Emmanuel Kidando

Graduate Research Assistant
Department of Civil and Environmental Engineering, Florida State University,
2525 Pottsdamer St., Tallahassee, FL 32310
Mobile: +1(615)-870-8429, Email: *ekidando@gmail.com*
Website: https://ekidando.github.io/Emma/

Education

Ph.D. in Civil Engineering
Florida State University – Expected 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

- Traffic Safety Analysis and Modeling
- Traffic Operations Modeling and Simulation
- Intelligent Transportation Systems
  - Automated Traffic Signal Performance Measure Systems
  - Autonomous and Connected Vehicles Technology
  - Data Analytics and Visualization for Connected Transportation Systems
- 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 - 2018)
- *Teaching Assistant*, Florida State University (2015 - 2018) and Tennessee State University (2013 - 2015)
- *Graduate Research Assistant*, Tennessee State University (2013 - 2015)
- *Clerk of work*, University of Dar es Salaam - Dar es Salaam University College of Education, Tanzania (2012 - 2013)

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

Publications

Refereed Journal Publications

1. **Kidando, E.,** E. K. Angela, M. L. Sia, T. Sando, R. Moses, K. Valerian, and D. Chimba. Applying a Probabilistic Model to Quantify the Influence of Rainy Weather on a Stochastic and Dynamic Transition of Traffic Conditions. Accepted for publication at Journal of Transportation Engineering, Part A: Systems, 2018.
2. **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.
3. Kitali, E. A., Alluri, P., Sando, T., Haule, H., **Kidando, E**., and Lentz, R., Likelihood Estimation of Secondary Crashes using Bayesian Complementary Log-log Model. Accepted for publication at *Journal of Accident Analysis and Prevention*, Vol. 119, 2018, pp. 58-67.
4. **Kidando, E.,** Moses R., Ozguven, E. E., and Sando, T., Incorporating Travel Time Reliability in Predicting the Likelihood of Severe Crashes on Arterial Highways Using Non-Parametric Random-Effect Regression. Accepted for publication at *Journal of Traffic and Transportation Engineering*, 2018.
5. Chimba, D., Musinguzi, A., **Kidando, E.,** Associating Pedestrian Crashes with Demographic and Socioeconomic Factors. *Journal of Case Studies on Transport Policy*, Vol. 6, No. 1, 2018, pp 11-16.
6. Chimba, D., **Kidando, E.,** and Onyango, M., Evaluating the Service Life of Thermoplastic Pavement Markings, Stochastic Approach. *Journal of Transportation Engineering, Part B: Pavements*, Vol. 144, No. 3, 2018, pp. 1-8
7. **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.
8. Kitali, E. A., **Kidando, E.,** Martz, P., Alluri, P., Sando, T., Moses, R. and Lentz, R., Evaluating Factors Influencing the Severity of Three Plus Multiple-Vehicle Crashes Using Real-Time Traffic Data. *Journal of Transportation Research Board*, 2018.
9. **Kidando, E**., Moses, R., AbdelRazig, Y., and Ozguven, E. E., Safety Analysis Considering the Impact of Travel Time Reliability on Elderly Drivers. *Journal of Transportation Research Forum*, Vol. 56, N. 1, 2017, pp. 21-40.
10. Kutela, B., and **Kidando, E**., Towards a Better Understanding of Effectiveness of Bike Share Programs: Exploring Factors Affecting Bikes Idle Duration. *American Scientific Research Journal for Engineering, Technology, and Sciences*, Vol. 29, No. 1, 2017, pp. 33-46
11. Kitali, E. A., **Kidando**, E., Moses, R., Ozguven, E. E., and Sando, T., Evaluating Pedestrian Crash Severity using Bayesian Complementary log-log Model for Improved Prediction Accuracy. *Journal of Transportation Research Board*, Vol. 2659, 2017, pp. 155-163.
12. **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
13. **Kidando, E**., Moses R., Ozguven, E. E., and Sando, T., Evaluating Traffic Congestion Using the Traffic Occupancy and Speed Distribution Relationship: An Application of Bayesian Dirichlet Process Mixtures of Generalized Linear Model. *Journal of Transportation Technologies*, Vol. 7 No. 4, 2017, pp. 318-335. https://www.scirp.org/Journal/PaperInformation.aspx?PaperID=77636

