

Models and Queries for Smart and Safe Cyber-physical Systems

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A smart and safe cyber-physical system (CPS) autonomously perceives its operational context and adapts to changes over an open, heterogeneous and distributed platform with a massive number of nodes, dynamically acquires available resources and aggregates services to make real-time decisions, and resiliently provides critical services in a trustworthy way. In this talk, I present some challenges of CPS, and overview recent synthesis, exploration and validation techniques based on graph models and queries to assist the model-driven engineering of smart and safe CPS.