Call for Papers:

IEEE Open Journal of Control Systems (OJ-CSYS)

Special Section on Resilient and Safe Control in Multi-Agent Systems

Multi-agent systems (MASs) have gained a lot of popularity in recent years in different disciplines as a means to solve complex tasks by subdividing them into smaller problems. The modular and interconnected structure provides important benefits, like scalability and design flexibility, but can also lead to vulnerability, by allowing local faults to spread to neighboring locations and even to the whole system. This challenge is outside the scope of robust and adaptive control, where the controller typically assumes prior knowledge about disturbances affecting the model. This is especially true for adversarial disturbances, which cannot be modeled with confidence and may fatally disrupt a control task at the global level.
Nonetheless, propagating failures are a crucial issue in several application domains, from power grids subject to cyber-attacks and power outages, to multi-robot systems dealing with unexpected changes in the surrounding environment, to vehicular networks experimenting with unpredictable behaviors of human drivers. These cases require resilient strategies that can restore the system functionalities on-the-fly in the face of unexpected or adversarial conditions that fall outside of the design assumptions.
A unifying framework for resilience in MASs is still lacking, and the complexity of large-scale systems may prevent applicability of several proposed approaches. Ultimately, the path toward resilient networked control systems is still long, and further research and technological effort is needed to cope with adversities of any kind and increasing sophistication.

Prospective authors are invited to submit original contributions on related topics including, but are not limited to, the following:

- Resilient-by-design architectures and formal verification
- Reactive resilience architectures and methodologies
- Data-driven and learning-based resilience control
- Self-organizing control architectures
- Resilient multi-agent optimization and federated learning
- Resilient multi-robot systems
- Safety-critical control
- Fault-detection and isolation for networked systems
- Game-theoretic approaches to resilient control
- Resilient multi-agent estimation in sensor networks
- Anomaly-detection/malicious agents detention and mitigation
- Privacy-preserving distributed algorithms

Special Section Schedule:

- **Special Section Submission Window: 1 October 2023 – 1 April 2024**
- Notification of reviews of and recommendations: 10 weeks after initial submission
- Final notification of regular papers: 20 weeks after initial submission
- Manuscript publication on IEEE Xplore: 24 weeks after initial submission

* Review process starts at time of manuscript submission

Submission Site: https://css.paperplaza.net/
Length: 12 pages or under, not including references. Justification of longer papers is required.
Discounts: The first 8 papers published in this special section are eligible for a 50% discount on APCs.

Open Journal of Control Systems (OJ-CSYS) *covers significant theoretical and applied developments that impact the field of dynamic systems and control. The field integrates elements of sensing, communication, decision and actuation components as relevant for the analysis, design and operation of dynamic systems and control. The systems considered include: technological, physical, biological, economic, organizational and other entities, and combinations thereof.*

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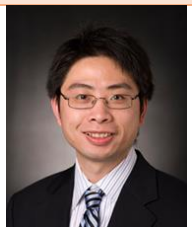

Name: **Minghui Zhu**
Affiliation: **Pennsylvania State University, United States**