Beibei Ren

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I. Education

March 2010	**Ph.D. in Electrical and Computer Engineering** National University of Singapore, Singapore <u>Thesis</u>: *Adaptive Neural Control of Nonlinear Systems with Hysteresis* <u>Advisors</u>: Prof. Shuzhi Sam Ge & Prof. Tong Heng Lee
March 2004	**M.Eng. in Mechatronics Engineering** Xidian University, China
July 2001	**B.Eng. in Mechatronics Engineering** Xidian University, China

II. Appointments

2013-Present	**Assistant Professor** <u>Institute</u>: Texas Tech University, Lubbock, TX, USA <u>Research Areas</u>: Robust control, renewable energy and grid integration, microgrid control, navigation and control of unmanned aerial vehicles, smart materials-based actuators
2010-2013	**Post-doc** <u>Institute</u>: University of California, San Diego, CA, USA <u>Research Areas</u>: Boundary control of systems modeled by partial differential equations, real-time optimization using extremum seeking, laser pulse shaping and optimization <u>Advisor</u>: Prof. Miroslav Krstic
2009-2010	**Research Fellow** <u>Institute</u>: National University of Singapore, Singapore <u>Research Areas</u>: Vibration control of mooring systems
2004-2005	**Lecturer** <u>Institute</u>: Xidian University, Xi'an, China

III. Honors and Awards

2017	TechConnect National Innovation Award

2017	TTU ME Department Research Award
2017	GLEAMM Innovation Showcase Winner (Third Place, with graduate students)
2017	Texas UAS Summit Poster Competition (Third Place, with graduate student)
2016	Best Session Presentation Award at the 2016 American Control Conference (with graduate student)
2016	Excellent Reviewer, *AIAA Journal of Guidance, Control, and Dynamics*

IV. Media Coverage

2018	*Texas Tech Today* Renewable Grid Integration and Microgrid Control Technology is the Future of Renewable Energy
2018	*TTU Discoveries* Bringing Renewable Energy Seamlessly to the Electric Grid
2018	*Texas Tech Today* Bringing Renewable Energy Seamlessly to the Electric Grid
2017	*Journal of the National Academy of Inventor* Robust Droop Control for Parallel Operated Inverters
2017	*Texas Tech Today* Researcher Recognized with Innovation Award
2017	*everythinglubbock* Texas Tech Researcher Recognized with Innovation Award
2016	*Texas Tech Today* Pushing Boundaries of UAV Control for Extreme Conditions
2016	*ScienceDaily* Pushing boundaries of drone control for extreme conditions
2016	*AZoRoboti* Maximizing the Capabilities of Drones to Suit Extreme Conditions

V. Sponsored Projects (Total amount of my share: $1,348,960)

2017 - 2019	**National Science Foundation, CMMI-1728255** Award: $182,286 (Single PI) Title: *Using Feedback Mechanism to Control Phase Transition of Vanadium Dioxide to Exploit its Full Operating Range*
2015 - 2020	**Texas Emerging Technology Fund** Award: $13,000,000 (Co-PI, share: $926,000) Title: *Supporting the Global Laboratory for Energy Asset Management & Microgrid (GLEAMM)*

2015 - 2018	**National Science Foundation, DGE-1438921** Award: $300,020 (Co-PI, share: $45,003) Title: *SFS: Cyber Security of Industrial Control Systems*
2018 - 2019	**GLEAMM Spark Fund** (Internal Funding) Award: $50,000 (Single PI) Title: *Smart Inverters with Bounded Frequency and Voltage for Microgrids*
2017 - 2018	**GLEAMM Spark Fund** (Internal Funding) Award: $50,000 (Single PI) Title: *Sustainable, Portable, and Efficient Electricity Delivery*
2015 - 2017	**Windar Photonics** Award: $270,687 (Co-PI, share: $67,671) Title: *Windar-TTU Collaboration Proposal*
2017 - 2018	**TTU Seed Grants for Interdisciplinary Research** Award: $140,000 (Co-PI, share: $28,000) Title: *Assessing the Livability and Technological Compatibility of an Independent, Interactive, and Sustainable Water and Power Home Utility System*

