



XIAMEN UNIVERSITY MALAYSIA

廈門大學 馬來西亞分校

Research Talk

MULTINOMIAL LOGISTIC REGRESSION WITH RANDOM EFFECTS USING BAYESIAN APPROACH: AN APPLICATION OF ROAD ACCIDENTS SEVERITY STUDY

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Research interests: Statistical modeling, Bayesian computational statistics, Monte Carlo simulation, actuarial mathematics

SPEAKER INTRODUCTION

Dr. Nurhidayah Hamdan is an assistant professor at Xiamen University Malaysia. Dr. Nurhidayah Hamdan was graduated from University of Essex, UK in 2022, and prior to that she got her BSc Actual Science, and MSc Applied Statistics at MARA University of Technology, Malaysia.

ABSTRACT

Great Britain has a modern road network and is well-known with the advanced technology in road engineering. Although with excellent road infrastructure, road accidents remain one of the main concerns in road safety literature among researchers and policymakers. One of the main strategies for improving road safety is to identify the contributing factors and then to develop countermeasures. There have been numerous studies that analyse road accident severity including binary outcome models, ordered discrete outcome models, unordered multinomial discrete outcome models, and other data mining approaches. The aim of this study is to identify the contributing factors affecting road accident severity in Great Britain. For accident severity study, two statistical models are selected: multinomial logistic regression (MNL) model, and multinomial logistic with random effects (MNLRE) model. Markov Chain Monte Carlo (MCMC) simulation method by applying random walk Metropolis-Hastings (M-H) algorithm is used for parameter estimation in the MNLRE model.