Dear Sir/Madam,

I was pleased to learn of the available Assistant Professor position at the University of Maryland, Baltimore posted on the university website. With my PhD and eight years' experience in transportation data analytics, I'm confident I will be a good fit for this position and also a valuable asset to your team.

My current research activities are focusing on traffic safety and crash data analytics. In the past few years, we are continuously sponsored by NHTSA/TXDOT to work on a teen driver education program in order to create a safer environment for teen drivers when they are driving on rural roads in west Texas. Our major accomplishments include: 1) investigated and visualized tempo-spatial patterns on rural teen driver crashes in west Texas and find specific areas or locations (or hotspots) where there are high frequencies of teen driver crashes; 2) found out the factors which contribute more to the occurrence of teen driver crashes in rural areas of west Texas, when acting together; and 3) identified and ranked the importance of contributing factors and predicted crash severity using machine learning. All of these findings and other safety educational materials have been integrated into an animated and interactive online education program. The major outcomes are shown in Figure 1.

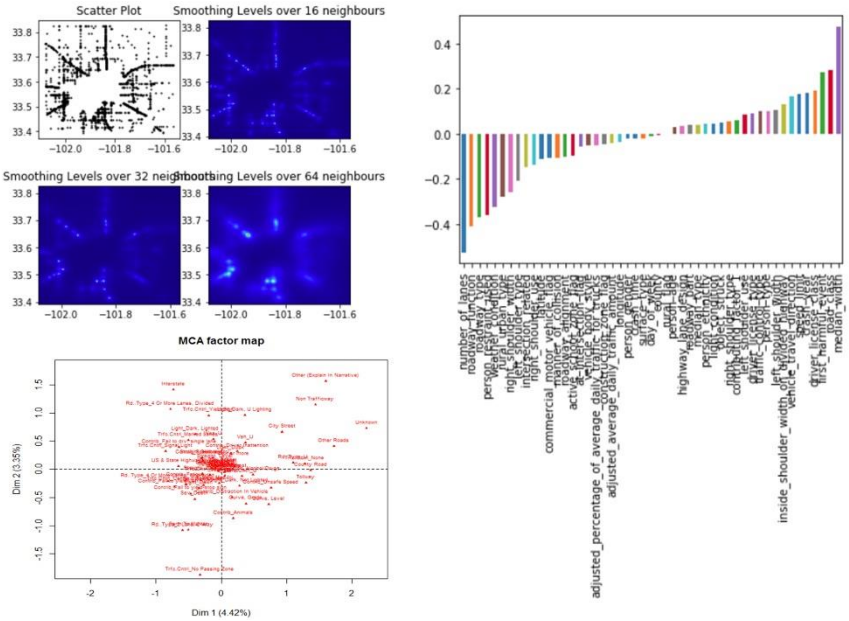

Fig.1: a) Visualization of Teen Driver Crash Heat map (Top Left); b) Multiple Correspondence Analysis Results (Bottom Left); and c) The ranking of contributing factors (Right)

Other than applying machine learning techniques to traffic safety-related research, I also used them in other transportation-related areas: 1) the resilience of transportation infrastructure considering risk and uncertainty in a context of life-cycle (my dissertation); 2) highway traffic state estimation using Gaussian process; and 3) long-term travel time prediction using nonlinear autoregressive neural network. I also have

rich experience in converting real transportation problems into mathematical models. For example, I published two papers on analyzing the impact of service refusal to the supply-demand equilibrium in the taxi market. The major outcomes of these abovementioned research activities are shown in figure 2.

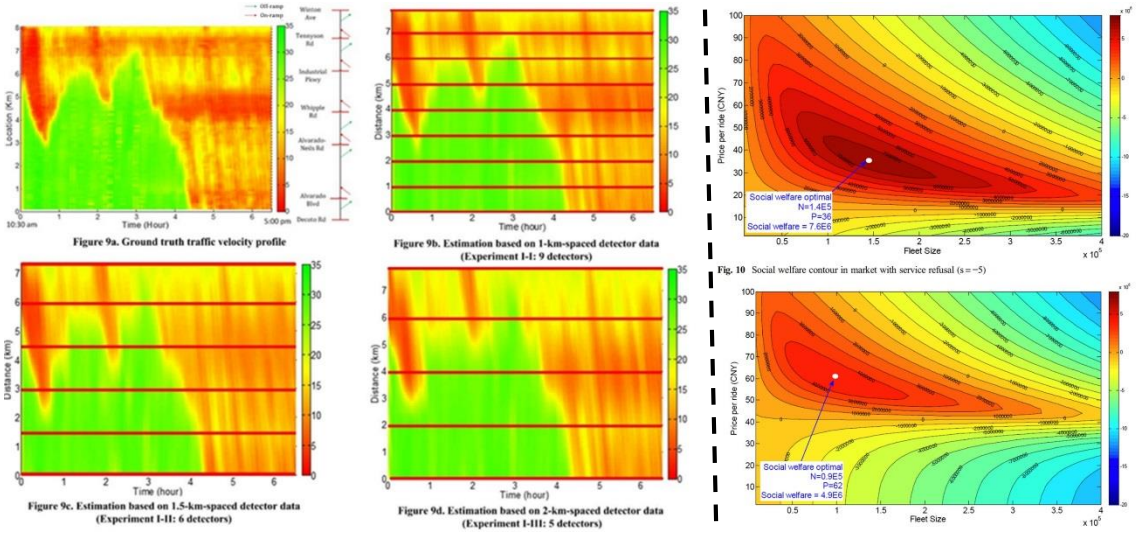

Fig.2: a) Traffic State Estimation (Speed) from equally spaced loop detectors(Left) and b) Social welfare contours in the taxi market with service refusal (Right)

Up to now, I have authored and coauthored 27 publications, including 17 archival journal papers and 10 referred conference proceedings. My journal papers are published in International Journal of Pavement Engineering, Applied Mathematical Modelling, Networks and Spatial Economics, Journal of Advanced Transportation, Safety Science, etc. I have also been actively involved in the proposal development and played a leading role in several research projects. In 2017, I've assisted my advisor in the development of the Inter-Agency Cooperation Contracts (IACs) with three TxDOT districts in the west Texas region (the awarded contract funding would be $250,000 for each district in a 2-year period, $750,000 in total). This year, I'm confident to renew these contracts based on our outstanding performance and positive feedback from the past issued IAC projects.

Details of my background and research experience could be found in the enclosed my curriculum vitae. Should you have any questions, please feel free to contact me at jasond.wu@ttu.edu, or 806-783-7066.

Sincerely,

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