VI. Teaching

2013 – 2018 (6 semesters)	***Control of Dynamic Systems* (ME4334, UG)** This course provides an introduction to classical control theory, including classical analysis and design tools in the context of single-input, single-output, linear time-invariant systems
Fall 2014 & Fall 2016	***Control Theory I* (MATH/ME 5312, G)** The course teaches the basic concepts and design methods of linear system theory, which is the core of modern control approaches, such as optimal, robust, adaptive and multi-variable control
Spring 2015 & Spring 2017	***Control Theory II* (MATH/ME 5313, G)** The course teaches an in-depth understanding of nonlinear dynamics and nonlinear control methods
Fall 2017	***Robust Control Theory* (ME6330, new course, G)** This course is offered to systematically present the robust control theory and its applications, which concerns the design of controllers with a guaranteed performance in the face of uncertainties.

VII. Student Supervision

Ph.D. (7)	Jiguo Dai, 2014~2019 (expected)
	Yeqin Wang, 2015~2019 (expected)
	Qi Lu (co-advised), 2015~2019 (expected)
	Sanka Liyanage (co-advised), 2018~2019 (expected)
	Yiting Dong, 2016~2020 (expected)
	Yafeng Wang, 2017~2021 (expected)
	Jinhao Chen, 2013~2016 (transferred to Texas A&M)
M.S. (1)	Chaeeun Kim, 2018~ 2019 (expected)
B.S. (10)	Andreas Dreifuerst, Texas Tech, 2018
	Jacob Mendoza, Texas Tech, 2018
	José Tejeda, visiting student from Colombia, 2017
	Victor Garnica, visiting student from Colombia, 2016
	Nicolas Perez, visiting student from Colombia, 2016
	Eli Garza, Texas Tech, 2015
	Helio Silva Junior, visiting student from Brazil, 2015
	Douglas da Silva, visiting student from Brazil, 2015
	Daniel Pinilla, visiting student from Colombia, 2015
	Isaac Chang, Texas Tech, 2014~2015

VIII. Thesis Committees Served on

Ph.D. (13)	Haopeng Zhang (ME2014), Zhenyi Liu (ME2014), Xianlin Zeng (ME2015), Annasiwatta Chandika (ME2017), Kalana Pothuvila (ME2017), Avik Basu (ME2017), Malini Ghosal (EE2017), Sajjad Abedi (EE2017), Kailiang Zhang (ME2018), Bin Li (ME2018), Brad Howard (ME2018), Çağrı Mert Bakirci (ME2018), Raymond Eghorieta (PE2018)
M.S. (2)	Santosh Yadav (ME2014), Quoc Nguyen (ME2017)

IX. Service

Professional Service

Editorship
- Associate Editor, *IEEE Transactions on Industrial Electronics*, 2018-present
- Associate Editor, *Engineering Applications of Artificial Intelligence*, 2016-present
- Associate Editor, *IEEE Access*, 2013-present
- Associate Editor, IEEE Control Systems Society Conference Editorial Board, 2013-present
- Associate Editor, the ASME Dynamic Systems and Control Conference, 2014-present

Organizer of Workshop
Organizing Committee Member, Texas Systems Day, 2014, 2015, 2017, 2018

Panelist
Addressing Emerging Cyber-Physical Security Challenges and the Microgrid, the GridNext Conference, Georgetown, Texas, 2017

International Program Committee Member
- The 2017 IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Munich, Germany, 2017
- The 2017 Asian Control Conference, Gold Coast, Australia, 2017
- The 3rd IFAC International Conference on Intelligent Control and Automation Science, Chengdu, China, 2013
- The 12th European Control Conference, Zurich, Switzerland, 2013
- The 2012 IEEE/SICE International Symposium on System Integration, Fukuoka, Japan, 2012
- The 2011 IEEE/SICE International Symposium on System Integration, Kyoto, Japan, 2011

