

ABRAM MUSINGUZI

Mechanical and Manufacturing Engineering Department, Tennessee State University
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EDUCATION:

Ph.D. in Computer and Information Systems Engineering

Tennessee State University- Expected Spring 2021.

M.E. Civil and Transportation Engineering

Tennessee State University -2016.

B.S. Civil and Transportation Engineering

University of Dar es salaam-2012.

RESEARCH INTERESTS:

- Hurricane Storm Surge Modeling
- Traffic Safety Analysis and Modeling
- Traffic Operations Modeling and Simulation
- Data Analytics and Visualization
- Modeling and Analysis of Geospatial Data
- Data Collection Methods and Visualization
- Application of Statistics in Transportation

WORK EXPERIENCE:

Adjunct Faculty

2018-Current

Department of Mechanical Engineering, Tennessee State University, Nashville TN

Teaching Activities

- Courses in Measurement and Instrumentation Laboratory, Thermal Fluids Systems Laboratory etc.

Research Assistant Tennessee State University, Nashville, TN, August 2014 to current

- Applied High Performance Computing to model storm surge using SWAN+ADCIRC and WRF.
- Developed decision support tools to assess pedestrian and bicycle safety in Tennessee.

Teaching Assistant (August 2014-May 2018)

- Department of Mechanical Engineering, Tennessee State University, Nashville TN
 - Fluid Dynamics
 - Thermal Fluid Systems Design
- Department of Civil and Architectural Engineering, Tennessee State University, Nashville TN
 - Transportation Engineering
 - Traffic Engineering
 - Highway Engineering
 - Mechanics of Materials
 - Statics

Traffic Analyst Intern, Pillars Development, Nashville, TN, February - December 2016

- Developed a micro-simulation of traffic with Synchro for Tennessee State Fairgrounds Study.

Civil Engineer, Uganda National Roads Authority, Uganda July 2013 to July 2014

- Supervised contractors during term maintenance of selected national roads.

REFEREED JOURNAL PUBLICATIONS:

1. **Musinguzi, A.**, Akbar, M. K., Fleming, J. G., & Hargrove, S. K. (2019). Understanding Hurricane Storm Surge Generation and Propagation Using a Forecasting Model, Forecast Advisories and Best Track in a Wind Model, and Observed Data—Case Study Hurricane Rita. *Journal of Marine Science and Engineering*, 7(3), 77.
2. Chimba, D., **Musinguzi, A.**, & Kidando, E. (2018). Associating pedestrian crashes with demographic and socioeconomic factors. *Case Studies on Transport Policy*, 6(1), 11-16.
3. Akbar, Muhammad K., Simbarashe Kanjanda, and **Abram Musinguzi**. "Effect of Bottom Friction, Wind Drag Coefficient, and Meteorological Forcing in Hindcast of Hurricane Rita Storm Surge Using SWAN+ ADCIRC Model." *Journal of Marine Science and Engineering* 5.3 (2017): 38.

REFEREED PAPER PROCEEDINGS:

1. 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.
2. **Musinguzi, A.**, and Chimba, D. (2015, July). Spatial variation in local road pedestrian and bicycle crashes. In *Presented and published in proceedings of ESRI International User annual Conference, San Diego, CA* (Vol. 7, p. 21).

PEER-REVIEWED ABSTRACT CONFERENCE:

