

# HAI LIN

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## EDUCATION

Ph.D., University of Notre Dame, USA, Electrical Engineering Aug. 2005  
M.S., University of Notre Dame, USA, Electrical Engineering May. 2002  
M.S., Chinese Academy of Sciences, China, Systems and Control July. 2000  
B.S., University of Science and Technology Beijing, China, Automatic Control July. 1997

## RESEARCH INTEREST

My primary research goal is to build a rigorous fundamental theories for a **scalable formal design of the next generation engineering systems**, such as future transportation systems, smart grids, Industry 4.0 and Internet of Things, with safety/performance guarantees even in uncertain and dynamic environments. For this, I pursue a multidisciplinary approach leveraging synergistic ideas from control theory, formal methods, machine learning, and mathematics. Beyond theoretical studies, we are using **cooperative robotic systems** and **human-machine collaboration** as working examples to motivate our theoretical studies, validate our scientific findings, and demonstrate our proposed design algorithms.

## WORKING EXPERIENCE

Professor, University of Notre Dame June 2019 - Present  
Associate Professor, University of Notre Dame June 2015 - June 2019  
Assistant Professor, University of Notre Dame Jan. 2012 - May 2015  
Assistant Professor, National University of Singapore May 2006 - Dec. 2011  
Postdoctoral Research Associate, University of Notre Dame Sep. 2005 - May 2006

## TEACHING EXPERIENCE

Formal Methods Spring, 2019  
Signals and Systems Fall, 2016 - 2019  
Advanced Control Systems Spring, 2015, 2016, 2017  
Hybrid Dynamical Systems Spring, 2012 - 2013, 2018; Fall, 2015,  
Cyber-Physical Systems: Verification Fall, 2014  
Discrete Event Systems Spring, 2014  
Control Systems Fall, 2012 - 2013  
Modeling for Mechatronic Systems Fall, 2008 - 2011  
Matlab and Labview for EE Spring, 2008 - 2011  
Signals Spring & Fall, 2006 - 2011  
Analytical Methods Spring, 2007

## PROFESSIONAL ACTIVITIES

**Editorial Work:** Associate Editor for IEEE Transactions on Automatic Control (2016-present); Associate Editor for Unmanned Systems (2012-present); Associate Editor for Control Theory and Technology (2013-present); Associate Editor for Journal of Intelligent & Robotic Systems (2012-2017); Associate Editor for IEEE Conference Editorial Board (2008-present).

**Committee Work:** Committee Chair for IEEE CSS Discrete Event Systems Technical Committee (2016-present); Committee member for IFAC Technical Committee on Discrete Event and Hybrid Systems (2012-present); Program Committee member for American Control Conference (2018); Publication Chair for the 14th IEEE International Conference on Control & Automation (ICCA) 2018; Publication Chair for the 13th IEEE International Conference on Control & Automation (ICCA) 2017; Publication Chair for the 12th IEEE International Conference on Control & Automation (ICCA) 2016; Program committee member for the 5th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS) 2015; Publication Chair for ICCA 2014 and 2013; Registration Chair for the 21st Mediterranean Conference on Control and Automation (MED), 2013; Program Chair for the 9th IEEE International Conference on Control & Automation (ICCA) 2011; Program Chair for the 5th IEEE International Conference on Cybernetics and Intelligent Systems (CIS) 2011; Program Chair for the 4th IEEE International Conference on Cybernetics and Intelligent Systems (CIS) 2010; Registration Chair for ICCA 2009 and 2010, etc.

**Society Work:** Chair, IEEE Systems, Man and Cybernetics Singapore Chapter (2009, 2010); Vice-Chair, IEEE Systems, Man and Cybernetics Singapore Chapter (2011); Financial Chair, IEEE Systems, Man and Cybernetics Singapore Chapter (2007-2009).

**Invited Talks:** Invited talk at the Michigan State University, MI, October 2018; Invited talk at the North Carolina A&T State University, NC, May 2018; Invited talk at the Beihang University, China, May 2018; Invited keynote speaker at the Beijing Institute of Technology, China, May 2018; Invited summer school lectures at the Qingdao University, China, May 2018; Invited lectures at the Academy of Mathematics and Systems Science, Chinese Academy of Sciences, June 2017; Invited talk at the University of Science and Technology China, June 2017; Invited talk at the Southeast University, June 2017; Invited talk at the University of Science and Technology Beijing, June 2017; Invited talk at the South China University of Technology, June 2017; Invited talks and summer school lectures at the Academy of Mathematics and Systems Science, Chinese Academy of Sciences, June 2016; Invited summer school lectures at the University of Chinese Academy of Sciences, June 2016; Invited talk at Tsinghua University, June 2016; Invited talk at Beijing Jiaotong University, June 2016; Invited talk at Purdue University, April 2016; Invited lectures at the Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Aug 2015; Invited talk at the University of Connecticut, Oct 2014; Invited talk at the Mitsubishi Electric Research Laboratories in Boston, Oct 2014; Invited summer school lectures at the University of Science and Technology, China, July 2014; Invited panel talk at the 30th IEEE International Conference on Data Engineering, Chicago, March 31-April 4, 2014; Invited talk at the University of Denver, November 2013; Invited talk at the 2nd Midwest Workshop on Game and Control Theory, Notre Dame, April 2013; Invited visit and talk at the University of Denver, May 2012; Invited talk at the 1st Midwest Workshop on Game and Control Theory, UIUC, April 2012; Invited talk at the Northeastern University, September 2011; Invited talk at the Boston University, June 2011; Invited Speaker for the 2010 Summer School on Intelligent Robotics, Chengdu, August 2010; Invited keynote for the 1st International Workshop on Control Systems Science and Engineering, Chengdu, August 2010; Invited Speaker for the International Workshop on Recent Advances in Control Engineering and Sciences, Xiamen, August 2010; Invited talk at the Nanyang Technological University, Singapore, April 2008, etc.

**Panelist:** for National Science Foundation of USA (2012-present).

**Book Reviewer:** for IEEE Transactions on Automatic Control.

**Membership:** IEEE Senior Member (2010-present); IEEE Member (2005-2010).

## FUNDED PROJECTS

### On-going Projects

1. NSF NRI: INT: COLLAB: Interactive and collaborative robot-assisted emergency evacuations, 1,500,000 USD (ND share 501K, single PI from ND), 2018-2022.
2. NSF S&AS: INT: COLLAB: Composable and Verifiable Design for Autonomous Humanoid Robots in Space Missions, 1,400,000 USD (ND share 460K, single PI from ND), 2017-2021.
3. NSF CAREER: Multi-robot cooperative tasking through local coordination design (PI), 400,000 USD, 2013-2018.
4. ARO: Distributed Control of Cooperative Multi-Agent Systems: Combined Top-down and Bottom-up Design (co-PI), 360,000 USD, 2016-2019.

### Completed Projects

1. NSF CPS Synergy: Dependable Multi-Robot Cooperative Tasking in Uncertain and Dynamic Environments (Lead-PI), 1,400,000 USD (ND share 900K), 2015-2018.
2. NSF CPS Synergy: Resilient Wireless Sensor-Actuator Networks (co-PI), 1,000,000 USD, 2012-2016.
3. TL: Coordination and Control of Multi-Robot Systems: Hybrid System Approaches (PI), at NUS, 2009-2012.
4. TDSI: Development of a Sophisticated 3D Indoor Navigation System for UAVs (co-PI), at NUS, 2010-2012.
5. TDSI: Cooperative Reconfiguration Control for Multiple UAVs (PI), at NUS, 2008-2011.
6. NUS: The Regulatory Effects of miRNAs in Glioma Cells: Systems Biology Approach (PI), at NUS, 2007-2008.
7. FRC: Efficient Controller Synthesis for Uncertain Hybrid Systems (PI), at NUS, 2006-2009.

