CURRICULUM VITAE

Wenlong Li
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RESEARCH INTERESTS

- Battery Electric Bus Systems
- Dynamic Wireless Charging (DWC)
- Network Modeling

EDUCATION

Beijing University of Technology Sep. 2022 — Present
Transportation Engineering

East China Jiaotong University Sep. 2018 — Jul. 2022
Transportation Engineering (GPA:3.99/5 Rank:1/70)

ACADEMIC EXPERIENCE

Robust optimization of electric bus systems Dec. 2023 — Present

- Overview: When considering the electric bus system equipped with DWC facilities, it's important to acknowledge that in real-world scenarios, the remaining battery charge and the operational schedule of buses are uncertain due to unpredictable traffic conditions. It is necessary to develop an improved robust optimization model based on traditional deterministic models, better aligning with real-world conditions.

Integrated optimization of electric bus systems Jul. 2022 — Aug. 2023
Supervised by Dr. Yi He and Prof. Zhengbing He

- Overview: The advent of DWC technology enables electric buses to charge while in motion, thereby extending the operational range of battery electric buses (BEBs). To minimize the costs associated with DWC facilities, BEB batteries, and charging, this study proposes a comprehensive Mixed-Integer Nonlinear Programming (MINLP) model for optimizing the deployment of DWC facilities within an electric bus system. The model is linearized into a Mixed-Integer Linear Programming (MILP) form for solvability and is validated using actual bus routes from Beijing.

Optimization of urban subway network expansion Oct. 2021 — Jun. 2022
Supervised by Prof. Zhengbing He

- Overview: Existing research methods for urban metro network design largely rely on expert guidance, which affects the commuting patterns of the entire city. To address these limitations, a reinforcement learning based method was proposed for city metro network expansion. This study introduces a reward mechanism focused on bus stations as reward points to promote the transferring efficiency between different public transportation modes. Finally, numerical experiments were conducted using real data from Nanchang City to validate the proposed methods.

PUBLICATIONS

Journal publication

1. **Li, W.**, He, Y., Hu, S., He, Z., Planning dynamic wireless charging infrastructure for battery electric bus systems with the joint optimization of charging scheduling, Transportation Research Part C, 159 (2024) 104469, 2024.

Presentations/Posters

1. **Li, W.**, He, Y., Hu, S., He, Z., Planning dynamic wireless charging infrastructure for battery electric bus systems with the joint optimization of charging scheduling, Transportation Research Board 103rd Annual Meeting (2024), Washington DC.

SELECTED COURSES

Master's Courses

- Transportation Network Analysis
- Transportation System and Optimization
- Transportation Economics
- Traffic Flow Theory
- Machine Learning

Bachelor's Courses

- Transportation System Analysis
- Traffic Engineering
- Transportation Design and Planning
- Transportation System Simulation
- Automatic Control Principle

AWARDS

- **2024.06** Graduate Technological Innovation Award, Beijing University of Technology
- **2022.11** Frist-Class Academic Prize, Beijing University of Technology
- **2022.07** Outstanding Undergraduate Thesis (113/5000+), East China Jiaotong University
- **2020.12** First Prize in (CUMCM) Jiangxi Province Contest, Jiangxi, China
- **2019.10** Frist-Class Academic Prize, East China Jiaotong University

SKILLS

- **Programming:** GAMS, Julia (JuMp), Python (pandas, numpy)
- **Algebraic modeling:** Gurobi, CPLEX
- **Traffic simulation:** Vissim, SUMO

Updated July 3, 2024