A Framework on Safety and Resilience for Multi-Agent Systems

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Abstract:

Planning, navigation and control for multi-agent systems have been fundamental topics of research with numerous applications in unmanned aerial vehicles and robotic networks. Despite significant progress over the years, there are still open challenges due to constraints (in terms of state and time specifications), adversarial or faulty information, environmental uncertainty and scalability. This talk will present some of our recent results and ongoing work on safe and adversarially-robust multi-robot systems. The proposed framework aims to develop and integrate estimation, learning and control methods towards provably-correct and computationally-efficient mission synthesis for multi-agent systems in the presence of adversarial attacks and spatiotemporal constraints.