

学术报告会

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Lyapunov Stability Theorems for Infinite-delayed Systems and Their Applications

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摘要:

This talk presents several Lyapunov stability theorems for infinite-delayed systems and their applications. Those theorems are developed based on a general model of infinite-delayed systems and a newly proved key technical lemma. The stability results are more general than existing stability results, and the corresponding conditions are more easily satisfied than existing ones. These new Lyapunov theorems are then applied to the problems of stabilizing both time-invariant and time-varying linear systems with distributed infinite input delays, and the corresponding stabilizing controllers are developed. A distinctive advantage of the Lyapunov based time domain method proposed in this paper over the existing frequency domain method is that the former can be adopted to deal with more general systems, such as time-varying linear systems or even nonlinear systems. Examples are provided to illustrate the effectiveness of our results.

简介:

Gang Feng received the B.Eng and M.Eng. Degrees in Automatic Control from Nanjing Aeronautical Institute, China in 1982 and in 1984 respectively, and the Ph.D. degree in Electrical Engineering from the University of Melbourne, Australia in 1992.

Professor Feng was a Lecturer/Senior Lecturer at University of New South Wales, 1992-1999. He has been with City University of Hong Kong since 2000, where he is now a Chair Professor of Mechatronic Engineering. He has received the IEEE Computational Intelligence Society Fuzzy Systems Pioneer Award, the IEEE Transactions on Fuzzy Systems Outstanding Paper Award, the Outstanding Research Award and President Award of City University of Hong Kong, Alexander von Humboldt fellowship, and several best conference paper awards. He is listed as a SCI highly cited researcher by Clarivate Analytics since 2016. His research interests include intelligent systems and control, networked control systems, and multi-agent systems and control.

Professor Feng is a fellow of IEEE. He has been the Associate Editor of IEEE Trans. Automatic Control, IEEE Trans. on Fuzzy Systems, IEEE Trans. Systems, Man, & Cybernetics, Mechatronics, Journal of Systems Science & Complexity, Journal of Guidance, Navigation & Control, and Journal of Control Theory and Applications. He is also on the advisory board of Unmanned Systems.