

Seminar Talk

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Friday, April 26, 2019

3:00 p.m. KH 224

Title: Resilient Vehicular Networked Systems: Theories and Applications

Abstract:

Vehicular Networked Systems (VNS) are cyber-physical systems consisting of multiple autonomous vehicles exchanging information over wireless communication networks. A resilient VNS is a system that is capable of maintaining active situational awareness of surrounding threats and recovering operational normalcy (safety) from system failures with performance guarantee (efficiency). Building a resilient VNS, however, is challenging due to the unreliable and state-dependent nature of these vehicular networks, in which the communication channels (1) exhibit burstiness in information loss, and (2) stochastically change as a function of the vehicle's physical states. To address these challenges, this talk will present a novel channel model that explicitly captures the burstiness and state-dependency property of vehicular communications. Based on this channel model, the first part of this talk will show how to develop a distributed switched control strategy to address the safety issues in intelligent transportation systems. In the second part of this talk, a novel

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