### SUPERVISED STUDENTS

#### Graduate Students at the University of Notre Dame

Alireza Partovi, <i>Reactive Synthesis</i> , Ph.D. Student (2012-Present)	On-going
Rafael RodriguesDaSilva, <i>Integrated task and motion planning</i> , Ph.D. Student (2014-Present)	On-going
Zhiyu Liu, <i>Formal Design of Swarms</i> , Ph.D. Student (2015-Present)	On-going
Wei Zheng, <i>Human robot coordination</i> , Ph.D. Student (2016-Present)	On-going
Vince Kurtz, <i>Intelligent Physical Systems</i> , Ph.D. Student (2017-Present)	On-going
Tongjia Zheng, <i>Complex networks</i> , Ph.D. Student (2017-Present)	On-going
Jin Dai, <i>Resilient cyber-physical systems</i> , Ph.D. Student (2012-2019)	Graduated
Bo Wu, <i>Formal methods in Markovian Systems</i> , Ph.D. (2011-2018)	Graduated
Xiaobin Zhang, <i>Human-machine collaboration</i> , Ph.D. (2012-2017)	Graduated
Grigoriy Dubrovskiy, <i>Intelligent Physical Systems</i> , M.S. (2015-2017)	Graduated
Trevor Logan, <i>Robot perception</i> , M.S. (2015-2017)	Graduated
Yinhao Zhu, <i>Deep Learning</i> , M.S. (2014-2016)	Graduated
Samuel Silva, <i>Formation control</i> , M.S. (2014-2016)	Graduated

#### Undergraduate Students at the University of Notre Dame

Jordan Lada, <i>Robotic grasping</i> , Undergraduate research (2017-present)	On-going
Benjamin Johnson, <i>Robot motion planning</i> , Undergraduate research (2018-present)	On-going
Riley Egan, <i>SLAM</i> , Undergraduate research (2018-present)	On-going
Yann Gilpin, <i>Drone motion planning</i> , Undergraduate research (2018-present)	On-going
Eric FernandezSalas, <i>Robotic grasping</i> , Undergraduate research (2018-present)	On-going
Parker Imlay, <i>Robot motion planning</i> , Undergraduate research (2018-present)	On-going
Zhaoyuan Fang, <i>SLAM</i> , Undergraduate research (2018-present)	On-going

Shannon Garvey, *Robot motion planning*, Undergraduate research (2018-present) On-going

### Visiting Students and Scholars at the University of Notre Dame

Junhui Zhang, *Cyber-Physical Systems*, Ph.D. Exchange Student (2019-2019) On-going

Lei Tian, *Multi-agent systems*, Ph.D. Exchange Student (2019-2020) On-going

Xianzhu Liu, *Controllability of Multi-agent systems*, Visiting Scholar (2019-2020) On-going

Zhengshun Fei, *Fault detection*, Visiting Scholar (2018-2019) On-going

Taifang Li, *Distributed optimization*, Visiting Scholar (2018-2019) On-going

Zhongjiao Shi, *Multi-robot coordination*, Ph.D. Exchange Student (2017-2019) On-going

Heng Lin, *Smart manufacturing*, Visiting Scholar (2016-present) On-going

Wenjuan Li, *Computer vision*, Visiting Scholar (2018-2019) Complete

Zhijie Liu, *Control of flexible objects*, Ph.D. Exchange Student (2017-2018) Complete

Jiankun Sun, *Learning from demonstration*, Ph.D. Exchange Student (2016-2018) Complete

Yan Yang, *Formal synthesis*, Ph.D. Exchange Student (2016-2018) Complete

Qiang Ling, *Networked control systems*, visiting scholar (2016-2017) Complete

Shilu Dai, *Learning based control*, visiting scholar (2016-2017) Complete

Qian Liu, *Formal methods in control*, Ph.D. Exchange Student (2015-2017) Complete

Junhui Liu, *Hybrid optimal control*, Ph.D. Exchange Student (2015-2016) Complete

Kangling Liu, *Fault tolerant control*, Ph.D. Exchange Student (2015-2016) Complete

Shuo Li, *Switched systems*, Ph.D. Exchange Student (2015) Complete

Taifang Li, *Distributed optimization*, Ph.D. Exchange Student (2012-2013) Complete

Xunlin Zhu, *Fuzzy Logic Control*, visiting scholar (2014-2015) Complete

Dan Ma, *Switched systems*, visiting scholar (2012) Complete

### Students Supervised at the National University of Singapore

Xiaoyang Li, *Stochastic control systems*, Ph.D. (2008-2013) Graduated

Ali Karimadini, *Hybrid control for unmanned aerial vehicles*, Ph.D. (2008-2013) Graduated

Xiaomeng Liu, *Multi-robot coordination*, Ph.D. (2008-2012) Graduated

Yajuan Sun, *Hybrid symbolic control*, Ph.D. (2008-2012) Graduated

Zhengui Xue, *Quantum feedback control*, Ph.D. (2008-2012) Graduated

Mohammad Karimadini, *Cooperative tasking in multi-agent systems*, Ph.D. (2007-2012) Graduated

Yang Yang, *Systems biology research*, Ph.D. (2006-2011) Graduated

Alireza Partovi, *Micro aerial vehicles design and flight control*, M.Eng. (2009-2012) Graduated

Jin Yao, *Vision-based navigation for unmanned aerial vehicles*, M.Eng. (2010-2012) Graduated

Zamani Mohsen, *Controllability of multi-agent systems*, M.Eng. (2007-2009) Graduated

## PUBLICATIONS

### Invited Book Review

[BR-1] H. Lin, Review of the book *Switched Linear Systems: Control and Design* (Z. Sun and S.S. Ge, London: Springer-Verlag, 2005), *IEEE Transactions on Automatic Control*, vol. 51, no. 9, pp. 1585-1586, 2006.

[BR-2] H. Lin, Review of the book *Constrained Optimal Control of Linear and Hybrid Systems* (Francesco Borelli, Berlin: Springer-Verlag, 2003), *IEEE Transactions on Automatic Control*, vol. 50, no. 7, pp. 1069-1070, 2005.

### Book Chapters

- [BC-1] A. Karimodini, G. Cai, B. M. Chen, H. Lin, and T. H. Lee, “Hierarchical control design of a UAV helicopter,” in *Advances in Flight Control Systems*, Chp 12, , pp.239-260, INTECH, 2011.
- [BC-2] H. Lin and P. J. Antsaklis, “Hybrid dynamical systems: Stability and stabilization,” Chapter 30 in *The Control Handbook*, W. S. Levine Ed., 2010. (Invited Chapter)
- [BC-3] H. Lin and P. J. Antsaklis, “Robust regulation of polytopic uncertain linear hybrid systems with networked control system applications,” Chapter in *Stability and Control of Dynamical Systems with Applications*, D. Liu and P. J. Antsaklis Eds., Chp. 4, pp. 83-108, Birkhäuser, 2003. (Invited Chapter)

### Editorial for Journal

- [Ed-1] H. Lin, C. Xiang, and Q. Ling, *Control Theory and Technology*, Vol. 14, no. 4, pp. 261-262, 2016.
- [Ed-2] H. Lin and Z. Ji, *Transactions of the Institute of Measurement and Control*, Vol. 32, no. 5, pp. 443-444, 2010.