Session (co-)Chair
- *Session Chair*, First Principles Modelling, the 2016 American Control Conference, Boston, USA, July 6-8, 2016
- *Session Chair*, Aerospace Applications 1, the 2015 ASME Dynamic Systems and Control Conference, Columbus, Ohio, October 28-30, 2015
- *Session Chair*, Control Applications IV, and *Session Co-Chair*, Output Regulation, the 2015 American Control Conference, Chicago, IL, USA, July 1-3, 2015
- *Session co-Chair*, Nonlinear Control, the 2013 ASME Dynamic Systems and Control Conference, Palo Alto, CA, USA, October 21-23, 2013
- *Session co-Chair*, Agents networks, the 48th IEEE Conference on Decision and Control, Shanghai, China, December 16-18, 2009
- *Session Chair*, Nonlinear Adaptive Control I, the 7th Asian Control Conference (ASCC09), Hong Kong, August 27-29, 2009

Reviewer
- NSF Panelist, 2014, 2016, 2018
- Elsevier book proposal, 2014
- *IEEE Transactions on Automatic Control, IEEE Transactions on Industrial Electronics, IEEE Transactions on Smart Grid, Automatica, IEEE Transactions on Neural Networks, IEEE Transactions on Control Systems Technology, Systems and Control Letters, Control Engineering Practice, IET Control Theory and Applications, AIAA Journal of Guidance, Control, and Dynamics, ASME Journal of Dynamic Systems, Measurement and Control, etc.*

Membership
- IEEE Membership since 2006; IEEE Industrial Electronics Society Membership since 2016; IEEE Control Systems Society Membership since 2009; IEEE Women in Engineering Membership since 2014
- ASME Membership since 2010

Institute Service

2013-2018	Dean's representative for Ph.D. defense of Masaki Ogura (MATH2014), Qiuying Gu (CHE2014), Xin Zhang (CHE2014), Jie Ma (MATH2016), Ataollah Arvani (ECE2016), Md Rakib Uddin (EE2016), Md Rakib Uddin (EE2016), Yang Zhang (IE2017), Zhengyu Peng (EE2018)
2017-2018, 2013-2014	Mechanical Engineering Faculty Search Committee Member
2016-present	Faculty advisor, Raider Aeronautical and Space Society
2016-2017	TechMRT Research Faculty Search Committee Member
2016-2017	NWI Director Search Committee Member
2016	Graduate School Fellowship Application Evaluation Committee Member
2015	Mechanical Engineering Department Seminar Series Coordinator
2014-present	Mechanical Engineering Graduate Committee Member

Public Service

2018	"Dream Big" Engineering Fair (Lubbock Science Spectrum)
2017, 2018	Judge, FIRST Tech Challenge (FTC), Lubbock
2017	Microgrid diorama (Texas Tech Museum)
2016	Judge, FIRST Robotics Competition (FRC), Lubbock
2016	Judge, Get Excited About Robotics (GEAR) Competition
2015, 2016	Instructor, "Science: It's A Girl Thing (SIGT)" Summer Camp, Texas Tech
2015	Instructor, "Super Saturdays", Texas Tech
2015	Project Advisor, Research & Engineering Apprenticeship Program (REAP)

X. Invited Talks
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1. **B. Ren**, "*Flying Dream*", Dream Big Engineering Fair, Lubbock, TX, February 2018.

2. **B. Ren**, "*Wind Energy Systems and Smart Grid Integration*", Energy Innovation Scholars Program, Texas Tech, September 2017.

3. **B. Ren**, "*UDE-Based Robust Droop Control of Inverters in Parallel Operation*", Texas Systems Day 2017, College Station, TX, March 2017.

4. **B. Ren**, "*UDE-Based Robust Droop Control of Inverters in Parallel Operation*", National Wind Institute, Texas Tech, March 2017.

5. **B. Ren**, "*Why Robotics?*" Osher Lifelong Learning Institute (OLLI), Lubbock, TX, April 2016.

