

## Education

### The University of Memphis

Doctor of Philosophy in Civil Engineering

- Concentration: Transportation Engineering, GPA: 4.0/4.0

**Memphis, TN**

January 2019 – Present

### The University of Memphis

Bachelor of Science in Civil Engineering

- Concentration: Transportation Engineering, GPA: 3.8/4.0

**Memphis, TN**

January 2017 – December 2018

## Professional History

### Transportation Department at The University of Memphis

*Research Assistant*

**Memphis, TN**

January 2017 – Present

Investigation on Wrong-way Prevention Technologies and Systems, *Sponsored by Tennessee Department of Transportation (TDOT)*, 2020 – Present

- Propose a selection of wrong-way prevention facility, evaluate and compare the alternatives based on life cycle cost analysis, and recommend a practical implementation of the facilities.
- Contact vendor for available product, coordinate with TDOT personnel to conduct an on-site real-world testing on the product capability, and surveying workers on its operating experience.
- Inspect and analyze wrong-way driving (WWD) crash data in Tennessee to detect environmental settings that is likely to lead to a WWD crash and from which, proper technology can be deployed.

Transit Asset Management Plan, *Sponsored by Memphis Area Transit Authority (MATA)*, 2017 – 2021

- Composed and finalized MATA's Transit Asset Management (TAM) Plan which includes a dashboard encapsulating the entire fleet's health and service, a technical report, and a board presentation.
- Compiled the NTD Narrative, Congestion Mitigation and Air Quality, and Capital Investment Project Funding Proposal for MATA.
- Collected, assigned to proper category, and assessed the current condition for asset in the Vehicle class (phase 1) and the Facility class (phase 2) as well as performing on-site evaluation (phase 3).
- Designed a user interface module to input, keep track of assets, and generate an asset maintenance plan based on the optimization model of maximizing the fleet's normalized quality of service, constrained by agency budget and maintaining asset condition above the State of Good Repair.

Dynamic Wireless Charging (DWC) Study, *Sponsored by FedEx Institute of Technology*, 2018 – 2019

- Developed a black-box optimization model to determine the length and location of DWC facilities in a compact network for Battery Electric Vehicles, which minimizes the total system travel time and eliminates electric vehicle range anxiety, with a case study of Montgomery County, MD.
- Applied Radial Basis Function Interpolation method to solve the Bi-Level mathematical problem of locating DWC facilities because of the interdependent nature between the upper level of federal agency's decision making and the lower level of user equilibrium's route choice.

Optimal Public Transportation Investment Study, *Sponsored by Department of Civil Engineering*, 2017

- Created an integer linear programming model to strategically distribute resources to transit agencies in a multi-state area to enhance their services, with an explicit consideration of equity.

### ARUP Vietnam

*Structural Engineering Intern*

**Ho Chi Minh City, Vietnam**

December 2017 – January 2018

- Performed modal analysis and calculated story deflection of a high rise externally braced building.
- Collaborated closely with the structure team to design post-tensioned concrete slab.
- Designed preliminary structural member cross sections of an exhibition house aiming on satisfy the deflection requirement under non-linear long-term cracked analysis. Analyzed internal force, determined reinforcement requirement for beams, and simulating the structure with a 3D Revit model.

- Created a career pathway for occupations in transportation by statistically analyzing common technical expertise, professional credentials, and software skill sets as requested by employers.
- Evaluated the transportation curriculum of several institutions to identify education gaps.

### **Publications and Proceedings**

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**Ngo, H., Mishra, S. (2021)** Optimal Operational Strategy for Autonomous Electric Taxi. *Transportation Research Part C: Emerging Technologies. (Under Review)*

**Ngo, H., Mishra, S. (2021)** Dispatching and Repositioning of Autonomous Taxi Using Reinforcement Learning Compendium of Papers in 101<sup>st</sup> Annual Meeting of *Transportation Research Board*, Washington D.C.

**Ngo, H., Mishra, S. (2020)** Traffic Graph Convolutional Network for Dynamic Urban Travel Speed Estimation, *Network and Spatial Economic. (Under review)*

**Ngo, H., Mishra, S., Kumar, A. (2020)** Optimal Positioning of Dynamic Wireless Charging in a Network for Battery Electric Vehicles. *Transportation Research Part D: Transport and Environment*, 85, 102385. (**Impact Factor 5.5**).

Mishra, S., **Ngo, H., Kumar, A. (2019)** Dynamic Wireless Charging Planning for Electric Vehicles. Compendium of Papers in the 98<sup>th</sup> Annual Board Meeting of *Transportation Research Board*, Washington D.C.

**Ngo, H., Shah, R., Mishra, S. (2018).** Optimal Asset Management Strategies for Mixed Transit Fleet. *Transportation Research Part A: Policy and Practice*, 117, pp. 103-166. (**Impact Factor 5.3**).

**Ngo, H., Shah, R., Mishra, S. (2018).** Multicriteria Mixed Transit Fleet Resource Allocation. Compendium of Papers in 97<sup>th</sup> Annual Board Meeting of *Transportation Research Board*, Washington D.C.

### **Technical Expertise**

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- Software: AutoCAD Civil 3D, ArcGIS, Microsoft Suite, AutoCAD, Revit Structure, ETABS.
- Programming: PostgreSQL, Python, R Programming, MATLAB, GAMS IDE.
- Familiar with: AASHTO Policy on Geometric Design of Highways and Streets, TDOT Roadway Design Guidelines, ACI 318-14 Concrete Building Code, and AISC 14<sup>th</sup> Steel Design Manual.

### **Honors and Awards**

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- Received Herff Graduate Fellowship, University of Memphis, 2020 - 2022
- Received the Dr. T. S. Wu Award for the best transportation design in the senior design course.
- Achieved Third Place in the Seismic Design Competition 2019 in Vancouver, BC Canada.
- Dean's List Academic Award Recipient, University of Memphis, from 2016 to 2018.
- Passed the Fundamental Engineering Exam, The State of Tennessee, 2017.
- ISEP Scholarship for Student Exchange Program, 2016.
- Ranked first in the Vietnam University Entrance Exam in and received a full scholarship, 2014.
- First Prize in Physic Competition in Ho Chi Minh City, 2013.

### **Participations**

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- Presented at Transportation Research Board 101<sup>st</sup>, 97<sup>th</sup>, and 98<sup>th</sup> Annual Meeting in Washington, DC.
- Presented at the 7<sup>th</sup> Annual UTC Conference, Florida Atlantic University, 2020.
- Participated in two consecutive EERI Seismic Design Competition in 2018 and 2019.
- Presented at the Annual Student Research and Work in Progress forums, Memphis, 2018.

### **Affiliations**

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- Scheduler of the Institute of Transportation Engineer.
- Student Member of Tau Beta Pi Organization.
- Leader of the Student Recruitment Campaign team at Vietnam National University, 2015.
- Leader of the Civil Engineering Department Student Union at Vietnam National University, 2015

### **References**

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Available upon request