### Journal Papers

- [J-1] Rafael Rodrigues da Silva, Vince Kurtz, and H. Lin, “Active Perception and Control from Temporal Logic Specifications,” *IEEE Control Systems Letters*, Vol. 3, Issue 4, Pages 1068-1073, 2019.
- [J-2] W. Zheng and H. Lin, “Vector Autoregressive POMDP Model Learning and Planning for Human-Robot Collaboration,” *IEEE Control Systems Letters*, Vol. 3, Issue 3, Pages 775 - 780, 2019.
- [J-3] X. Zhang and H. Lin, “Performance guaranteed human-robot collaboration with POMDP supervisory control,” *Robotics and Computer-Integrated Manufacturing*, Volume 57, Pages 59-72, 2019.
- [J-4] S. Dai, S. He, H. Lin, and C. Wang, “Transverse function control with prescribed performance guarantees for under-actuated marine surface vehicles,” *International Journal of Robust and Non-linear Control*, Vol. 29, Issue 5, Pages 1577-1596, 2019.
- [J-5] B. Wu, X. Zhang and H. Lin, “Permissive Supervisor Synthesis for Markov Decision Processes through Learning,” accepted by *IEEE Transactions on Automatic Control*, 2018.
- [J-6] Q. Li, H. Lin, Xi Tan, and S. Du “ $H_\infty$  Consensus for Multi-Agent Based Supply Chain Systems under Switching Topology and Uncertain Demands,” accepted by *IEEE Transactions on Systems Man and Cybernetics: Systems*, 2018.
- [J-7] B. Wu and H. Lin, “Privacy Verification and Enforcement via Belief Abstraction,” *IEEE Control Systems Letters*, vol. 2, no. 4, pp. 815-820, 2018.
- [J-8] S. Dai, S. He, H. Lin, and C. Wang, “Platoon Formation Control With Prescribed Performance Guarantees for USVs,” *IEEE Transactions on Industrial Electronics*, vol. 65, no. 5, pp. 4237-4246, 2018.
- [J-9] Q. Li and H. Lin, “ $H_\infty$  Control of Two-Time-Scale Markovian Switching Production-Inventory Systems,” *IEEE Transactions on Control Systems Technology*, vol. 26, no. 3, pp. 1065-1073, 2018.
- [J-10] B. Wu, M. Lemmon, and H. Lin, “Formal methods for stability analysis of networked control systems with IEEE 802.15.4 protocol,” *IEEE Transactions on Control Systems Technology*, Volume: 26, Issue: 5, pp. 1635 - 1645, 2018.

- [J-11] Q. Ling, W. Zheng, and H. Lin, “An Iterative Method for Control Gain Design of Multiagent Systems With Process Noise,” *IEEE Transactions on Control Systems Technology*, vol. 25, no. 5, pp. 1905-1911, 2017.
- [J-12] S. Zhao, H. Lin, J. Sun, and L. Zhou, “Implicit Lyapunov-based control strategy for closed quantum systems with dipole and polarizability coupling,” *International Journal of Robust and Nonlinear Control*, vol. 27, no. 17, pp. 3886-3903, 2017.
- [J-13] K. Liu, H. Lin, Z. Fei, and J. Liang, “Spatiallytemporally online fault detection using timed multivariate statistical logic,” *Engineering Applications of Artificial Intelligence*, vol. 65, pp. 51-59, October 2017.
- [J-14] S. Li and H. Lin, “On l1 stability of switched positive singular systems with time-varying delay,” to appear in *International Journal of Robust and Nonlinear Control*, vol. 27, no. 16, pp. 2798-2812, 2017.
- [J-15] W. Zheng, Q. Ling, and H. Lin, “A novel gain design method to improve the consensus performance of output-feedback multi-agent systems,” *Control Theory and Technology*, vol. 14, no. 4, pp. 335-346, 2016 (invited submission).
- [J-16] Q. Li and H. Lin, “Effects of Mixed-Modes on the Stability Analysis of Switched Time-Varying Delay Systems,” *IEEE Transactions on Automatic Control*, vol. 61, no. 10, pp. 3038-3044, 2016.
- [J-17] S. Li, H. Lin, and H. R. Karimi “State estimation on positive Markovian jump systems with time-varying delay and uncertain transition probabilities,” *Information Sciences*, vol. 369, pp. 251-266, 2016.
- [J-18] X. Zhu and H. Lin, “Sampled-data fuzzy stabilization of nonlinear systems under nonuniform sampling,” *IEEE Transactions on Fuzzy Systems*, vol. 24, no. 6, pp. 1654-1667, 2016.
- [J-19] M. Karimadini, A. Karimodini, and H. Lin, “Cooperative tasking for deterministic specification automata,” *Asian Journal of Control*, vol. 18, no. 6, pp. 2078-2087, 2016.
- [J-20] T. Li, H. Lin, and J. Zhao, “Cooperative optimization with inseparable cost functions,” *IET Control Theory & Applications*, vol. 9, no. 16, pp. 2430-2437, 2015.
- [J-21] Z. Ji, H. Lin, and H. Yu, “Protocols design and uncontrollable topologies construction for multi-agent networks,” *IEEE Transactions on Automatic Control*, vol. 60, no. 3, pp. 781-786, 2015.
- [J-22] K. Liu, Z. Fei, B. Yue, J. Liang, and H. Lin, “Adaptive sparse principal component analysis for enhanced process monitoring and fault isolation,” *Chemometrics and Intelligent Laboratory Systems*, vol. 146, pp. 426-436, 2015.
- [J-23] Q. Quan, K.Y. Cai, and H. Lin, “Additive-state-decomposition-based tracking control framework for a class of nonminimum phase systems with measurable nonlinearities and unknown disturbances,” *International Journal of Robust and Nonlinear Control*, vol. 25, no. 2, pp. 163-178, 2015.
- [J-24] A. Karimodini and H. Lin, “Hierarchical hybrid symbolic robot motion planning and control,” *Asian Journal of Control*, vol. 17, no. 1, pp. 23-33, 2015.
- [J-25] H. Lin and P. J. Antsaklis, “Hybrid dynamical systems: An introduction to control and verification,” *Foundations and Trends in Systems and Control*, vol 1, no. 1., pp. 1-172, 2014.
- [J-26] H. Lin, “Mission Accomplished: An introduction to formal methods in mobile robot motion planning and control,” *Unmanned Systems*, vol 2, no. 2., pp. 201-216, 2014. (invited survey)

- [J-27] Y. Sun, H. Lin, and B. M. Chen, “Bisimilarity enforcing supervisory control for deterministic specifications,” *Automatica*, vol. 50, no. 1, pp. 287-290, 2014.
- [J-28] A. Karimoddini, H. Lin, B. M. Chen, and T. H. Lee, “Hierarchical hybrid modeling and control of an unmanned helicopter,” *International Journal of Control*, vol. 87, No. 9, pp. 1779-1793, 2014.
- [J-29] Q. Quan, H. Lin, and K.Y. Cai, “Output feedback tracking control by additive state decomposition for a class of uncertain systems,” *International Journal of Systems Science*, vol. 45, no. 9, pp. 1799-1813, 2014.
- [J-30] J. Dai and H. Lin, “A learning-based synthesis approach to decentralized supervisory control of discrete event systems with unknown plants,” *Control Theory and Technology*, vol. 12, no. 3, pp. 218-233, 2014. (invited contribution)
- [J-31] X. Liu, H. Lin, and B. M. Chen, “Structural controllability of switched linear systems,” *Automatica*, vol. 49, no. 12, pp. 3531-3537, 2013.
- [J-32] Z. Xue, H. Lin, and T. H. Lee, “Identification of unknown parameters for a class of two-level quantum systems,” *IEEE Transactions on Automatic Control*, vol. 58, no. 7, pp. 1805-1810, 2013.
- [J-33] A. Karimoddini, H. Lin, B. M. Chen, and T. H. Lee, “Hybrid three-dimensional formation control for unmanned helicopters,” *Automatica*, vol. 49 no. 2, pp. 424-433, 2013.
- [J-34] X. Liu, H. Lin, and B. M. Chen, “Graph-theoretic characterizations of structural controllability for multi-agent system with switching topology,” *International Journal of Control*, vol. 86, no. 2, pp. 222-231, 2013.
- [J-35] A. Karimoddini, H. Lin, B. M. Chen, and T. H. Lee, “A Bumpless Hybrid Supervisory Control Algorithm for the formation of Unmanned Helicopters,” *Mechatronics*, vol. 23, no. 6, pp. 677-688, 2013.
- [J-36] F. Liu and H. Lin, “Reliable decentralized supervisors for discrete event systems under communication delays: Existence and verification,” *Asian Journal of Control*, vol. 15, no. 5, pp. 1346-1355, 2013.
- [J-37] S. Zhao, J. Sun, and H. Lin, “Hybrid impulsive control for closed quantum systems,” *The Scientific World Journal*, vol: 2013, Article ID: 545091, 2013.
- [J-38] S. Zhao, H. Lin, J. Sun, and Z. Xue, “An implicit Lyapunov control for finite-dimensional closed quantum systems,” *International Journal of Robust and Nonlinear Control*, vol. 22, no. 11, pp. 1212-1228, 2012.
- [J-39] S. Zhao, H. Lin, and Z. Xue, “Switching control of closed quantum systems via Lyapunov method,” *Automatica*, vol. 48, no. 8, pp. 1833-1838, 2012.
- [J-40] Y. Sun, H. Lin, and B. M. Chen, “An input-output simulation approach to controlling multi-affine systems for linear temporal logic specifications,” *International Journal of Control*, vol. 85, no. 10, pp. 1464-1476, 2012.
- [J-41] Z. Ji, H. Lin, and H. Yu, “Leaders in multi-agent controllability under consensus algorithm and tree topology,” *Systems & Control Letters*, vol. 61, no. 9, pp. 918-925, 2012.
- [J-42] Z. Xue, H. Lin, and T. H. Lee, “Analysis and control of closed quantum systems based on real-valued dynamics,” *IET Control Theory & Applications*, vol. 6, no. 16, pp. 2576-2584, 2012.
- [J-43] X. Wang and H. Lin, “Design and frequency analysis of continuous finite-time-convergent differentiator,” *Aerospace Science and Technology*, vol. 18, no. 1, pp. 69-78, 2012.