6. **B. Ren**, "*Model-Free Control Theory and Application Based on the Uncertainty and Disturbance Estimator*", The University of Texas at San Antonio, February 2016.

7. **B. Ren**, "*Model-Free Control Theory and Application Based on the Uncertainty and Disturbance Estimator*", The University of Houston, November 2015.

8. **B. Ren**, "*Control of Systems with Hysteresis*", Western Digital Corp., August 2014.

9. **B. Ren**, "*UDE-Based Robust Control for a Class of Nonlinear Non-Affine Systems*", Texas Systems Day 2014, College Station, TX, March 2014.

10. **B. Ren**, "*A Short Journey in Control Engineering*", "Follow Me: Your Future in Engineering Speaker Series" sponsored by Halliburton, Texas Tech, February 2014.

XI. Publications

Book
[B1]. **B. Ren**, S. S. Ge, C. Chen, C.-H. Fua and T. H. Lee. *Modeling, Control and Coordination of Helicopter Systems*. Springer, 2012.

Patents
[P1]. Y. Wang and **B. Ren**, "Seamless Mode Change Between Grid-Connected Mode and Islanded Mode for PV Systems", Serial Number. 62/677,437. Filed in May 2018.
[P2]. **B. Ren**, Y. Wang, and Q. Zhong, "UDE-Based Robust Droop Control for Parallel Inverter Operation", Serial Number. 15/698,956. Filed in September 2017.

Journal Papers
[J1]. J. Dai, **B. Ren** and Q. Zhong. UDE-based Backstepping Control for Nonlinear Systems with Mismatched Uncertainties and Disturbances. ***ASME Journal of Dynamic Systems, Measurement and Control***, accepted. 2018
[J2]. Q. Lu, **B. Ren**, and S. Parameswaran. Shipboard Landing Control of a UAV Based on Uncertainty and Disturbance Estimator. ***AIAA Journal of Guidance, Control, and Dynamics***, in press, 2018.
[J3]. Y. Dong, and **B. Ren**. UDE-based Variable Impedance Control of Uncertain Robot Systems. ***IEEE Transactions on Systems, Man, and Cybernetics: Systems***, in press, 2018.
[J4]. J. Dai, and **B. Ren**. UDE-based Robust Boundary Control for an Unstable Parabolic PDE with Unknown Input Disturbance. ***Automatica***, vol. 50, no. 1, pp. 11403-11408. 2018.
[J5]. Y. Wang, and **B. Ren**. Fault Ride-Through Enhancement for Grid-tied PV Systems with Robust Control. ***IEEE Transactions on Industrial Electronics***, vol. 65, no. 3, pp. 2302-2312. 2018.
[J6]. Q. Lu, **B. Ren**, S. Parameswaran and Q. Zhong. Uncertainty and Disturbance Estimator-Based Robust Trajectory Tracking Control for a Quadrotor in a Global Positioning System-Denied Environment. ***ASME Journal of Dynamic Systems, Measurement and Control***, vol. 140, no. 3, pp. 031001. 2018.

[J7]. Q. Zhong, G. C. Konstantopoulos, **B. Ren**, and M. Krstic. Improved Synchronverters with Bounded Frequency and Voltage for Smart Grid Integration. *IEEE Transactions on Smart Grid*, vol. 9, no. 2, pp. 786-796. 2018.

[J8]. **B. Ren**, Y. Wang, and Q. Zhong. UDE-based Control of Variable-speed Wind Turbine Systems. *International Journal of Control*. vol. 90, no. 1, pp. 137-152. 2017.

[J9]. **B. Ren**, Q. Zhong, and J. Dai[Δ]. Asymptotic Reference Tracking and Disturbance Rejection of UDE-Based Robust Control. *IEEE Transactions on Industrial Electronics*, vol. 64, no. 4, pp. 3166-3176. 2017.

[J10].Q. Zhong, Y. Wang, and **B. Ren**. UDE-Based Robust Droop Control of Inverters in Parallel Operation. *IEEE Transactions on Industrial Electronics*, vol. 64, no. 9, pp. 7552-7562. 2017.

