

Observer-Based Distributed Secure Consensus Control of a Class of Linear Multi-Agent Systems Subject to Random Attacks

Yang Yang, Huiwen Xu, Dong Yue

Abstract— This paper is concerned with an observer-based distributed secure consensus control strategy for a class of linear multi-agent systems (MASs) with random attacks. Due to the fact that not all state information is available, observers are employed to estimate the internal states. The communication topology is randomly switching under the attacks, and a distributed secure consensus strategy is proposed using the output information. The feedback gains are calculated via solving the Riccati equation and Riccati inequality, and stability analysis is proven that the MAS achieves secure consensus tracking in the mean square sense. Finally, two examples are provided to verify the effectiveness of the observer-based control strategy.

For the published version of record document, go to:
<http://dx.doi.org/10.1109/TCSI.2019.2904747>

