Challenges of Challenge Problems?

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Ken Butts

Workshop participants have called for challenge problems -

- A potential problem (Rajeev):

Collision Avoidance via vehicle-to-vehicle communication

  - Multi-organizational responsibilities
  - Safety considerations
  - Strict real-time performance requirements
  - Hybrid dynamics
  - Wireless networked control with lossy communication
  - Dynamic, multi-agent environment
  - Proposed communication protocols

Research studies available: Control design to Implementation

Cooperative Intersection Collision Avoidance Systems

Vehicle Collision Avoidance System

Cooperative collision warning

- [3]Project conducted by University of California Partners for Advanced Transit and Highways (PATH) program and General Motors Research and Development
  - estimating vehicle position and speed
  - communication system
  - display devices
  - In-vehicle software and hardware

[3]J. Misener, R. Sengupta, and H. Krishnan, *Cooperative Collision Warning: Enabling Crash Avoidance with Wireless Technology*, Proc. 12th World Congress on ITS, Nov. 2005.

- Is Collision Avoidance a viable challenge problem for the V&V community?

- Are the existing research artifacts sufficient? Available?