[J11].Y. Wang, **B. Ren**, and Q. Zhong. Robust Power Flow Control of Grid-Connected Inverters. *IEEE Transactions on Industrial Electronics*, vol. 63, no. 11, pp.6887-6897. 2016.

[J12].J. Chen, **B. Ren** and Q. Zhong. UDE-based Trajectory Tracking Control of Piezoelectric Stages. *IEEE Transactions on Industrial Electronics*, vol. 63, no. 10, pp.6450-6459. 2016.

[J13].G. C. Konstantopoulos, Q. Zhong, **B. Ren**, and M. Krstic. Bounded Integral Control of Input-to-State Practically Stable Non-linear Systems to Guarantee Closed-loop Stability. *IEEE Transactions on Automatic Control*, vol. 61, no. 12, pp.4196-4202. 2016.

[J14].**B. Ren**, Q. Zhong, and J. Chen. Robust Control for a Class of Non-Affine Nonlinear Systems Based on the Uncertainty and Disturbance Estimator. *IEEE Transactions on Industrial Electronics*. vol. 62, no. 9, pp. 5881–5888. 2015.

[J15].C. Mou, **B. Ren**, Q. Wu, and C.-S. Jiang. Anti-disturbance control of hypersonic flight vehicles with input saturation using disturbance observer. *Science China Information Sciences*. vol. 58, no.7, pp. 1-12. 2015.

[J16].G. C. Konstantopoulos, Q. Zhong, **B. Ren**, and M. Krstic. Stability Analysis and Fail-safe Operation of Inverters Operated in Parallel. *International Journal of Control*. vol. 88, no. 7, pp. 1410-1421. 2015

[J17].G. C. Konstantopoulos, Q. Zhong, **B. Ren**, and M. Krstic. Bounded Droop Controller for Parallel Operation of Inverters. *Automatica*. vol. 53, no. 3, pp.320-328. 2015.

[J18].J.-M. Wang, J. Liu, **B. Ren**, and J. Chen[Δ]. Sliding Mode Control to Stabilization of Cascaded PDE-ODE Systems Subject to Boundary Control Matched Disturbance. *Automatica*. vol.51, no.2, pp. 23-34. 2015.

[J19].**B. Ren**, J.-M. Wang, and M. Krstic. Stabilization of an ODE-Schrodinger Cascade. *Systems and Control Letters*, vol. 62, no. 6, pp. 503-510. 2013.

[J20].**B. Ren**, P. Frihauf, R. J. Rafac, and M. Krstic. Laser pulse shaping via extremum seeking. *Control Engineering Practice*. vol. 20, no. 7, pp. 674-683. 2012.

[J21].J.-M. Wang, **B. Ren**, and M. Krstic. Stabilization and Gevrey Regularity of a Schrodinger Equation in Boundary Feedback with a Heat Equation. *IEEE Transactions on Automatic Control*. vol. 57, no. 1, pp. 179-185. 2012.

[J22].R. Cui, **B. Ren**, and S. S. Ge. Synchronized Tracking Control of Multi-Agent System with High-Order Dynamics. *IET Control Theory and Applications*. vol. 6, no. 5, pp. 603-614. 2012.

[J23].K. P. Tee, **B. Ren**, and S. S. Ge. Control of Nonlinear Systems with Time-Varying Output Constraints. *Automatica*. vol. 47, no. 11, pp. 2511-2516. 2011.

[J24]. P. P. San, **B. Ren**, S. S. Ge, and T. H. Lee. Adaptive Neural Network Control of Hard Disk Drives with Hysteresis Friction Nonlinearity. *IEEE Transactions on Control Systems Technology*. vol. 19, no. 2, pp. 351-358. 2011.

[J25]. M. Chen, S. S. Ge, and **B. Ren**. Adaptive Tracking Control of Uncertain MIMO Nonlinear Systems with Input Constraints. *Automatica*. vol. 47, no. 3, pp. 452-465. 2011.