- [J-44] Q. Ling, H. Gu, H. Lin, and Y. Kang, “Bounds on the optimal quantization performance of dynamically quantized linear systems with bounded noise,” *Asian Journal of Control*, vol. 14, no. 2, pp. 538-547, 2012.
- [J-45] S. Zhao, J. Sun, and H. Lin, “Geometric analysis of reachability and observability for impulsive systems on complex field,” *Journal of Applied Mathematics*, vol. 2012, Article ID 876120, 12 pages, 2012. doi:10.1155/2012/876120.
- [J-46] W. Gu, C. Xiang, Y. V. Venkatesh, D. Huang and H. Lin, “Facial Expression Recognition using Radial Encoding of Local Gabor Features and Classifier Synthesis,” *Pattern Recognition*, vol. 45, no. 1, pp. 80-91, 2012.
- [J-47] M. Karimadini and H. Lin, “Fault-tolerant cooperative tasking for multi-agent systems,” *International Journal of Control*, vol. 84, no. 12, pp. 2092-2017, 2011.
- [J-48] M. Karimadini and H. Lin, “Guaranteed global performance through local coordinations,” *Automatica*, vol. 47, no. 5, pp. 890-898, 2011.
- [J-49] A. Karimodini, H. Lin, B. M. Chen, and T. H. Lee, “Hybrid formation control of unmanned aerial vehicles,” *Mechatronics*, vol. 21, no. 5, pp. 886-898, 2011.
- [J-50] X. Wang and H. Lin, “Design and control for rotor-fixed wing hybrid aircraft,” *Proceedings of the Institution of Mechanical Engineers, Part G, Journal of Aerospace Engineering*, vol. 225, no. 7, 831-847, 2011.
- [J-51] F. Liu, H. Lin, and Z. Dziong, “Bisimilarity control of partially observed nondeterministic discrete event systems and a test algorithm,” *Automatica*, vol. 47, no. 4, pp. 782-788, 2011.
- [J-52] X. Liu, H. Lin, and B. M. Chen, “Null controllability of planar bimodal piecewise linear systems,” *International Journal of Control*, vol. 88, no. 4, pp. 766-782, 2011.
- [J-53] X. Dong, B. M. Chen, G. Cai, H. Lin, and T. H. Lee, “Development of a comprehensive software system for implementing cooperative control of multiple unmanned aerial vehicles,” *International Journal of Robotics and Automation*, vol. 26, No. 1, pp. 49-63, 2011.
- [J-54] X. Wang and H. Lin, “Design and analysis of continuous hybrid differentiator,” *IET Control Theory & Applications*, vol. 5, no. 11, pp. 1321-1334, 2011.
- [J-55] Z. Ji, H. Lin, G. Feng, and X. Guo, “Controllability structure decomposition for switched linear systems,” *Transactions of the Institute of Measurement and Control*, vol. 32, no. 6, pp. 736-755, 2010. (Invited Paper)
- [J-56] F. Liu and H. Lin, “Reliable supervisory control for general architecture of decentralized discrete event systems,” *Automatica*, vol. 46, no. 9, pp. 1510-1516, 2010.
- [J-57] H. Lin and P. J. Antsaklis, “Asymptotic disturbance attenuation properties for uncertain switched linear systems” *Nonlinear Analysis: Hybrid Systems*, vol. 4, no. 2, pp. 279-290, 2010. (Invited Paper)
- [J-58] Z. Huang, C. Xiang, H. Lin, and T.H. Lee, “Necessary and sufficient conditions for regional stabilizability of generic switched linear systems with a pair of planar subsystems,” *International Journal of Control*, vol. 83, no. 4, pp. 694-715, 2010.
- [J-59] Z. Ji, Z. Wang, H. Lin, and Z. Wang, “Controllability of multi-agent systems with time-delay in state and switching topology,” *International Journal of Control*, vol. 83, no. 2, pp. 371-386, 2010.
- [J-60] S. Dai, H. Lin, and S. Ge, “Scheduling and control co-design for a collection of networked control systems with uncertain delays,” *IEEE Transactions on Control Systems Technology*, vol. 18, no. 1, pp. 66-78, 2010.



- [J-61] Q. Ling, M. Lemmon, and H. Lin, "Asymptotic stabilization of dynamically quantized nonlinear systems in feedforward form," *Journal of Control Theory and Applications*, vol. 8, no. 1, pp. 27-33, 2010. (Invited Paper)
- [J-62] Z. Ji, Z. Wang, H. Lin, and Z. Wang, "Interconnection topologies for multi-agent coordination under leader-follower framework," *Automatica*, vol. 45, no. 12, pp. 2857-2863, 2009.
- [J-63] Z. Ji, H. Lin, and T. H. Lee, "A new perspective on criteria and algorithms for reachability of discrete-time switched linear systems," *Automatica*, vol. 45, no. 6, pp. 1584-1587, 2009.
- [J-64] Y. Yang, K. S. Lee, C. Xiang and H. Lin, "Biological mechanisms revealed by a mathematical model for p53-Mdm2 core regulation," *IET Systems Biology*, vol. 3, no. 4, pp. 229-238, 2009.
- [J-65] H. Lin and P. J. Antsaklis, "Stability and stabilizability of switched linear systems: A survey of recent results," *IEEE Transactions on Automatic Control*, vol. 54, no. 2, pp. 308 - 322, 2009.
- [J-66] H. Lin, "Hybrid output feedback stabilization for LTI systems with single output," *IEEE Transactions on Automatic Control*, vol. 53, no. 7, 1736-1740, 2008.
- [J-67] H. Lin and P. J. Antsaklis, "Hybrid state feedback stabilization with  $l_2$  performance for discrete-time switched linear systems," *International Journal of Control*, vol. 81, no. 7, pp. 1114 - 1124, 2008.
- [J-68] J. Sun and H. Lin, "Stationary oscillation of impulsive delayed system and its application to chaotic neural networks," *Chaos*, vol. 18, no. 3, pp. 1054-1500, 2008.
- [J-69] H. Lin and P. J. Antsaklis, "Switching stabilizability for continuous-time uncertain switched linear systems," *IEEE Transactions on Automatic Control*, vol. 52, No. 4, pp. 633-646, 2007.
- [J-70] G. Zhai, X. Xu, H. Lin and D. Liu, "Extended Lie Algebraic Stability Analysis for switched systems with continuous-time and discrete-time subsystems," *Int. J. Appl. Math. Comput. Sci.*, vol. 17, no. 4, pp. 447-454, 2007.
- [J-71] G. Zhai, H. Lin, X. Xu, J. Imae, and T. Kobayashi, "Analysis of switched normal discrete-time systems," *Nonlinear Analysis, Theory, Methods and Applications*, vol. 66, no. 8, 2007, pp. 1788-1799.
- [J-72] G. Zhai, X. Xu, H. Lin, and A. N. Michel, "Analysis and design of switched normal systems," *Nonlinear Analysis, Theory, Methods and Applications*, vol. 65, no. 12, pp. 2248-2259, 2006.
- [J-73] H. Lin, G. Zhai, and P. J. Antsaklis, "Optimal persistent disturbance attenuation control for linear hybrid systems," *Nonlinear Analysis, Theory, Methods and Applications*, vol. 65, no. 6, pp. 1231-1250, 2006. (Invited Paper)
- [J-74] H. Lin, G. Zhai, and P. J. Antsaklis, "Asymptotic stability and disturbance attenuation properties for a class of networked control systems," *Journal of Control Theory and Applications*, vol. 4, no. 1, 2006, pp. 76-85. (Invited Paper)
- [J-75] H. Lin and P. J. Antsaklis, "Stability and persistent disturbance attenuation properties for networked control systems: Switched system approach," *International Journal of Control*, vol. 78, no. 18, pp. 1447-1458, 2005.
- [J-76] G. Zhai, H. Lin, Y. Kim, J. Imae, and T. Kobayashi, " $\mathcal{L}_2$  gain analysis for switched systems with continuous-time and discrete-time subsystems," *International Journal of Control*, vol. 78, no. 15, pp. 1198-1205, 2005.
- [J-77] G. Zhai and H. Lin, "Controller failure time analysis for symmetric  $\mathcal{H}_\infty$  control systems," *International Journal of Control*, vol. 77, no. 6, pp. 598-605, 2004.
- [J-78] H. Lin, G. Zhai, and P. J. Antsaklis, "Set-valued observer design for a class of uncertain linear systems with persistent disturbance and measurement noise," *International Journal of Control*, vol. 76, no. 16, pp. 1644-1653, 2003.

