Summary: This paper concentrates on a containment control issue for multi-agent systems in non-affine form with a given accuracy. In comparison with the existing studies on multi-agent systems, precision-based containment control idea is first formulated. With the aid of the proposed strategy, the main merit of this note is that the synchronization errors converge to arbitrary given positive number. Simultaneously, the particular Layapunov functions are constructed by feat of two auxiliary functions. By employing the backstepping and adaptive control technique, the key variables and the actual controller are designed. Unlike the traditional stability analysis, a novel method is used to analyse the convergence of containment errors. In the end, some simulation results demonstrate the correctness for the proposed protocol.

MSC:
93Cxx  Model systems in control theory
93Axx  General systems theory
68Txx  Artificial intelligence

Keywords: multi-agent systems; containment consensus control; non-affine feedback; predefined precision

Full Text: DOI

References:
[15] Liu, T.; Qi, J.; Jiang, Z.-P., Distributed containment control of multi-agent systems with velocity and acceleration saturations,

[21] Doi: 10.1109/TFUZZ.2020.3008779


[34] Krstic, M.; Kokotovic, P. V.; Kanellakopoulos, I., Nonlinear and adaptive control design (1995), John Wiley & Sons, Inc. · Zbl 0676.93043


[40] Niculescu, S.-I., Delay effects on stability: A robust control approach, volume 269 (2001), Springer Science & Business Media


[44] Doi: 10.1109/TSMC.2019.2917547


pure-feedback form under switching topologies, Neurocomputing, 152, 1-10 (2015)


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.