[J26]. M. Chen, S. S. Ge, and **B. Ren**. Robust Attitude Control of Helicopters with Actuator Dynamics Using Neural Networks. *IET Control Theory and Applications*. vol. 4, no. 12, pp. 2837-2854. 2010.

[J27]. **B. Ren**, S. S. Ge, K. P. Tee, and T. H. Lee. Adaptive Neural Control for Output Feedback Nonlinear Systems Using a Barrier Lyapunov Function. *IEEE Transactions on Neural Networks*. vol. 21, no.8, pp. 1339-1345. 2010.

[J28]. **B. Ren**, S. S. Ge, T. H. Lee, and C.-Y. Su. Adaptive Neural Control for a Class of Nonlinear Systems with Uncertain Hysteresis Inputs and Time-Varying State Delays. *IEEE Transactions on Neural Networks*. vol. 20, no.7, pp. 1148-1164. 2009.

[J29]. **B. Ren**, S. S. Ge, C.-Y. Su and, T. H. Lee. Adaptive Neural Control for a Class of Uncertain Nonlinear Systems in Pure-Feedback Form with Hysteresis Input. *IEEE Transactions on Systems, Man, and Cybernetics-Part B: Cybernetics*. vol. 39, no. 2, pp. 431-443. 2009.

[J30]. S. S. Ge, **B. Ren**, K. P. Tee, and T. H. Lee. Approximation Based Control of Uncertain Helicopter Dynamics. *IET Control Theory and Applications*. vol. 3, no. 7, pp. 941-956. 2009.

[J31]. F. Hong, S. S. Ge, **B. Ren**, and T. H. Lee. Robust Adaptive Control for a Class of Uncertain Strict-Feedback Nonlinear Systems. *International Journal of Robust and Nonlinear Control*. vol. 19, no. 7, pp. 746-767. 2009.

[J32]. S. S. Ge, **B. Ren**, and T. H. Lee. Hard Disk Drives Control in Mobile Applications. *Journal of Systems Science and Complexity*. vol. 20, no. 2, pp. 215-224. 2007.

Refereed Conference Papers

[C1]. Y. Wang, **B. Ren** and Q. Zhong. Bounded Integral Controller for MIMO Nonlinear Systems with Inputs Constraint. In *Proceedings of the 2018 American Control Conference*, Milwaukee, USA, June 27–29, 2018.

[C2]. J. Dai, **B. Ren** and Q. Zhong. Output Feedback Trajectory Tracking Control via Uncertainty and Disturbance Estimator. In *Proceedings of the 2018 American Control Conference*, Milwaukee, USA, June 27–29, 2018.

[C3]. R. Guo, J. Dai and **B. Ren**. Robust Tracking for a Class of Uncertain Switched Linear Systems Based on the Uncertainty and Disturbance Estimator. In *Proceedings of the 2017 Asian Control Conference*, Gold Coast, Australia, December 17-20, 2017.

[C4]. J. Yan, Z. Peng, H. Hong, X. Zhu, Q. Lu, **B. Ren**, and C. Li. Indoor Range-Direction-Movement SAR for Drone-based Radar Systems. In *Proceedings of the 2017 IEEE Asia Pacific Microwave Conference*, Kuala Lumpur, Malaysia, November 13-16, 2017.

[C5]. Y. Wang, **B. Ren** and Q. Zhong. Bounded-voltage Power Flow Control for Grid-tied PV Systems. In *Proceedings of the 20th World Congress of the International Federation of Automatic Control*, Toulouse, France, July 9-14, 2017.

[C6]. J. Dai, **B. Ren**. UDE-based Boundary Control of Heat Equation with Unknown Input Disturbance. In *Proceedings of the 20th World Congress of the International Federation of Automatic Control*, Toulouse, France, July 9-14, 2017.

[C7]. Y. Wang, **B. Ren** and Q. Zhong. Robust Control of DC-DC Boost Converters for Solar Systems. In *Proceedings of the 2017 American Control Conference*, Seattle, USA, May 24-26, 2017.

