Networked Control Systems: Progress and Challenges

This talk is devoted to the stability analysis and control synthesis algorithms for stochastic systems over a communication network. Specifically, some attempts and new progresses on network based control, network based estimation, observer based control over network and network based prediction are reviewed and discussed some of the remaining challenges. The underlying method is based on the Lyapunov-Krasovskii functional theory and the results are formulated in terms of linear matrix inequalities (LMIs) for the stochastic stability and stabilization of the systems under consideration.