

Designing increasingly autonomous vehicles to be safer than humans

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Abstract: Vehicles are becoming increasingly autonomous but are not as yet all fully driverless. Autonomous technology is being introduced in phases. This requires human drivers to continually adapt to their changing role inside the car. The human's ability to decide when to take back control of the primary driving task is further complicated given system imperfections. As drivers adapt to increasing levels of automation, they may change their driving behavior in ways that can compromise and even negate the intended system benefits. To design vehicles that account for limitations of both the human and the system, it is essential to model such behavioral adaptation. This presentation will focus on the challenges and opportunities in this modeling endeavor and their safety implications for all road users.

Bio: Linda Ng Boyle is the professor and chair of the Industrial & Systems Engineering Department at the University of Washington (UW). She has a joint appointment in Civil & Environmental Engineering. Prior to the UW, she was on the faculty at the University of Iowa and a researcher at the US Department of Transportation. Her BS degree is from the University of Buffalo and her MS and PhD are from the University of Washington. She is an associate editor for the journal Accident Analysis and Prevention and on the editorial board for Transportation Research Part F. She also co-organizes the International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design and on the steering committee for Automotive User Interface.