

The 9th International Conference on
Control, Automation and Robotics (ICCAR 2023)
April 21-23 | Beijing, China



Lecture by

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Control and Application of Hybrid Systems

混杂系统控制与应用

Hybrid phenomenon like switching and impulsive behaviours exists in many real applications, including the new power system supplied mainly by new energies. Therefore, hybrid system model has been used to describe many real systems. Because of the coexistence of continuous behaviours and discrete-time behaviours, the analysis and control problem of hybrid systems become quite challenge and complex. In this talk, we will firstly discuss the robustness of switched system against deny-of-service attacks and design sampling feedback control for the system. Then we will discuss the application of switched control strategy in the cooperative control of microgrid. We will show that sometimes hybrid behaviours may benefit for the control system.



About the author

Yan-Wu Wang received the B.S. degree in automatic control, the M.S. degree and the Ph.D. degree in control theory and control engineering from Huazhong University of Science and Technology (HUST), Wuhan, China, in 1997, 2000, and 2003, respectively. She has been a Professor with the School of Artificial Intelligence and Automation, HUST, since 2009. Her research interests include hybrid systems, cooperative control, and multi-agent systems with applications in smart grid. Currently she serves in the editor boards of several journals, including IEEE Transactions on Smart Grid, International Journal of Robust and Nonlinear Control, Journal of the Franklin Institute, and Neurocomputing. Dr. Wang was a recipient of several awards, including the first prize of Natural Science Award of Hubei Province in 2014, the first prize of Natural Science Award of the Ministry of Education of China in 2005, and the Excellent PhD Dissertation of Hubei Province in 2004, China. In 2008, she was awarded the title of "New Century Excellent Talents" by the Ministry of Education of China.