

## Huan H. Ngo, E.I.T

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### Education

#### The University of Memphis

Doctor of Philosophy in Civil Engineering

Memphis, TN

January 2019 – Present

- Concentration: Transportation Engineering, GPA: 4.0/4.0

#### The University of Memphis

Bachelor of Science in Civil Engineering, GPA: 3.8/4.0

Memphis, TN

January 2017 – December 2018

### Professional History

#### Civil Engineering Department at The University of Memphis

Memphis, TN

Research Assistant

January 2017 – Present

Data-driven Approach Study for Calculating Normalized Travel Time of Multiple Transport Modes in Urban Areas, *Sponsored by FedEx Institute of Technology*, 2019 – Present

- Create a framework for determining the normalized travel time of six transport modes namely Car, Uber, Taxi, Personal Bike, Bike Sharing Service, and Public Transit. The framework is disaggregated to tract-to-tract trips (spatial), time of the day in 30 minutes period (temporal), and level of income.
- Propose a Graph Neural Network approach for estimating link travel time based on sparse taxi GPS data, consider dynamic surge in e-hailing, and utilize GTFS data for transit travel time estimation.

Investigation on Wrong-Way Driving (WWD) Prevention Technologies and Systems, *Sponsored by Tennessee Department of Transportation (TDOT)*, 2019 – Present

- Suggest a selection of wrong-way prevention technologies, evaluate and compare alternatives based on life cycle cost analysis, and recommend a practical implementation plan for the facilities.
- Contact vendors for available products, coordinate with TDOT personnel to conduct on-site real-world testing on the product's capability, and survey participants on its operating experience.
- Collect WWD crash data in Tennessee, perform Multiple Correspondence Analysis to detect frequent environmental settings, especially those related to roadway geometry and highway interchange layout, which are likely to cause a WWD crash and from which, appropriate technologies can be recommended.

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

- Initiated, composed, and finalized MATA's Asset Management Plan which includes a cloud database accompanied by an interactive dynamic dashboard, a technical report, and a board presentation.
- Performed four steps of data collecting, assigning to the proper category, assessing the current condition, and on-site validation for assets in Vehicle class (phase 1) and Facility class (phase 2 and 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 transit 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

- Proposed a Bi-Level framework for determining the length and location of DWC in a road network for recharging Battery Electric Vehicles (BEVs), which minimizes the social cost as measured by total system travel time and eliminates BEV range anxiety, with a case study of Montgomery County, MD.
- Developed an algorithm namely ConstrLMSRS for solving the Bi-Level framework, which describes the interdependent nature between the Upper-Level of government agency's locating DWC decision and the Lower-Level of BEVs' route choice decision, which conforms to the User Equilibrium principle.

#### 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 slabs.

- Designed preliminary structural member cross-sections of an exhibition house aiming to satisfy the deflection requirement under non-linear long-term cracked analysis. Analyzed internal force, determined reinforcement requirements, and simulated the structure with a 3D Revit model.

## **Southeast Transportation Workforce Center**

**Memphis, TN**

*Student Worker*

August 2017 – January 2018

- Created a career pathway for jobs in transportation by statistically analyzing technical expertise, professional credentials, and software skill sets that are commonly requested by employers.
- Evaluated the transportation curriculum of several institutions to identify educational gaps.

## **Publications and Proceedings**

**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., Mishra, S., Kumar, A. (2020)** Optimal Positioning of Dynamic Wireless Charging Infrastructure in a Road Network for Battery Electric Vehicles. *Transportation Research Part D: Transport and Environment* (Conditionally accepted). **(Impact Factor 5.07).**

**Ngo, H., Mishra, S., Dey, K., Golias, M. (2020)** Analysis and Deployment of Wrong-Way Driving Prevention Technologies in Tennessee. 7<sup>th</sup> Annual UTC Conference of *Freight Mobility Research Institute*.

Mishra, S., **Ngo, H., Kumar, A. (2019)** Dynamic Wireless Charging Infrastructure Planning for Electric Vehicles. Compendium of Papers in the 98<sup>th</sup> Annual Board Meeting of *Transportation Research Board*, National Research Council, Washington D.C. **(45% acceptance).**

**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.

## **Honors and Awards**

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

## **Participations**

- 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 Transportation Research Board (TRB), 97<sup>th</sup>, 98<sup>th</sup> Annual Meeting in Washington, DC.
- Presented at the Student Research Forum and the Work in Progress Symposium in 2017 and 2018.

## **Technical Expertise**

- Software: Microsoft Suite, TransCAD, AutoCAD Civil 3D, ArcGIS, AutoCAD, Revit Structure, ETABS.
- Programming: 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.

## **Affiliations**

- Member of the Institute of Transportation Engineer and the Tau Beta Pi Organization, 2017 – 2018.
- Leader of the Student Recruitment Campaign team and the Civil Engineering Student Union at Vietnam National University, 2014 – 2016.

## **References**

Available upon request.