- [J-79] G. Zhai, H. Lin, A. N. Michel, and K. Yasuda "Stability analysis for switched systems with continuous time and discrete time subsystems," *International Journal of Hybrid Systems*, vol. 3, no. 4, pp. 305-320, 2003.
- [J-80] G. Zhai, H. Lin, and P. J. Antsaklis, "Quadratic stabilizability of switched linear systems with polytopic uncertainties," *International Journal of Control*, vol. 76, no. 7, pp. 747-753, 2003.

### Conference Papers

- [C-1] Z. Liu, B. Wu, and H. Lin, "Coordinated Robot-assisted Human Crowd Evacuation," in *Proc. of the 57th IEEE Conference on Decision and Control*, Miami, USA, December 17-19, 2018.
- [C-2] W. Zheng, B. Wu, and H. Lin, "POMDP Model Learning for Human Robot Collaboration," in *Proc. of the 57th IEEE Conference on Decision and Control*, Miami, USA, December 17-19, 2018.
- [C-3] M. Ahmadi, B. Wu, and H. Lin, and U. Topcu, "Privacy Verification in POMDPs via Barrier Certificates," in *Proc. of the 57th IEEE Conference on Decision and Control*, Miami, USA, December 17-19, 2018.
- [C-4] M. Karimadini, A. Karimodini, and H. Lin, "Modular Cooperative Tasking for Multi-agent Systems," in *Proc. of 2018 IEEE 14th International Conference on Control and Automation (ICCA)*, Anchorage, AK, USA, June 12-15, 2018.
- [C-5] R. da Silva, A. Partovi, and H. Lin, "Reactive Integrated Mission and Motion planning." in *Proc. of the 2018 American Control Conference*, Milwaukee WI, 27-29, June 2018.
- [C-6] B. Wu, Z. Liu, and H. Lin, "Synthesis of Insertion Functions to Enforce Decentralized and Joint Opacity Properties of Discrete-event Systems." in *Proc. of the 2018 American Control Conference*, Milwaukee WI, 27-29, June 2018.
- [C-7] B. Wu, Z. Liu, and H. Lin, "Parameter and Insertion Function Co-synthesis for Opacity Enhancement in Parametric Stochastic Discrete Event Systems." in *Proc. of the 2018 American Control Conference*, Milwaukee WI, 27-29, June 2018.
- [C-8] W. Zheng, B. Wu, and H. Lin, "Solving Complex Tasks Hierarchically from Demonstrations." in *Proc. of the 2018 American Control Conference*, Milwaukee WI, 27-29, June 2018.
- [C-9] Z. Liu, B. Wu, and H. Lin, "A Mean Field Game Approach to Swarming Robots Control." in *Proc. of the 2018 American Control Conference*, Milwaukee WI, 27-29, June 2018.
- [C-10] Z. Liu, B. Wu, J. Dai, and H. Lin, "Distributed Communication-aware Motion Planning for Multi-agent Systems from STL and SpaTeL Specifications." in *Proc. of the 56th IEEE Conference on Decision and Control*, Melbourne, VIC, Australia, December 12-15, 2017.
- [C-11] Z. Liu, J. Dai, B. Wu, and H. Lin, "Communication-aware motion planning for multi-agent systems from signal temporal logic specifications." in *Proc. of the 2017 American Control Conference*, Seattle, WA, 24-26, May 2017.
- [C-12] B. Wu, B. Hu, and H. Lin, "Toward efficient manufacturing systems: A trust based human robot collaboration." in *Proc. of the 2017 American Control Conference*, Seattle, WA, 24-26, May 2017.
- [C-13] X. Zhang, B. Wu, and H. Lin, "Assume-Guarantee Reasoning Framework for MDP-POMDP," in *Proc. of the 55th IEEE Conference on Decision and Control*, Las Vegas, USA, December 12-14, 2016.
- [C-14] R. da Silva, B. Wu, and H. Lin, "Formal Design of Robot Integrated Task and Motion Planning," in *Proc. of the 55th IEEE Conference on Decision and Control*, Las Vegas, USA, December 12-14, 2016.

- [C-15] R. da Silva, B. Wu, J. Dai, and H. Lin, “Formal Design of Cooperative Multi-Agent Systems,” presented during the *2016 AAAI Fall Symposium Series*, Washington DC, November 17-19, 2016.
- [C-16] B. Wu and H. Lin, “Counterexample-guided Distributed Permissive Supervisor Synthesis for Probabilistic Multi-agent Systems through Learning,” in *Proc. of the 2016 American Control Conference*, Boston, MA, July 6-8, 2016.
- [C-17] X. Zhang, Y. Zhu, and H. Lin, “Performance Guaranteed Human-Robot Collaboration through Formal Design,” in *Proc. of the 2016 American Control Conference*, Boston, MA, July 6-8, 2016.
- [C-18] J. Dai, A. Karimoddini, and H. Lin, “Achieving Fault-tolerance and Safety of Discrete-event Systems through Learning,” in *Proc. of the 2016 American Control Conference*, Boston, MA, July 6-8, 2016.
- [C-19] J. Dai, A. Benini, H. Lin, P. J. Antsaklis, M. J. Rutherford and K. P. Valavanis, “Learning-based formal synthesis of cooperative multi-agent systems with an application to robotic coordination,” in *Proc. of the 24th Mediterranean Conference on Control and Automation*, Athens, 2016, pp. 1008-1013.
- [C-20] X. Zhang, B. Wu, and H. Lin, “Counterexample-guided permissive supervisor synthesis for probabilistic systems through learning,” in *Proc. of the 54th IEEE Conference on Decision and Control*, Osaka, Japan, December 15-18, 2015.
- [C-21] B. Wu, J. Dai, and H. Lin, “Combined Top-Down and Bottom-Up Approach to Cooperative Distributed Multi-Agent Control with Connectivity Constraints,” in *Proc. of the 5th IFAC Conference on Analysis and Design of Hybrid Systems*, Atlanta, Georgia, October 14-16, 2015.
- [C-22] S. Zhao, H. Lin, J. Sun, and L. Zhou, “State transfer for closed quantum systems with dipole and polarizing coupling via implicit Lyapunov control,” in *Proc. of the 34th Chinese Control Conference and SICE Annual Conference 2015*, Hangzhou, China, July 28-30, 2015.
- [C-23] B. Wu and H. Lin, “Counterexample-guided permissive supervisor synthesis for probabilistic systems through learning,” in *Proc. of the 2015 American Control Conference*, Chicago, IL, July 1-3, 2015.
- [C-24] J. Dai and H. Lin, “Learning-based design of fault-tolerant cooperative multi-agent systems,” in *Proc. of the 2015 American Control Conference*, Chicago, IL, July 1-3, 2015.
- [C-25] X. Zhang and H. Lin, “Stochastic hybrid systems modeling and performance verification of behavior-based robots,” in *Proc. of the 2015 American Control Conference*, Chicago, IL, July 1-3, 2015.
- [C-26] B. Wu, H. Lin, and M. Lemmon, “Formal methods for stability analysis of networked control systems with IEEE 802.15.4 protocol,” in *Proc. of the 53rd IEEE Conference on Decision and Control*, Los Angeles, CA, December 15-17, 2014.
- [C-27] J. Dai and H. Lin, “Automatic synthesis of cooperative multi-agent systems,” in *Proc. of the 53rd IEEE Conference on Decision and Control*, Los Angeles, CA, December 15-17, 2014.
- [C-28] T. Li, J. Zhao, and H. Lin, “Feedback stabilization of switched delay systems under data rate constraints,” in *Proc. of the 33rd Chinese Control Conference*, Nanjing, China, July 28-30, 2014.
- [C-29] J. Dai and H. Lin, “Decentralized supervisory control of discrete event systems with unknown plants: A learning-based synthesis approach,” in *Proc. of the 11th IEEE International Conference on Control and Automation*, Taichung, Taiwan, June 18-20, 2014.

