Emmanuel Kidando, PhD

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Education

Ph.D. in Civil Engineering
Florida State University – Spring 2019
Dissertation: Modeling of the Dynamic Evolution of Traffic Conditions and Its Application in Urban Traffic Mobility

Masters in Civil and Transportation Engineering
Tennessee State University - 2015
Thesis: Predicting Degradation of Pavement Marking Retroreflectivity under Roadway, Traffic, and Topographic Factors

B.Sc. in Civil and Structural Engineering
University of Dar es Salaam - 2012
Final year project: Model for Strengthening the Existing Concrete Elements

Research Interests

- Intelligent Transportation Systems
  - Automated Traffic Signal Performance Measure Systems
  - Autonomous and Connected Vehicles Technology
  - Data Analytics and Visualization for Connected Transportation Systems
- Traffic Operations Modeling and Simulation
- Traffic Safety Analysis and Modeling
- Data Collection Methods and Data Visualization in Transportation
  - Application of Computer vision (to estimate Volume, Speed, and Density)
  - Traffic data from Crowdsourced systems, such as Open Street Map (OSM), Waze, Bing Map API
  - Data visualization and dashboard design
- Application of Advanced Statistical Analysis in Transportation
  - Machine Learning
  - Bayesian Nonparametric Models
  - Bayesian Hierarchal/Multilevel Models
  - Bayesian Mixture Models
  - Probabilistic Graphical Models, such as Hidden Markov Models, Bayesian Networks, and Markov Chains

Professional Experience

- *Graduate Research Assistant*, Florida State University (2015 - Present)
- *Teaching Assistant*, Florida State University (2016 – Present)
- *Graduate Research Assistant*, Tennessee State University (2013 - 2015)
- *Teaching Assistant*, Tennessee State University (2013 - 2015)
- *Clerk of work*, University of Dar es Salaam, Tanzania (2012 - 2013)
- *Highway Construction Materials Engineer Intern*, Tanzania (July 2011 - Oct. 2011)

Funded Research Projects

- Evaluation of Connected Vehicle Applications on Mahan Corridor, Phase I
- Evaluation of Capacity of Roundabouts
- Travel Time and Roadway Capacity Reliability for an Aging Population: The Development of a Model Integrating Roadway Traffic with Aging Adults' Driving Behaviour
- Civil Engineering Support for the Traffic Monitoring Program
- Establishing Traffic Enforcement Funding Allocation Criteria and Ranking in Tennessee
- Retrace of Pavement Marking Retroreflectivity levels in Tennessee Highways
- Bicycle and Pedestrians Route Planning in Pleasant View town, TN
- Intersection Safety Evaluation and Capacity Analysis of Un-Signalized Intersection located in Cooperstown, TN
- Developing Decision Support Tools to Assess Bicycle and Pedestrian Safety
- Guidance for Site Selection, Safety Effectiveness Evaluation, and Crash Modification Factors of Median Cable Barriers in Tennessee

Selected Publications

1. **Kidando, E.,** Moses, R., Sando, T. Ozguven, E. E. Disparity-Effects Associated with Lateral Lane Locations and Days of the Week Influence on the Dynamic Transition of Traffic Conditions. Accepted for presentation at Transportation Research Board Annual Meeting, Paper No. 19-03935, Washington, D.C., January 2019.
2. **Kidando, E.,** Mahyar G., Moses, R., and Ozguven, E. E. Traffic Operation and Safety Analysis on an Arterial Highway: Implications for Connected Vehicle Applications. 21st IEEE International Conference on Intelligent Transportation Systems. Maui, Hawaii, USA, November 2018.
3. **Kidando, E.,** R. Moses, and T. Sando. "A Bayesian Regression Approach to Estimate Speed Threshold under Uncertainty for Traffic Breakdown Event Identification. Accepted for publication at Journal of Transportation Engineering, Part A: Systems, 2018.
4. **Kidando, E.,** Moses, R., Sando, T. and Ozguven, E. E., Evaluating Recurring Traffic Congestion Using Change Point Regression and Random Variation Markov Structured Model. Journal of Transportation Research Board, 2018.
5. **Kidando, E**., Moses R., Ozguven, E. E., and Sando, T., Bayesian Non-Parametric Model for Estimating Multi-State Travel Time Distribution. Journal of Advanced Transportation, 2017 p. 9. https://doi.org/10.1155/2017/5069824

Invited Talks

1. Data Analytics and Visualization: A Dashboard Design for Visualizing Real-Time Traffic Data. *Presented to University North Florida graduate Students, August 2018*.
2. Connected Vehicle Implementation on the Mahan Corridor, Tallahassee, Florida. *Presented to Transportation Engineering Class, Spring 2018*.
3. Probabilistic Modeling of Traffic Conditions by Exploring Traffic Occupancy and Speed Distribution Relationship. *Civil Engineering Graduate Seminar at Florida State University, 2017*.

Teaching Experience

- AutoCAD 3D for Highway Geometric Design class (Florida State University)
- Transportation Engineering (Florida State University)
- Traffic Operations (Florida State University)
- Surveying Practical (Tennessee State University)
- Soil Mechanics Laboratory (Tennessee State University)
- Highway Engineering (Tennessee State University)
- Statics (Tennessee State University)

Professional Service - Reviewer

- AHB15 Committee - Intelligent Transportation Systems, Transportation Research Board
- AHB10 Committee - Regional Transportation Systems Management and Operations (TSMO), Transportation Research Board
- ADB45 Committee - Traffic Flow Theory and Characteristics, Transportation Research Board

Association

- Institute of Transportation Engineers
- American Society of Civil Engineers

Computer Skills and Research Tools

- Traffic analysis - HCS, Vissim & Synchro
- Spatial analysis - ESRI ArcGIS & QGIS
- Drawing tool - AutoCAD 3D
- Programming – Python, Julia & JavaScript
- Machine learning - Scikit-learn, PyMC3, Theano, Tensor Flow & Keras
- Image and video analysis - OpenCV
- Big data - Dask & Hadoop
- Data visualization - D3, JavaScript, Plotly and Dash
- Database - MongoDB and SQL
- Statistics - Python, R, Julia, STATA
- Cloud computing – AWS, Colab, and SherlockML