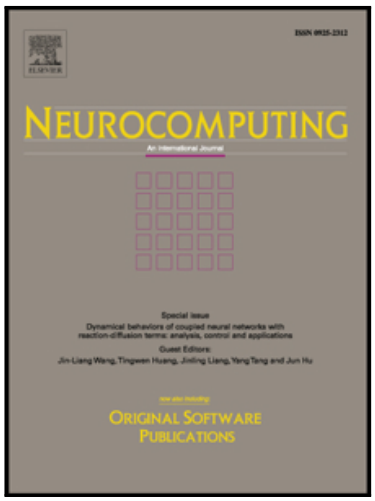
Accepted Manuscript



A necessary and sufficient condition for designing formation of discrete-time multi-agent systems with delay

Gesheng Xu, Chi Huang, Guisheng Zhai

PII: S0925-2312(18)30743-4
DOI: 10.1016/j.neucom.2018.06.007
Reference: NEUCOM 19685

To appear in: *Neurocomputing*

Received date: 26 September 2017
Revised date: 30 April 2018
Accepted date: 22 June 2018

Please cite this article as: Gesheng Xu, Chi Huang, Guisheng Zhai, A necessary and sufficient condition for designing formation of discrete-time multi-agent systems with delay, *Neurocomputing* (2018), doi: 10.1016/j.neucom.2018.06.007

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Highlights

- Compared with previous results on formation control and communication delay, the contributions of this paper are threefold. First, by establishing the appropriate control input, we transform the formation problem into an asymptotically stabilization problem, which is equivalent to designing a Schur polynomial (whose zeros are inside the open unit disk) with complex coefficients. Secondly, by using the bilinear transformation and Hurwitz polynomials with complex coefficients, we obtain a necessary and sufficient condition for our design problem. Thirdly, we discuss precisely how to simplify and solve the condition efficiently for both complex and real eigenvalues of the Laplacian matrix.

ACCEPTED MANUSCRIPT

Download English Version:

https://daneshyari.com/en/article/10151142

Download Persian Version:

https://daneshyari.com/article/10151142

Daneshyari.com