Refereed Paper Proceedings

1. Kitali, E. A., **Kidando, E.,** Alluri, P., Sando, T., Salum H J., Using a Dirichlet Multinomial Logit Model to Investigate Factors Influencing the Severity of Motorcycle Crashes in Tanzania. Accepted for presentation at Transportation Research Board Annual Meeting, Paper No. 19-03082, Washington, D.C., January 2019.
2. **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.
3. **Kidando, E.,** Moses, R., Sando, T. A Statistical Approach for Estimating Speed Threshold for Traffic Breakdown Event Identification: A Model Accounting for Data Variations. Accepted for presentation at Transportation Research Board Annual Meeting, Paper No. 19-03216, Washington, D.C., January 2019.
4. **Kidando, E.,** Mahyar G., Moses, R., and Ozguven, E. E. Traffic Operation and Safety Analysis on an Arterial Highway: Implications for Connected Vehicle Applications. Accepted for presentation at 21st IEEE International Conference on Intelligent Transportation Systems (IEEE ITSC 2018). Maui, Hawaii, USA, November, 2018.
5. **Kidando, E.,** Moses, R., Sando, T. and Ozguven, E. E., Evaluating Recurring Traffic Congestion Using Change Point Regression and Random Variation Markov Structured Model. Presented at Transportation Research Board Annual Meeting, Paper No. 18-06081, Washington, D.C., January 2018.

6. **Kidando, E.,** Chimba, D. and Onyango, M., Pavement Marking Retroreflectivity Service life: Comparing Regression and Artificial Neural Networks Predictions. Presented at Transportation Research Board Annual Meeting, Paper No. 18-04181, Washington, D.C., January 2018.
7. **Kidando, E**., Kitali, E. A., Lyimo, Moses, R., Sando, T., Kwigizile, V., and Chimba, D., Exploring the Influence of Rainfall on a Stochastic Evolution of Traffic Conditions. Presented at Transportation Research Board Annual Meeting, Paper No. 18-06187, Washington, D.C., January 2018.
8. Kitali, E. A., **Kidando, E.,** Martz, P., Alluri, P., Sando, T., Moses, R. and Lentz, R., Evaluating Factors Influencing the Severity of Three Plus Multiple-Vehicle Crashes Using Real-Time Traffic Data. Presented at Transportation Research Board Annual Meeting, Paper No. 18-06389, Washington, D.C., January 2018.
9. Kitali, E. A., **Kidando, E.,** Moses, R. Ozguven, E. E. and Sando, T., Predicting Likelihood of Aging Pedestrian Severe Crashes Using Dirichlet Random-Effect Bayesian Logistic Regression Model. Presented at Transportation Research Board Annual Meeting, Paper No. 18-05742, Washington, D.C., January 2018.
10. **Kidando, E.,** Moses, R., Sando, T. and Ozguven, E. E., Probabilistic Inference and Prediction of Travel Time Reliability: Empirical Analysis of Associated Factors. Presented at Transportation Research Board Annual Meeting, Paper No. 18-06145, Washington, D.C., January 2018.
11. Moses, R., **Kidando, E**., AbdelRazig, Y. and Ozguven, E. E., Clustering Traffic Congestion Using Mixture of Regression: Exploring the Traffic Occupancy and Speed Relationship. World Academy of Science, Engineering and Technology. International Journal of Civil and Environmental Engineering Vol: 3, No: 11, 2017. Dubai. *(Awarded Best Paper Presentation).*
12. **Kidando, E**., Moses, R. Ozguven, E. E. and Sando, T., Truncated Bayesian Non-parametric Modeling of Multistate Travel Time Distribution. Presented at Transportation Research Board Annual Meeting, Paper No. 17-04724, Washington, D.C., January 2017.
13. Kitali, E. A., **Kidando, E**., Moses, R. Ozguven, E. E. and Sando, T., Evaluating Pedestrian Crash Severity using Bayesian Complementary log-log Model for Improved Prediction Accuracy. Presented at Transportation Research Board Annual Meeting, Paper No. 17-06386, Washington, D.C., January 2017.
14. **Kidando, E**., Chimba, D. and Onyango, M., A Stochastic Model to Evaluate Service Life of Thermoplastic Pavement Markings. *Transportation Research Board*, Paper No. 17-00409, Washington, D.C., January 2017.
15. Chimba, D., Shao, G., **Kidando E**., Hager, K. and Patel S., Funding Allocation Criteria for Local Traffic Safety Enforcement Agencies. *Transportation Research Board*, Paper No. 17-00493, Washington, D.C., January 2017.
16. **Kidando, E**., Musinguzi A. and Chimba, D., Probabilistic Forecasting of Service Life of Thermoplastic Pavement Markings. *Transportation Research Board*, Paper No. 16-2167, Washington, D.C., January 2016.
17. Nail, W., Sivon, J., **Kidando, E**. and Chimba, D., Survival Analysis and Modeling of Debris-Related Incidents. *Transportation Research Board*, Paper No. 16-1951, Washington, D.C., January 2016.
18. Robinson, T., **Kidando, E**. and Chimba, D., Utilizing Bicycle Level of Service and Latent Demand Score for Small City Bicycle Route Planning. *Transportation Research Board*, Paper No. 15-2174, Washington, D.C., January 2015.

