Pengcheng Wu

CONTACT INFORMATION

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BIOGRAPHY

I am now a PhD student with the Joint Doctoral Program of Mechanical and Aerospace Engineering, University of California, San Diego and San Diego State University. My research advisors are Professor Jun Chen and Professor Sonia Martínez. I received both Bachelor and Master degree from Department of Aerospace Engineering, Nanjing University of Aeronautics and Astronautics, advised by Professor Dongping Jin and Professor Hao Wen. My research interest concentrates on dynamics, guidance and control. Recently I am working on the path planning and control of multi-agent systems in the presence of uncertainty.

EDUCATION BACKGROUND

Ph.D. Student August 2019 - present

University of California San Diego / San Diego State University

- Joint Doctoral Program of Mechanical and Aerospace Engineering
- Advisors: Professor Jun Chen, Professor Sonia Martínez
- Doctoral Qualifying Exam (DQE) passed

PREVIOUS EDUCATION

Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China

M.S., Aerospace Engineering, April 2017

- Excellent Graduate Student
- Thesis Topic: *Dynamic Modeling and Control for Space Structures Using Gyroscopes*
- Advisors: Professor Dongping Jin, Professor Hao Wen
- Area of Study: Dynamics and Control

B.S., Aerospace Engineering, June 2014

- Excellent Undergraduate Student
- Mechanics Specialization (with emphasis on structural strength and vibration)

PUBLICATIONS

[1] Safety Assured Online Guidance with Airborne Separation for Urban Air Mobility Operations in Uncertain Environments, P. C. Wu, X. X. Yang, P. Wei, J. Chen. *IEEE Transactions on Intelligent Transportation Systems*. (Submitted)

[2] Risk-bounded Path Planning for Unmanned Aircraft System Operations under Uncertainty, P. C. Wu, J. F. Xie, Y. C. Liu, J. Chen. *IEEE Transactions on Intelligent Transportation Systems*. (Submitted)

[3] Comparisons of RRT and MCTS for Safe Assured Path Planning in Urban Air Mobility, P. Wu, J. Chen. *AIAA SciTech Forum*, San Diego, California, 2022. (Accepted)

[4] Safe Path Planning for Unmanned Aerial Vehicle under Location Uncertainty, P. C. Wu, J. F. Xie, J. Chen. *16th IEEE International Conference on Control and Automation*, Sapporo, Hokkaido, Japan, 2020. (DOI:10.1109/ICCA51439.2020.9264542)

[5] Probabilistic Guaranteed Path Planning for Safe Urban Air Mobility using Chance Constrained RRT*, P. C. Wu, L. Li, J. F. Xie, J. Chen. *AIAA AVIATION Forum and Exposition*, Reno, Nevada, 2020. (DOI: 10.2514/6.2020-2914)

[6] Attitude Maneuver Control and Vibration Suppression of Spacecraft with Flexible Appendages via Control Moment Gyroscopes (in Chinese), Wu, P. C. *M. Sc. dissertation*, *Nanjing University of Aeronautics and Astronautics*, 2017.

[7] Model predictive control of rigid spacecraft with two variable speed control moment gyroscopes, Wu, P. C., Wen, H., Chen, T., and Jin, D. P. *Applied Mathematics and Mechanics*, 38(11), 1551-1564, 2017. (DOI: 10.1007/s10483-017-2278-9)

[8] The attitude maneuver of a large space structure based on nonlinear model predictive control (in Chinese), Wu, P. C., Wen, H., Chen T., and Jin, D. P. *The 2nd Academic Conference of Deployable Space Structures*, Beijing, China, 2016.

Professional Service

Publication Reviewer

- IEEE Transactions on Intelligent Transportation Systems
- Journal of Guidance, Control, and Dynamics
- American Control Conference
- IEEE International Conference on Control and Automation
- AIAA Scitech Forum
- AIAA Aviation Forum and Exposition

Conference Attendance/Presentation

- AIAA SciTech Forum 2022 (coming)
- 16th IEEE International Conference on Control and Automation (October 2020)
- AIAA AVIATION Forum and Exposition (June 2020)
- UCSD MAE Graduate Seminar (March 2020)
- Southern California Control Workshop (January 2020)

Academic Society Membership

- Student Member, AIAA (2019 - present)
- Student Member, IEEE HKN (2020 - present)

Teaching Assistant

- AE696 State Space Flight Control

Shenyang

Expertise and Skills

Honors and Awards

- University fellowship 2021-2022
- Admission into IEEE HKN Jan. 2020
- Honors such as Merit Student, Excellent Student Scholarship 2017
- Award of the Excellent Graduate Apr. 2017
- First prize in 2016 Mathematical Modeling Competition Jun. 2016

- Full Scholarship for Master's Degree Sep. 2014
- First prize in the 4th Humanity and Social Science Knowledge Competition for Science and Engineering Students in Jiangsu Province (3/1000) Jun. 2013
- Second prize in Fluid Mechanics Experiment Competition Dec. 2012

REFERENCES AVAILABLE

Dr. Jun Chen (e-mail: jun.chen@sdsu.edu)
- Assistant Professor, Department of Aerospace Engineering
- San Diego State University

Dr. Sonia Martínez (e-mail: soniamd@soe.ucsd.edu)
- Professor, Department of Mechanical and Aerospace Engineering
- University of California San Diego

Dr. Dongping Jin (e-mail: jindp@nuaa.edu.cn)
- Professor, Department of Aerospace Engineering
- Vice director, State Key Laboratory of Mechanics and Control of Mechanical Structures
- Nanjing University of Aeronautics and Astronautics

Dr. Hao Wen (e-mail: wenhao@nuaa.edu.cn)
- Professor, Department of Aerospace Engineering
- Director, Institute of Vibration Engineering
- Nanjing University of Aeronautics and Astronautics