- [C-30] B. Wu, H. Lin, and M. Lemmon, “Stability analysis for wireless networked control system in unslotted IEEE 802.15.4 protocol,” in *Proc. of the 11th IEEE International Conference on Control and Automation*, Taichung, Taiwan, June 18-20, 2014.
- [C-31] A. Partovi and H. Lin, “Assume-guaranteed cooperative satisfaction,” in *Proc. of the 2014 American Control Conference*, Portland, OR, June 4-6, 2014.
- [C-32] A. Karimoddini, M. Karimadini, and H. Lin, “Decentralized hybrid formation control of unmanned aerial vehicles,” in *Proc. of the 2014 American Control Conference*, Portland, OR, June 4-6, 2014.
- [C-33] A. Karimoddini and H. Lin, “Hybrid symbolic control for robot motion planning,” in *Proc. of the 10th IEEE International Conference on Control and Automation*, pp. 1650-1655, Hangzhou, China, June 12-14, 2013.
- [C-34] A. Karimoddini, H. Lin, B. M. Chen, and T. H. Lee, “A smooth hybrid symbolic control for the formation of UAVs over a partitioned space,” in *Proc. of the 2013 American Control Conference*, June 17-19, Washington, DC.
- [C-35] Z. Ji, H. Lin, and H. Yu, “Protocol design for network controllability of multiple agents,” in *Proc. of the 32nd Chinese Control Conference*, Xi’an, China, July 26-28, 2013.
- [C-36] Z. Ji, H. Lin, and J. Gao, “Eigenvector based design of uncontrollable topologies for networks of multiple agents,” in *Proc. of the 32nd Chinese Control Conference*, Xi’an, China, July 26-28, 2013.
- [C-37] X. Li, H. Lin, J. Lian, and B. M. Chen, “Stability analysis for uncertain linear systems with random parameters,” in *Proc. of the 51st IEEE Conference on Decision and Control Conference*, December 10-13, 2012, Maui, Hawaii. 2012.
- [C-38] Y. Sun and H. Lin, “Bisimilarity enforcing supervisory control of nondeterministic discrete event systems,” in *Proc. of the 2012 American Control Conference*, Montreal, June 27-29, 2012.
- [C-39] Z. Ji and H. Lin, “Topologies construction and leaders location in multi-agent controllability,” in *Proc. of the 31st Chinese Control Conference*, Hefei, China, July 25-27, 2012.
- [C-40] Y. Sun, H. Lin, and F.C. Liu, “Computation for supremal simulation-based controllable and strong observable subautomata,” in *Proc. of the 31st Chinese Control Conference*, Hefei, China, July 25-27, 2012.
- [C-41] Y. Sun, H. Lin, and B.M. Chen, “Decentralized bisimilarity control of discrete event systems,” in *Proc. of the 31st Chinese Control Conference*, Hefei, China, July 25-27, 2012.
- [C-42] J. Lian, X. Li, and H. Lin, “Stability analysis of systems with stochastic uncertain parameters,” in *Proc. of the 9th IEEE International Conference on Control and Automation*, Santiago, Chile, Dec. 19-21, 2011.
- [C-43] Y. Yang, C. Xiang, and H. Lin, “MicroRNA target validation by formal methods,” in *Proc. of the 9th IEEE International Conference on Control and Automation*, Santiago, Chile, Dec. 19-21, 2011.
- [C-44] Z. Xue, H. Lin, and T. H. Lee, “Identification and control of a two-level open quantum system,” in *Proc. of the 50th IEEE Conference on Decision and Control and European Control Conference*, December 12-15, 2011, Orlando, FL, USA.
- [C-45] Z. Ji, H. Lin, and T. H. Lee, “Nodes with the same number of neighbors and multi-agent controllability,” in *the 30th Chinese Control Conference*, Yantai, China, July 22-24, 2011. (invited paper)
- [C-46] M. Karimadini and H. Lin, “Reliable task decomposability for cooperative multi-agent systems,” in *the 30th Chinese Control Conference*, Yantai, China, July 22-24, 2011. (invited paper)

- [C-47] A. Karimodini, X. Dong, G. Cai, F. Lin, H. Lin, B. M. Chen, and T. H. Lee, "A composed hybrid structure for the autonomous flight control of unmanned helicopters," in *Proc. of the 18th IFAC World Congress*, Milan, Italy, August 28th - September 2nd, 2011.
- [C-48] A. Partovi, X. Wang, K. Y. Lum, and H. Lin, "Modeling and control for a small-scale hybrid aircraft," in *Proc. of the 18th IFAC World Congress*, Milan, Italy, August 28th - September 2nd, 2011.
- [C-49] M. Karimadini and H. Lin, "Decomposability of global tasks for multi-agent systems," in *Proc. of the 49th IEEE Conference on Decision and Control*, Atlanta, USA, Dec. 15-17, 2010.
- [C-50] X. Liu, H. Lin, and B. M. Chen, "Graphic interpretations of structural controllability for switched linear systems," in *Proc. of the 11th International Conference on Control, Automation, Robotics and Vision*, Singapore Dec. 7-10, 2010.
- [C-51] M. Karimadini and H. Lin, "Synchronized task decomposition for two cooperative agents," in *Proc. of the 2010 Conference on Robotics, Automation & Mechatronics*, Singapore, June 28-30, 2010.
- [C-52] A. Karimodini, G. Cai, B. M. Chen, H. Lin, and T. H. Lee, "Multi-layer flight control synthesis and analysis of a small-scale UAV helicopter," in *Proc. of the 2010 Conference on Robotics, Automation & Mechatronics*, Singapore, June 28-30, 2010.
- [C-53] A. Partovi, H. Lin, and Z. Ji, "Structural controllability of high order dynamic multi-agent systems," in *Proc. of the 2010 Conference on Robotics, Automation & Mechatronics*, Singapore, June 28-30, 2010.
- [C-54] Z. Xue, H. Lin, and T. H. Lee, "Identification and control of quantum systems," in *Proc. of the 2010 Conference on Robotics, Automation & Mechatronics*, Singapore, June 28-30, 2010.
- [C-55] Y. Yang and H. Lin, "Reachability analysis based model validation in systems biology," in *Proc. of the 2010 Conference on Cybernetics & Intelligent Systems*, Singapore, June 28-30, 2010.
- [C-56] Z. Ji, H. Lin, and T. H. Lee, "Multi-agent controllability with tree topology," in *Proc. of the 2010 American Control Conference*, Baltimore, June 30-July 2, 2010.
- [C-57] Q. Ling and H. Lin, "Necessary and sufficient bit rate conditions to stabilize quantized Markov jump linear systems," in *Proc. of the 2010 American Control Conference*, Baltimore, June 30-July 2, 2010.
- [C-58] M. Karimadini and H. Lin, "Optimal task automaton decomposabilization for cooperative multi-agent systems," in *Proc. of the 8th International Conference on Control and Automation*, Xiamen, June 9-11, 2010.
- [C-59] X. Dong, G. Cai, F. Lin, B. M. Chen, H. Lin, and T. H. Lee, "Implementation of formation flight of multiple unmanned aerial vehicles," in *Proc. of the 8th International Conference on Control and Automation*, Xiamen, June 9-11, 2010.
- [C-60] Y. Sun, H. Lin, F. Liu, and B. M. Chen, "Computation for supremal simulation-based controllable subautomata," in *Proc. of the 8th International Conference on Control and Automation*, Xiamen, June 9-11, 2010.
- [C-61] N. Tan, H. Lin, and Z. Ji, "New results on controllability of multi-agent systems," in *Proc. of the 8th World Congress on Intelligent Control and Automation*, Jinan, July 6-9, 2010.
- [C-62] Z. Ji, H. Lin, and T. H. Lee, "Downer and perron branches in interconnection topologies for coordination and control of multi-agent networks," in *Proc. of the 8th World Congress on Intelligent Control and Automation*, Jinan, July 6-9, 2010.