[C8]. J. Chen, **B. Ren**, and Q. Zhong. High Bandwidth Control of a Piezoelectric Stage in the Presence of Rate-Dependent Hysteresis. In *Proceedings of the 2016 ASME Information Storage and Processing Systems Conference*, Santa Clara, USA, June 20-21, 2016.

[C9]. Q. Lu, **B. Ren**, S. Parameswaran and Q. Zhong. Robust Position Control of a Quadrotor Using Onboard Optical Flow Sensor. In *Proceedings of the 2016 ASME Dynamic Systems and Control Conference*, Minneapolis, USA, October 12-14, 2016.

[C10]. J. Dai, **B. Ren** and Q. Zhong. UDE-based Robust Control for Nonlinear Systems with Mismatched Uncertainties and Input Saturation. In *Proceedings of the 2016 Chinese Control Conference*, Chengdu, China, July 27-29, 2016.

[C11]. Y. Wang, Q. Zhong and **B. Ren**. Robust Control for Parallel Operated L-Inverters with Uncertainty and Disturbance Estimator. In *Proceedings of the 2016 IEEE Energy Conversion Congress & Exposition*, Milwaukee, USA, September 18-22, 2016.

[C12]. Y. Wang, **B. Ren** and Q. Zhong. Robust Power Flow Control of Grid-tied Inverters Based on the Uncertainty and Disturbance Estimator. In *Proceedings of the 2016 American Control Conference*, Boston, USA, July 6-8, 2016.

[C13]. J. Dai, **B. Ren** and Q. Zhong. UDE-based Dynamic Surface Control for Strict-feedback Systems with Mismatched Disturbances. In *Proceedings of the 2016 American Control Conference*, Boston, USA, July 6-8, 2016.

[C14]. A. W. C. D. Annasiwatta, J. Chen, J. M. Berg, A. Bernussi, Z. Fan and **B. Ren**. Modeling Hysteresis in Vanadium Dioxide Thin Films. In *Proceedings of the 2016 American Control Conference*, Boston, USA, July 6-8, 2016.

[C15]. J. Dai, Q. Lu, **B. Ren**, and Q. Zhong. Robust Attitude Tracking Control for a Quadrotor Based on the Uncertainty and Disturbance Estimator. In *Proceedings of the 2015 ASME Dynamic Systems and Control Conference*, Columbus, USA, October 28-30, 2015.

[C16]. S. Liyanage, J. M. Berg, **B. Ren**, and D. H. S. Maithripala. Intrinsic UDE Control of Mechanical Systems on SO(3). In *Proceedings of the 2015 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Busan, Korea, July 7-11, 2015.

[C17]. G. Konstantopoulos, Q. Zhong, **B. Ren**, and M. Krstic. Boundedness of Synchronverters. In *Proceedings of the 2015 European Control Conference*, Linz, Austria, July 15-17, 2015.

[C18]. J. Chen, **B. Ren**, and Q. Zhong. Hysteresis Compensation in Piezoelectric Actuator Positioning Control Based on the Uncertainty and Disturbance Estimator. In *Proceedings of the 2015 American Control Conference*, Chicago, IL, USA, July 1-3, 2015.

[C19]. G. Konstantopoulos, Q. Zhong, **B. Ren**, and M. Krstic. Bounded Integral Control for Regulating Input-to-state Stable Non-linear Systems. In *Proceedings of the 2015 American Control Conference*, Chicago, IL, USA, July 1-3, 2015.

[C20]. J.-M. Wang, L.-L. Wang, J.-J. Liu, and **B. Ren**. Stabilization of a Cascade System of ODE-PDE Subject to Boundary Control Matched Disturbance. In *Proceedings of the 11th World Congress on Intelligent Control and Automation*, Shenyang, China, June 29 - July 4, 2014.

[C21]. G. C. Konstantopoulos, Q. Zhong, **B. Ren**, and M. Krstic. Bounded Droop Controller for Accurate Load Sharing Among Paralleled Inverters. In *Proceedings of the 2014 American Control Conference*, Portland, USA, June 4-6, 2014.

