Keynote Talk

Self-Driving Vehicles: The Challenges and Opportunities Ahead

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ABSTRACT

Self-driving vehicles seem to have become quite the rage in popular culture over the past 3 years or so. Jumpstarted by the DARPA Grand Challenges, the promise of self-driving vehicles does have the potential to revolutionize modern transportation. This talk will provide some insights on many basic questions that, however, still remain unanswered. What are the technological barriers? What can or cannot be sensed? Can vehicles recognize and comprehend as good as (or better than) humans? What role does connectivity play (if any)? Will the technology be affordable for the masses? How do issues like liability, insurance, regulations and societal acceptance impact deployment? The talk will be based on road experiences interspersed with some speculation.

Categories and Subject Descriptors

C.3 [Special-purpose and Application-based Systems]: Real-time and embedded systems

Keywords

Self-driving vehicles

BIO

Prof. Raj Rajkumar is the George Westinghouse Professor of Electrical & Computer Engineering and Robotics Institute at Carnegie Mellon University. At Carnegie Mellon, he directs National University Transportation Center on Safety, which is sponsored by the US Department of Transportation. He also directs the Real-Time and Multimedia Systems Laboratory (RTML), and co-directs the General Motors-Carnegie Mellon Connected and Autonomous Driving Collaborative Research Laboratory (CAD-CRL). Raj has served as the Program Chair and General Chair of six international ACM/IEEE conferences on real-time systems, wireless sensor networks, cyber-physical systems and multimedia computing/networking. He has authored one book, edited another book, holds three US patents, and has more than 150 publications in peer-reviewed forums. Eight of these publications have received Best Paper Awards. He has given several keynotes and distinguished lectures at several conferences and universities. He is an IEEE Fellow, and an ACM Distinguished Engineer. He has been given an Outstanding Technical Achievement and Leadership Award by the IEEE Technical Committee on Real-Time Systems. Prof Rajkumar's work has influenced many commercial operating systems. He was also the primary founder of Ottomatika Inc., a company that focused on delivering the core software intelligence for self-driving vehicles. Ottomatika was recently acquired by Delphi. His research interests include all aspects of cyber-physical systems.

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