- [C-63] X. Liu, H. Lin, and B. M. Chen, “A graph-theoretic characterization of structural controllability for multi-agent system with switching topology,” in *Proc. of the 48th IEEE Conference on Decision and Control*, Shanghai, Dec. 16-18, 2009.
- [C-64] S. Zhao, H. Lin, J. Sun, and Z. Xue, “Implicit Lyapunov control of closed quantum systems,” in *Proc. of the 48th IEEE Conference on Decision and Control*, Shanghai, Dec. 16-18, 2009.
- [C-65] F. Liu and H. Lin, “A general architecture for reliable decentralized supervisory control of discrete event systems,” in *Proc. of the 48th IEEE Conference on Decision and Control*, Shanghai, Dec. 16-18, 2009.
- [C-66] S. Dai, H. Lin, and S. Ge, “A switched system approach to scheduling of networked control systems with communication constraints,” in *Proc. of the 48th IEEE Conference on Decision and Control*, Shanghai, Dec. 16-18, 2009.
- [C-67] Q. Ling, M. Lemmon, and H. Lin, “Stabilize an n-dimensional quantized nonlinear feedforward system with 1 bit,” to appear in the 48th IEEE Conference on Decision and Control, Shanghai, Dec. 16-18, 2009.
- [C-68] I. Low, Y. Yang, and H. Lin, “Validation of Petri net apoptosis models using P-invariant analysis,” in *Proc. of the 7th International Conference on Control and Automation*, New Zealand, Dec. 9-11, 2009.
- [C-69] A. Karimoddini, H. Lin, B. M. Chen, and T. H. Lee, “Developments in hybrid modeling and control of unmanned aerial vehicles,” in *Proc. of the 7th International Conference on Control and Automation*, New Zealand, Dec. 9-11, 2009.
- [C-70] X. Dong, B. M. Chen, G. Cai, H. Lin, and T. H. Lee, “Development of a comprehensive software system for implementing cooperative control of multiple unmanned aerial vehicles,” in *Proc. of the 7th International Conference on Control and Automation*, New Zealand, Dec. 9-11, 2009.
- [C-71] W. Gu, C. Xiang, and H. Lin, “Modified HMAX models for facial expression recognition,” in *Proc. of the 7th International Conference on Control and Automation*, New Zealand, Dec. 9-11, 2009.
- [C-72] F. Liu and H. Lin, “Reliable decentralized supervisory control of discrete event systems with communication delays,” in *Proc. of 2009 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Singapore, July 14-17, 2009.
- [C-73] M. Karimadini, H. Lin, and T.H. Lee, “Decentralized supervisory control: Nondeterministic transitions versus deterministic moves,” in *Proc. of 2009 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Singapore, July 14-17, 2009.
- [C-74] M. Zamani and H. Lin, “Weights’ assignment in multi-agent systems under a time-varying topology,” in *Proc. of 2009 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Singapore, July 14-17, 2009.
- [C-75] S. Dai, H. Lin, and S. Ge, “Robust stability of discrete-time switched delay system and its application to network-based reliable control,” in *Proc. of 2009 American Control Conference*, St. Louis, June 10-12, 2009.
- [C-76] M. Zamani and H. Lin, “Structural controllability of multi-agent systems,” in *Proc. of 2009 American Control Conference*, St. Louis, June 10-12, 2009.
- [C-77] Z. Ji, H. Lin, and T. H. Lee, “A graph theory based characterization of controllability for nearest neighbor interconnections with fixed topology,” in *Proc. of the 46th IEEE Conference on Decision and Control*, Dec. 2008.

- [C-78] S. Dai, H. Lin, S. Ge and X. Li, “Simultaneous stability of a collection of networked control systems with uncertain delays,” to appear in *Proc. of the 10th International Conference on Control, Automation, Robotics and Vision*, Dec. 2008. (Invited paper)
- [C-79] Y. Yang and H. Lin, “p53-Mdm2 core regulation revealed by a mathematical model,” in *Proc. of the 2008 IEEE International Conference on Systems, Man, and Cybernetics*, Oct. 2008.
- [C-80] Z. Ji, H. Lin, and T. H. Lee, “Controllability of multi-agent systems with switching topology,” in *Proc. of the 3rd IEEE Conference on CIS-RAM*, Sep 2008.
- [C-81] Z. Ji, H. Lin, and T. H. Lee, “A perspective on reachability and controllability of controlled switched linear systems,” in *Proc. of the 27th Chinese Control Conference*, July 2008, pp. 702-706. (Invited paper)
- [C-82] H. Lin and P. J. Antsaklis, “Asymptotic disturbance attenuation properties for continuous-time uncertain switched linear systems,” in *Proc. of the 17th IFAC World Congress on Automatic Control*, Seoul, Korea, July 2008.
- [C-83] H. Lin and P. J. Antsaklis, “Characterizing uniformly ultimately bounded switching signals for uncertain switched linear systems,” in *Proc. of the 46th IEEE Conference on Decision and Control*, Dec. 2007, pp. 6286-6291.
- [C-84] Z. Huang, C. Xiang, H. Lin and T. H. Lee, “A necessary and sufficient condition for stability of arbitrarily switched second-order LTI system: Marginally stable cases,” in *Proc. of 2007 IEEE Multi-conference on Systems and Control*, Oct. 2007, pp. 83-88. (Invited paper)
- [C-85] H. Lin and P. J. Antsaklis, “Hybrid  $H_\infty$  state feedback control for discrete-time switched linear systems,” in *Proc. of 2007 IEEE Multi-conference on Systems and Control*, Oct. 2007, pp. 112-117. (Invited paper)
- [C-86] Z. Huang, C. Xiang, H. Lin and T. H. Lee, “A stability criterion for arbitrarily switched second-order LTI systems,” in *Proc. of 2007 IEEE International Conference on Control and Automation*, May. 2007, pp. 951-956. (Invited paper)
- [C-87] H. Lin and P. J. Antsaklis, “Switching stabilization and  $l_2$  gain performance controller synthesis for discrete-time switched linear systems,” in *Proc. of the 45th IEEE Conference on Decision and Control*, Dec. 2006, pp. 2673-2678.
- [C-88] G. Zhai, X. Xu, H. Lin and D. Liu, “An extension of Lie algebraic stability analysis for switched systems with continuous-time and discrete-time subsystems,” in *Proc. of the 2006 IEEE International Conference on Networking, Sensing and Control*, 2006, pp. 362-367.
- [C-89] T. Estrada, H. Lin and P. J. Antsaklis, “Model-based control with intermittent feedback,” in *Proc. of the 14th Mediterranean Conference on Control and Automation*, 2006, pp. 1-6.
- [C-90] H. Lin and P. J. Antsaklis, “A converse Lyapunov theorem for uncertain switched linear systems,” in *Proc. of the 44th IEEE Conference on Decision and Control*, Seville, Spain, Dec. 2005.
- [C-91] H. Lin, G. Zhai, and P. J. Antsaklis, “Explicit hybrid optimal controller for disturbance attenuation in linear hybrid systems,” in *Proc. of the 16th IFAC World Congress on Automatic Control*, Prague, Czech, July 2005.
- [C-92] H. Lin, G. Zhai, L. Fang, and P. J. Antsaklis, “Stability and  $\mathcal{H}_\infty$  performance preserving scheduling policy for networked control systems,” in *Proc. of the 16th IFAC World Congress on Automatic Control*, Prague, Czech, July 2005.
- [C-93] H. Lin and P. J. Antsaklis, “Stability and stabilizability of switched linear systems: A short survey of recent results,” in *Proc. of 2005 ISIC-MED Joint Conference*, Limassol, Cyprus, June 2005, pp. 24-29. (Invited Paper)

