., 2016, October. Comparative Evaluation of the Traffic Flow Volatility Forecasting Models. *In International Conference on Communication and Electronic Information Engineering (CEIE 2016).*

PRESENTATIONS

- Open-Source Utilities for Building Macro, Meso and Micro Networks in Regional and State-Wide Traffic Analysis Applications
  ITS Arizona Students Transportation Summit, Virtual meeting, 2022

- Supporting Transportation Network Analysis, Modeling and Simulation through Open Data and Standards: Open-source Multiresolution Network Building Packages of osm2gmns and net2cell
  Transportation Research Board (TRB) 101th Annual Meeting, Washington, D.C., 2022
- DTALite-virtual Cyber Tracks: Open Source Modeling Framework for Real-time Management of Large Fleets of Self-Driving Cars
  The Institute for Operations Research and the Management Sciences (INFORMS), Seattle, WA, 2019
- Simlite: An Open Modeling Framework for Integrated Traffic Flow Simulation and Optimization
  The Institute for Operations Research and the Management Sciences (INFORMS), Seattle, WA, 2019

PROJECTS

- Arizona Department of Transportation: Loop 101 Mobility Project   2021-2022
- U.S. Department of Transportation: Multiresolution Modeling for Traffic Analysis   2020-2021
- Maricopa Association of Governments: Advisory Services for the Development of MAG Integrated ABM-DTA Modeling System   2019-2020

OPEN-SOURCE SOFTWARE DEVELOPMENT

- osm2gmns (**Jiawei Lu**, Xuesong Zhou)
  osm2gmns, as a data conversion tool, can directly convert the OSM map data to node and link network files in the GMNS format. Users can convert and model drivable, walkable, railway, or aeroway networks with a single line of Python code. User's guide: *https://osm2gmns.readthedocs.io*. Number of downloads: 46,441 (as of 7/6/2022)

- net2cell (**Jiawei Lu**, Xuesong Zhou)
  For any given networks that meet the GMNS standard, net2cell helps users automatically build mesoscopic and lane-by-lane cell-based microscopic transportation networks to accommodate different modelling needs. User's guide: *https://github.com/jiawlu/net2cell*.

- DTALite (Xuesong Zhou, Peiheng Li, **Jiawei Lu**)
  DTALite is an open-source analysis, modeling, and simulation (AMS) library for efficiently macroscopic and mesoscopic traffic assignment based on General Modeling Network Specification (GMNS) format. User's guide: *https://github.com/asu-trans-ai-lab/DTALite*.

PROFESSIONAL SERVICES

Reviewer for
- Transportation Research Part B
- European Journal of Operational Research
- Transportation Research Board
- IEEE Transactions on Vehicular Technology

VOLUNTEER WORKS

- AAA Forum on Impact of Vehicle Technologies and Automation on Users (2022, Group Discussion Assistant)
- Smart City Planning Project on the democracylab (2021, Student Leader)

HONORS & CERTIFICATES

- 2nd price in the 2022 ITS Arizona Students Transportation Summit (2022)
- Outstanding Graduate Thesis Award in Southeast University (2018)
- National Scholarship in Southeast University (2017, 2018)

SUPPLEMENTARY INFORMATION

Technical Skills: Proficiency in Visual Studio (C++), MATLAB, Python, Database (oracle) and AutoCAD
                    Mastery of traffic simulation packages including Paramics, Vissim and SUMO