# Transportation Data Science Seminar Series

## Building a Smart Work Zone Using Roadside LiDAR

**Seminar summary**

Roadway construction and maintenance has become increasingly more common as the transportation system in the United States ages while the population and traffic volume increases. This fact places more and more work zone workers in close proximity to high-speed vehicles and increases the probability of being stuck. Although potential benefits were identified from work zone situational awareness or intrusion alert systems, only a few of them have been adopted due to the limitations of effectiveness, cost implications and simplicity. Therefore, developing innovative methods to reduce the number of crashes and vehicles intruding into the work-zone area are still highly desirable. The emerging 360-degree light detection and ranging (LiDAR) seems as an attractive solution for addressing these issues. In an on-going research projects, we deploy lightweight portable 360$^{o}$ LiDAR sensors at the roadside and test their potential for providing work zone safety in terms of accuracy, efficiency, and ease of use. The objective is to develop a set of algorithms to collect and interpret real-time information of each approaching vehicle and worker (e.g., location, speed and direction) in and outside work zones using roadside LiDAR. The outcome of this pilot study is leading to a full-scale warning system that could be deployed in a real work zone environment. Such a system can detect and analyze live traffic and work zone activity, activate the appropriate warning scheme, and deliver information to roadway workers in work zones so that they can take evasive actions instead of passively relying on traditional safety countermeasures.

**Speaker's information**

Dr. Jason (Dayong) Wu joined the Texas A&M Transportation Institute (TTI) in 2019 as an Assistant Research Scientist with the Research and Implementation Division/Dallas Program. Prior to joining TTI, Jason worked as a senior research associate at Texas Tech University (TTU) as part of the Texas Tech University Center for Multidisciplinary Research in Transportation (TechMRT). Dr. Wu has about 10-year solid experience in various research fields such as Traffic Safety, Intelligent Transportation Systems, Machine Learning, GIS in Transportation, and Traffic Mobility and Operation Analysis. Dr. Wu received his doctorate in transportation engineering at TTU and his Master's in structural engineering at Utah State University (USU). He has also authored and co-authored about 40 journal papers and conference proceedings in various transportation research topics since 2013. Currently he is leading a Safe-D UTC project that focuses on improving work zone safety by using LiDAR sensing technologies.

Time: 8:00-9:00 p.m. US Central Time (Thursday, August 26, 2021)
Zoom Meeting ID: 732 641 0814 Passcode: 575829
Direct Link: https://tamu.zoom.us/j/7326410814?pwd=cGZKY045dmVkdzVRLy9MYWhocWorQT09

Host: Dr. Xiao Li, Mobility Analysis Program, Texas A&M Transportation Institute

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