Resilient Trust–Aware Distributed Observer Design for Connected Vehicle Platoons

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Résumé

This work proposes a trust-aware distributed observer for vehicle platoons that maintains resilient state estimation under cyberattacks. A behavioral divergence metric evaluates the reliability of shared data, forming a dynamic neighbor set used to adapt observer's weighting gains. Stability conditions are derived via Lyapunov analysis. Simulations under bogus, replay, and DoS attacks demonstrate robust performance and stable platoon behavior.

Mots-Clés: Distributed observers, secure estimation, Lyapunov stability, cyber, attack.

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