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Title: Coordination challenges in networked vehicle systems: are we missing something?

Abstract: The general problem of multi-vehicle coordination in communications challenged networks is discussed to highlight the underlying control, communication and computation challenges. The intrinsic dynamic structure of these systems -- in which physical and computational entities evolve, interact and communicate over geographically constrained networks -- is contrasted to the fixed structure of most of the models arising in the literature. The new challenges are formulated as classical control problems of optimization, invariance and attainability for systems governed by the laws of physics and computation. Directions for future research are discussed, with special focus on the integration of efforts in control, communications and computation.