

## Mining in Data: Applying Artificial Intelligence to Understand Driver Behaviors

Yulan Liang, PhD  
Liberty Mutual Insurance Group

**Abstract:** Artificial intelligence and big data technologies have become the engines of the new economy. Massive data that have been collected globally enable us to uncover the solutions for complex and ambiguous problems using machine learning methods. This methodology has been used in the research of human factors and demonstrated its beneficial impacts, especially when combined with traditional empirical approaches. My research has focused on understanding the effects and developing predictive models for driver impairments, including driver distraction and drowsiness, using machine learning methods. The resultant models did not only provide promising prediction performance, but also revealed unique behavioral characteristics of drivers under these impairments. Lastly, future research directions are discussed.

**Bio:** *Yulan Liang* is an associate director of data science at Liberty Mutual Insurance Group. Prior to this position, she has worked as a research scientist in the Center for Behavioral Sciences at the Liberty Mutual Research Institute for Safety for seven years after one year as a post-doctoral fellow at the North Carolina State University. Dr. Liang's research focuses on applying machine learning methods and big data technologies to understand emerging human factors issues in the transportation and healthcare domains. Her specific interests are in identifying risk factors and countermeasures of motor-vehicle crashes caused by human error or health-related issues and understanding the interaction between human drivers and vehicle automation (Advanced Driving Assistant Systems and self-driving vehicles) and drivers' acceptance of the technology. She holds a PhD degree in Industrial Engineering from the University of Iowa and a Master degree and a Bachelor degree in Mechanical Engineering from Tsinghua University (China).

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