



學術報告

Multi-scale Battery Management for Autonomous Electric Vehicle Fleets



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Biography: Cong Liu is an Assistant Professor in the Department of Computer Science at the University of Texas at Dallas. He received my Ph.D. in Computer Science from the University of North Carolina at Chapel Hill with Prof. Jim Anderson in 2013. Prof. Cong Liu has worked in IBM Research at Austin and IBM T.J. Watson Research Center. He has received many awards, such as best paper award of RTSS and RTCSA, outstanding teaching award of UT-Dallas, etc. His research interests include real-time and embedded systems, GPGPU computing, battery and fleet management for Evs.

The recent set of transportation technology revolutions, including autonomous driving, electric vehicles (EVs), and car sharing, is expected to utterly change urban transportation. Much recent effort has thus been made to develop smart battery management systems (BMS), which directly control the discharging and charging of batteries in EVs. Unfortunately, existing research on BMS mainly focuses on optimizing individual EVs' battery operations and may result in inefficiency for a surge of autonomous EV fleet applications. Examples include community autonomous EV shuttle service and public autonomous EV taxi network. Fundamentally this is because existing BMS are mostly fleet-oblivious, ignoring fleet-oriented factors such as rich intra-fleet information sharing features. In this talk, I will describe our recent work towards developing a fleet-oriented BMS that significantly benefits from rich intra-fleet information sharing and fleet-level system optimization.