

XIAOQING DAI

CONTACT INFORMATION

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RESEARCH INTEREST

Travel demand prediction, intelligent transportation systems, big data, behavior modeling

EDUCATION

Tongji University, Shanghai, China
Doctoral student in transportation engineering, Sep 2013~present, GPA top 5%
Supervisor: Prof. Lijun SUN

Bachelor of Engineering, Sep 2009~Jul 2013, GPA top 2%
Majored in Civil Engineering, Sep 2010~Jul 2013
Majored in Environmental Engineering, Sep 2009~Jun 2010

Massachusetts Institute of Technology, Cambridge, MA, USA
Visiting Student, Sep 2016~Sep 2017

ACADEMIC EXPERIENCE

Tongji University, Shanghai, China

Doctoral Student, Research Assistant

Sep 2013 ~ July 2018

Intelligent Transportation System Planning for Shanghai International Automobile City, Mar 2018 ~ Jul 2018

- Performed transportation planning based on consideration of smart connected vehicles
- Designed V2I roadside environment for smart connected vehicles
- Designed the coordinated traffic signal control and traffic guidance system

Evacuation Demand Prediction and Disruption Management under Emergency Based on Normal Historical Data, Dec 2015 ~ Jun 2018, PhD dissertation

- Modeled travel demand with time series analysis and machine learning algorithms
- Developed algorithms to predict subway passenger evacuation demand under emergency
- Developed a simulation platform to predict temporal-spatial evolution of evacuation demand under emergency
- Simulated the performances of different disruption management measures

Demand Generation Model of On-demand Services in Agent-based Simulations, Aug 2017 ~ Dec 2017, DiDi Chuxing open research project

- Estimated potential demand based on biased observed samples
- Generated demand for on-demand service in agent-based simulations using Gibbs sampling

Integrated Planning of Urban and Rural Public Transportation for Zhuji City, China, Oct 2015 ~ Jun 2016

- Performed transportation planning, including land use and zoning analysis, as well as four-stage travel demand forecast
- Integrated and optimized the transit network for both urban and rural areas
- Improved public transit service coverage and level-of-service

Optimal Multimodal Network Management for Urban Emergencies, Mar 2014 ~ Dec 2015, Joint Research Project of National Natural Science Foundation of China (NSFC) and The Netherlands Organization for Scientific Research (NWO)

- Conducted RP and SP survey on travelers' behavior under emergencies
- Modeled travelers' behavior under emergencies with discrete choice modeling
- Optimized evacuation strategy based on consideration of travelers' behavior

Multi-modal Information Collaboration Service for Comprehensive Transport Hub, Sep 2013 ~ Jun 2014, research project of National High Technology Research and Development Program of China

(863 Program)

- Analyzed passenger flow in complex multi-modal transport hub
- Designed the directory signs system with consistent semantics in complex multi-modal transport hub

Massachusetts Institute of Technology, Cambridge, MA, USA

Visiting Student

Sep 2016 ~ Sep 2017

DYNAMIT 2.0: Real-time Model System for Network Management and Emergency Response, MIT ITS Lab

- Involved in the design of scenario analyzing module for non-recurrent situations in Dynamit 2.0 Platform
- Developed the interactive interface for historical database in Dynamit 2.0 Platform

PUBLICATIONS

Robust Short-term Metro Flow Prediction with Probabilistic Model Selection Approach

Journal of Advanced Transportation, in press, 2018

Multi-step Ahead Forecasting for Metro Travel Demand: A Robust Approach Incorporating Weather Impacts

IET Intelligent Transport Systems, in review, 2018

Short-term Metro Travel Demand Prediction under Disruptions

Journal of Tongji University (natural science), in review, 2018

CONFERENCE PRESENTATIONS

Multimodal Evacuation Model for Metro Disruptions Based on Automatic Fare Collection Data in Shanghai, China

Transportation Research Board 95th Annual Meeting, 2016, Washington D.C.

Choice Behavior of Passengers in Metro Emergency Evacuation: Using Stated Preference Data in Shanghai, China

Transportation Research Board 94th Annual Meeting, 2015, Washington D.C.

Design of information signs of multi-modal travel at the decision points in a comprehensive transport hub

Proceedings of the 14th COTA International Conference of Transportation Professionals, 2014

COMPUTER SKILLS

Programming (Matlab, Python, SQL)

Data visualization and graphic design (Photoshop, Illustrator)

Other: Latex

AWARDS

Outstanding Graduate in Shanghai, 2018

China Scholarship Council (CSC) scholarship, 2016

Outstanding Student Leader of Tongji University, 2016

National Scholarship for Doctoral Student, 2015

Gold prize of National 'Challenge Cup' Business Plan Competition, 2014

Outstanding Undergraduate in Shanghai, 2013

National Scholarship for Undergraduate, 2012

First prize of Students' Structure Competition in mid-pacific competition area, 2012, ASCE