Conference Presentations

1. Moses, R., **Kidando, E.,** Mahyar G., and Ozguven, E. E. Traffic Operation and Safety Analysis on an Arterial Highway: Implications for Connected Vehicle Applications. Presented at the International Conference on Innovative Engineering Technologies (ICIET), Dubai, UAE June 2018.
2. **Kidando, E.,** Moses, R., Incorporating Travel Time Reliability in Predicting the Likelihood of Aging Drivers Severe Crashes Using Dirichlet Random Effect Regression. 5th Annual UTC Conference for the South-Eastern Region University of Florida November 16-17, 2017.
3. Moses, R., **Kidando, E.,** AbdelRazig, Y. and Ozguven, E. E., Influence of Travel Time Reliability on Elderly Drivers Crash Severity. World Academy of Science, Engineering and Technology. *International Journal of Civil and Environmental Engineering Vol*: 3, No: 11, 2016. Singapore.
4. **Kidando,** E., Moses, R. and Ozguven, E. E., Bayesian Inference on Travel Time Reliability. *UTC conference*, Knoxville, TN, 2016.
5. **Kidando,** E., Moses, R. and Ozguven, E. E., Evaluating the Impact of the Travel Time Reliability on Elderly Drivers Crash Severity, *UTC conference*, Ann Arbor, MI, 2016.
6. **Kidando, E**., Musinguzi, A. and Chimba, D., Bayesian Hierarchical Analysis of Pedestrian Crashes and Socio-demographic Factors. Presented at the *2nd Summer Conference on Livable Communities*, Kalamazoo, MI, 2015. (*Awarded Best Poster Presentation).*
7. Musinguzi, A., **Kidando, E**., and Chimba, D., Analyzing Socio-demographic effects on Pedestrian Safety using Bayesian Network. *Presented at Southern District ITE (SDITE) annual Meeting*, Biloxi, MS, 2015.
8. **Kidando, E.** and Chimba, D., Probabilistic Estimation of Service Life of Longitudinal Pavement Markings. *37th Annual University Research Symposium*, April 2015. *Second place presentation winner.*

9. Chimba, D., Onyango, M. and **Kidando E**., Evaluating the Impact of Terrain, Topography and Traffic Intensity to Retroreflectivity Deterioration Rates. *International Symposium on Systematic Approaches to Environmental Sustainability in Transportation (ISSAEST)*, 2015.
10. **Kidando, E**., Chimba, D., Ruhazwe, E., and Musinguzi, A. Predicting life cycle of longitudinal Pavement Markings Using Stochastic Differential Equation. Presented at the *124th Tennessee Academy of Science-Annual meeting (TAS)*, November 2014, Morristown, TN.
11. **Kidando, E**. and Chimba, D., Using Latent Demand Score (LDS) to Evaluate Bicycle Routes for Pleasant View City. *36th Annual University Research Symposium*, March 2014.

Paper under Review

1. **Kidando, E**., R. Moses**,** and T. Sando. "Dynamic Likelihood Estimation of Recurrent Traffic Congestion Using Multi-State and Heterogeneous Markov Chains Model." Journal of Intelligent Transportation Systems Technology, Planning, and Operations, 2017.
2. **Kidando, E.,** R. Moses, T. Sando, and E. E. Ozguven. "Assessment of Factors Associated with Travel Time Reliability and Prediction: An Empirical Analysis Using Probabilistic Reasoning Approach." Journal of Transportation Planning and Technology, 2017.

Invited Talks

1. Data Analytics and Visualization: A Dashboard Concept 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)
- Surveying Practical (Tennessee State University)
- Soil Mechanics Laboratory (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

Computer Skills and Research Tools

- Traffic Analysis - HCS, Vissim & Synchro
- Planning - 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