



Application of Different Negative Binomial-Lindley Variations in Crash Data Modeling

Seminar Summary:

Many studies have shown that the Negative Binomial Lindley (NB-L) distribution offers a better performance compared to the commonly used Negative Binomial (NB) distribution, especially when the dataset is highly dispersed or includes many zero observations. Consequently, different variations of the NB-L distribution have been introduced through mixing the NB distribution with different Lindley generalizations. However, little is known on how these models perform or compared in different data domains. In addition, there are also multiple Lindley distributions that have not yet been tried in mixture with the NB distribution. This study conducted a comparative analysis among different variations of the NB-L, including the NB-L variations introduced in the literature, as well as two newly proposed variations, negative binomial weighted Lindley (NB-WLindley) and negative binomial quasi Lindley distributions, to determine which variation performs the best. Results confirmed that the proposed NB-WLindley performs better in majority of data domains used in the simulation analysis. This study also examined the application of the NB-WLindley in generalized linear modeling (GLM). We found that the NB-WLindley GLM produces better overall performance relative to the traditional NB as well as the NB-L GLM proposed in the past. This seminar series is co-organized by the Department of Landscape Architecture and Urban Planning, Transportation Institute, and Institute of Data Science at Texas A&M University. It is operated by Texas A&M Urban Data Science Lab.



Speaker's information:

Dr. Dominique Lord is a Professor and holder of the A.P. and Florence Wiley Faculty Fellowship in the Zachry Department of Civil & Environmental Engineering at Texas A&M University. Over the last 25 years, Dr. Lord has conducted numerous research studies in the United States, Canada, and across the world in highway design and safety. He published over 145 papers in peer-reviewed publications and more than 120 papers at international and national conferences. He has co-edited the book titled "Safe Mobility: Challenges, Methodology and Solutions" (April 2018) and published a seminal textbook in highway safety titled "Highway Safety Analytics and Modeling." Recently, he provided chapters to the following textbooks: The Study of Crime and Place: A methods Handbook and International Encyclopedia of Transport.

Time: 8:00-9:00 p.m. US Central Time (Thursday, March 24, 2022)

Zoom Meeting ID: 732 641 0814 Passcode: 575829

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