[C22]. **B. Ren** and Q. Zhong. UDE-based Robust Control of Variable-Speed Wind Turbines. In *Proceedings of the 39th Annual Conference of the IEEE Industrial Electronics Society*, Vienna, Austria, November 10-13, 2013.

[C23]. **B. Ren** and Q. Zhong. UDE-based Robust Control for a Class of Non-affine nonlinear systems. In *Proceedings of the 2013 ASME Dynamic Systems and Control Conference*, Palo Alto, CA, USA, October 21-23, 2013.

[C24]. **B. Ren**, S. S. Ge, T. H. Lee, and M. Krstic. Region Tracking Control for Multi-Agent Systems with High-Order Dynamics. In *Proceedings of the 2013 American Control Conference*, Washington, DC, USA, June 17-19, 2013.

[C25]. **B. Ren**, J.-M. Wang, and M. Krstic. Stabilization of an ODE-Schrodinger Cascade. In *Proceedings of the 2012 American Control Conference*, Montreal, Canada, June 27- 29, 2012.

[C26]. **B. Ren**, P. Frihauf, M. Krstic, and R. J. Rafac. Laser pulse shaping via iterative learning control and infinite-dimensional extremum seeking. In *Proceedings of the 2011 ASME Dynamic Systems and Control Conference*, Arlington, VA, USA, October 31-Nov 2, 2011.

[C27]. J.-M. Wang, **B. Ren**, and M. Krstic. Stabilization of coupled Schrodinger and heat equations with boundary coupling. In *Proceedings of the 30th Chinese Control Conference*, Yantai, China, July 22-24, 2011.

[C28]. S. S. Ge, W. He, **B. Ren**, and Y. S. Choo. Boundary Control of a Flexible Marine Installation System. In *Proceedings of the 49th IEEE Conference on Decision and Control*, Atlanta, GA, USA, December 15-17, 2010.

[C29]. R. Cui, S. S. Ge, and **B. Ren**. Synchronized Tracking Control of Multi-Agent System with Limited Information. In *Proceedings of the 49th IEEE Conference on Decision and Control*, Atlanta, GA, USA, December 15-17, 2010.

[C30]. R. Cui, S. S. Ge, and **B. Ren**. Synchronized Altitude Tracking of Multiple Unmanned Helicopters. In *Proceedings of the 2010 American Control Conference*, Baltimore, MD, USA, June 30-July 02, 2010.

[C31]. **B. Ren**, H. Pei, Z. Sun, S. S. Ge, and T. H. Lee. Decentralized Cooperative Control for Swarm Agents with High-Order Dynamics. In *Proceedings of the 2009 IEEE International Conference on Automation and Logistics*, Shenyang, China, August 5-7, 2009.

[C32]. **B. Ren**, S. S. Ge, Y. Li, Z. X. Jiao, J. K. Liu, and T. H. Lee. Target Region Tracking for Multi-Agent Systems. In *Proceedings of the 7th Asian Control Conference*, Hong Kong, China, August 27-29, 2009.

[C33]. K. P. Tee, S. S. Ge, H. Li, and **B. Ren**. Control of Nonlinear Systems with Time-Varying Output Constraints. In *Proceedings of the 7th IEEE International Conference on Control & Automation*, Christchurch, New Zealand, December 9-11, 2009.

[C34]. **B. Ren**, S. S. Ge, K. P. Tee, and T. H. Lee. Adaptive Control for Parametric Output Feedback Systems with Output Constraint. In *Proceedings of the Joint 48th IEEE Conference on Decision and Control and 28th Chinese Control Conference*, Shanghai, China, December 16-18, 2009.

[C35]. **B. Ren**, P. P. San, S. S. Ge, and T. H. Lee. Adaptive Dynamic Surface Control for a Class of Strict-Feedback Nonlinear Systems with Unknown Backlash-Like Hysteresis. In *Proceedings of the 2009 American Control Conference*, St. Louis, USA, June 10-12, 2009.

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