1. Hargrove, K. and **Musinguzi, A.** A modified Laboratory Setting for Student Learning: The Engineering Clinic. 2020 Clute International Academic Conference, January 2020, Orlando, FL
2. **Musinguzi, A. and** Akbar, M. Understanding Hurricane Storm Surge Generation and Propagation Using a Forecasting Model, Forecast Advisories and Best Track in a Wind Model, and Observed Data—Case Study Hurricane Rita. The 2019 ADCIRC Users Group Meeting, 20-21 May 2019, Vicksburg, MS.
3. **Musinguzi, A** and Akbar, M., Assessing the performance of a Forecasting Model and Published Forecast Advisories on Hurricane Storm Surge Generation and Propagation in Hurricane Rita Case Study. TSU 41st Annual University-Wide Research Symposium, April 2019, Nashville, TN.
4. Bryant, K., **Musinguzi, A.** and Akbar, M. The Saffir–Simpson Scale: Simple, Straightforward, and Insufficient” 99th American Meteorological Society Annual Meeting, January 2019
5. Bryant, K., Alghamdi, A., **Musinguzi, A.** and Akbar, M. Incorporating Rainfall into Storm Surge Prediction for Hurricane Irma. 33rd Conference on Hurricanes and Tropical Meteorology, 16-20 April 2018, Ponte Vedra Beach, Florida.

6. Bryant, K., **Musinguzi, A.** and Akbar, M. Incorporating Rainfall into Storm Surge Prediction for Hurricane Irma. TSU 40th Annual University-Wide Research Symposium, April 2018, Nashville, TN.
7. **Musinguzi, A** and Akbar, M., Examining the performance of Weather Research and Forecasting (WRF) model to forecast Hurricane Harvey's wind field. TSU 40th Annual University-Wide Research Symposium, April 2018, Nashville, TN.
8. **Musinguzi, A** and Akbar, M., Analysis of Hurricane Harvey's Wind Field Using Weather Research and Forecasting (WRF). TSU 40th Annual University-Wide Research Symposium, April 2018, Nashville, TN.
9. **Musinguzi, A** and Akbar, M. A Coupled Atmospheric and Circulation Model for Accurate Hurricane Storm Surge Forecasting". TSU 39th Annual University-Wide Research Symposium, April 2017, Nashville, TN.
10. **Musinguzi, A** and Chimba, D. "An Access-Based Decision Support Tool for assessing Bicycle and Pedestrian Safety". TSU 38th Annual University-Wide Research Symposium, April 2016, Nashville, TN.
11. 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.
12. **Musinguzi, A** and Chimba, D. "Using Spatial Statistical Tools to correlate Bicycle and Pedestrian Crashes with Socio- demographics". TSU 37th Annual University-Wide Research Symposium, April 2015, Nashville, TN.
13. **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.
14. **Musinguzi, A.**, Chimba, D., and Ruhazwe, E. Geospatial correlation between land use patterns and pedestrian crash clusters on local roads. Presented at the 124th Tennessee Academy of Science-Annual meeting (TAS), November 2014, Morristown, TN.
15. 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.

AWARDS AND SCHOLARSHIPS:

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| 2019 | Travel grant, 2019 ADCIRC Users Group Meeting, | Vicksburg, MS |
| 2018 | NCAR GIS Program BRIGHT Workshop series, | Boulder, CO |
| 2018 | Second place graduate oral presentation University Research Symposium, | Nashville, TN |
| 2016 | First place graduate oral presentation University Research Symposium, | Nashville, TN |
| 2015 | Best Poster Presentation Summer Conference on Livable Communities, | Kalamazoo, MI |
| 2015 | Travel grant, Transportation Research Board 94 th Annual Meeting, | Washington, DC |
| 2015 | Travel grant, ESRI International User annual Conference, | San Diego, CA |
| 2015 | Travel grant, Southern District ITE annual Meeting, | Biloxi, MS |

VOLUNTEER EXPERIENCE:

- **STEM Mentor** at Tabernacle Baptist Church, Nashville, TN, (2018-Todate)
- **Judge** Science Olympiad at Tennessee State University, Nashville, TN (2015-Todate)
- **President** Institute of Transportation Engineers, TSU Chapter (2015-2016)

MEMBERSHIP OF PROFESSIONAL ORGANIZATIONS:

- Member of Institute of Transportation Engineers (ITE) April 2015-Present
- Member of American Society of Civil Engineers (ASCE) December 2014-Present
- Member of Uganda Institution of Professional Engineers (UIPE) October 2013 –Present