

CPS: Collaborative Research: Synergy: Computationally Aware Cyber-Physical Systems

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Challenge:

- •Account for computational capabilities in real-time.
- Hybrid feedback algorithms that include more accurate prediction schemes exploiting computational capabilities

Solution:

- •Software for monitoring, recording, and real-time and offline decoding of CAN messages.
- Validation of Computationally-Aware algorithms in offline/online modes

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Offline and online solutions: offline work supports new computational aware dynamical models, online work supports lightweight computational control implementation.

Scientific Impact:

• Enabled real-time human-CPS control in conjunction with STEAD project



Broader Impact:

- •Graduation of Nathalie Risso, 2020
- •Mentored 2 REU students in 2020
- •Reduction of actuation costs for a research testbed to scale to 100s of vehicles