

# RENKE WANG

## Permanent Address

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## EDUCATION

*Master of Engineering*, Control Science and Engineering

Dalian University of Technology, Dalian, Liaoning

09/2017-06/2020

*Thesis title*: Stability Analysis and Controller Design of Linear Switched Positive Systems

*Bachelor of Engineering*, Automation

Dalian University of Technology, Dalian, Liaoning

09/2013-06/2017

*Thesis title*: Sampled-data Control of Linear Systems Based on a Switching Approach

## LICENSE & CERTIFICATIONS

Coursera

- [Machine Learning](#)
- [Data Visualization](#)
- [Applied Machine Learning in Python](#)

## RESEARCH EXPERIENCE

*Dalian University of Technology, Dalian, Liaoning*

- Studied exponential stability and  $L_1$  gain performance of positive Markov jump linear system with external disturbance. Obtained sufficient conditions of system stability by dwell time and mode-dependent average dwell time approach. Applying multiple piecewise linear co-positive Lyapunov function to analyze  $L_1$  gain performance and design  $L_1$  controllers. 02/2020-05/2020
- Studied stochastic stability of positive Markov jump linear system with fixed dwell time. Obtained sufficient and necessary conditions of system stability with both exactly known and partially known transition rates. Using multiple piecewise linear co-positive Lyapunov function to design feedback controllers to stabilize the system. 03/2019-01/2020
- Studied globally uniformly exponential stability of linear time-invariant positive system with controller failure. Obtained sufficient conditions of system stability through dwell time and mode-dependent average dwell time approach. Applying multiple linear co-positive Lyapunov function to resolve the problem brought by exponential terms. 09/2018-02/2019
- Studied globally asymptotically stability of positive switched system with a state-dependent switching law. Obtained sufficient conditions of system stability through dwell time approach. Discussed  $L_1$  gain performance of the system with external disturbance. 02/2018-07/2018

## PUBLICATIONS

- J. Lian, R. Wang, "Stochastic Stability of Positive Markov Jump Linear Systems with Fixed Dwell Time," *Nonlinear Analysis: Hybrid Systems*, 40 (2021): 101014.
- J. Lian, R. Wang and F. Wu, "Exponential Stability Analysis and Controller Design for LTI Positive System with Controller Failure", In 12th Asian Control Conference, Kitakyusyu, Japan, 2019, pp. 179-184.

## OTHER SKILLS AND INTERESTS

**Programming** Python, Matlab, C/C++ language.

**Languages** Chinese (native), English (proficient).

**Hobbies** Hiking.