- [C-94] H. Lin, G. Zhai, and P. J. Antsaklis, "Asymptotic disturbance attenuation property analysis for discrete-time uncertain switched linear systems," in *Proc. of 2005 American Control Conference*, Portland, OR, June 7-10, 2005, pp. 1-6.
- [C-95] G. Zhai, H. Lin, X. Xu, J. Imae, and T. Kobayashi, "Analysis of switched normal discrete-time systems," in *Proc. of 2005 American Control Conference*, Portland, OR, June 7-10, 2005, pp. 3800-3805.
- [C-96] H. Lin and P. J. Antsaklis, "A necessary and sufficient condition for robust asymptotic stabilizability of continuous-time uncertain switched linear systems," in *Proc. of the 43rd IEEE Conference on Decision and Control*, Paradise Island, Bahamas, Dec. 14-17, 2004, pp. 3690-3695.
- [C-97] H. Lin and P. J. Antsaklis, "Persistent disturbance attenuation properties for networked control systems," in *Proc. of the 43rd IEEE Conference on Decision and Control*, Paradise Island, Bahamas, Dec. 14-17, 2004, pp. 953-958.
- [C-98] G. Zhai, H. Lin, X. Xu, and A. N. Michel, "Stability analysis and design of switched normal systems," in *Proc. of the 43rd IEEE Conference on Decision and Control*, Paradise Island, Bahamas, Dec. 14-17, 2004, pp. 3253-3258.
- [C-99] L. Fang, H. Lin, and P. J. Antsaklis, "Stabilization and performance analysis for a class of switched systems," in *Proc. of the 43rd IEEE Conference on Decision and Control*, Paradise Island, Bahamas, Dec. 14-17, 2004, pp. 3265-3270.
- [C-100] G. Zhai, H. Lin, and Y. Kim, " $\mathcal{L}_2$  gain analysis for switched systems with continuous-time and discrete-time subsystems," in *Proc. of SICE Annual Conference 2004*, Sapporo, Japan, August 4-6, 2004, pp. 658-663.
- [C-101] G. Zhai, X. Chen, and H. Lin, "Stability and  $l_2$  gain analysis for discrete-time LTI systems with controller failures," in *Proc. of the 10th IFAC/IFORS/IMACS/IFIP Symposium on Large Scale Systems: Theory and Applications*, Osaka, Japan, July 26-28, 2004, pp. 554-559.
- [C-102] H. Lin and P. J. Antsaklis, "Disturbance attenuation in classes of uncertain linear hybrid systems," in *Proc. of 2004 American Control Conference*, Boston, MA, June 30-July 2, 2004, pp. 566-571. (Invited Paper)
- [C-103] G. Zhai, H. Lin, A. N. Michel, and K. Yasuda, "Stability analysis for switched systems with continuous-time and discrete-time subsystems," in *Proc. of 2004 American Control Conference*, Boston, MA, June 30-July 2, 2004, pp. 4555-4560.
- [C-104] H. Lin, G. Zhai, and P. J. Antsaklis, "Robust stability and disturbance attenuation analysis of a class of networked control systems," in *Proc. of the 42nd IEEE Conference on Decision and Control*, Maui, HI, Dec. 9-12, 2003, pp. 1182-1187.
- [C-105] G. Zhai, H. Lin, and P. J. Antsaklis, "Controller failure time analysis for symmetric  $\mathcal{H}_\infty$  control systems," in *Proc. of the 42nd IEEE Conference on Decision and Control*, Maui, HI, Dec. 9-12, 2003, pp. 2459-2460.
- [C-106] H. Lin and P. J. Antsaklis, "Synthesis of uniformly ultimate boundedness switching laws for discrete-time uncertain switched linear systems," in *Proc. of the 42nd IEEE Conference on Decision and Control*, Maui, HI, Dec. 9-12, 2003, pp. 4806-4811.
- [C-107] H. Lin and P. J. Antsaklis, "Disturbance attenuation properties for discrete-time uncertain switched linear systems," in *Proc. of the 42nd IEEE Conference on Decision and Control*, Maui, HI, Dec. 9-12, 2003, pp. 5289-5294.



- [C-108] H. Lin, G. Zhai, and P. J. Antsaklis, “Set-valued observer for a class of discrete-time uncertain linear systems with persistent disturbance,” in *Proc. of 2003 American Control Conference*, Denver, CO, June 4-6, 2003, pp. 1902-1907. (Best Speaker Award)
- [C-109] H. Lin and P. J. Antsaklis, “Robust invariant control synthesis for discrete-time polytopic uncertain linear hybrid systems,” in *Proc. of 2003 American Control Conference*, Denver, CO, June 4-6, 2003, pp. 5221-5226.
- [C-110] G. Zhai, H. Lin, and Y. Kim, “New robust  $\mathcal{H}_\infty$  performance conditions for uncertain discrete-time systems,” in *Proc. of 2003 International Conference on Control, Automation and Systems*, Gyeongju, Korea, Oct. 22-25, 2003.
- [C-111] Q. Ling, L. Xia, H. Lin, M.D. Lemmon, and X. Yang, “Packet error rate analysis in Bluetooth scatternet,” in *Proc. of 2002 Conference on Information Sciences and Systems*, 2002.
- [C-112] H. Lin and P. J. Antsaklis, “Robust controlled invariant sets for a class of uncertain hybrid systems,” in *Proc. of the 41st IEEE Conference on Decision and Control*, Las Vegas, NV, 2002, pp. 3180-3181.
- [C-113] H. Lin and P. J. Antsaklis, “Controller synthesis for a class of uncertain piecewise linear hybrid dynamical systems,” in *Proc. of the 41st IEEE Conference on Decision and Control*, Las Vegas, NV, 2002, pp. 3188-3193.
- [C-114] G. Zhai, H. Lin, and P. J. Antsaklis, “Quadratic stabilizability of switched linear systems with polytopic uncertainties,” in *Proc. of the 5th IASTED International Conference on Intelligent Systems and Control*, Tsukuba, Japan, Oct. 1-4, 2002, pp. 245-249.
- [C-115] H. Lin, X. D. Koutsoukos, and P. J. Antsaklis, “Hierarchical control of a class uncertain piecewise linear hybrid dynamical systems,” in *Proc. of the 15th IFAC World Congress on Automatic Control*, Barcelona, Spain, July 21-26, 2002.
- [C-116] H. Lin, X. D. Koutsoukos, and P. J. Antsaklis, “HYSTAR: A toolbox for hierarchical control of piecewise linear hybrid dynamical systems,” in *Proc. of 2002 American Control Conference*, Anchorage, AK, May 8-10, 2002, pp. 686-691.

### Technical Reports

- [T-1] M. Karimadini and H. Lin, “Necessary and sufficient conditions for task automaton decomposition,” *ACT Technical Report NUS-ACT-11-002*, Jan 2011.  
<http://arxiv.org/abs/1101.2002>
- [T-2] M. Karimadini and H. Lin, “Task decomposability under event failures for two cooperative agents,” *ACT Technical Report NUS-ACT-11-001*, Jan 2011.  
<http://arxiv.org/abs/1101.2003>
- [T-3] M. Karimadini and H. Lin, “Synchronized task decomposition for cooperative multi-agent systems,” *ACT Technical Report NUS-ACT-09-001*, November 2009.  
<http://arxiv.org/abs/0911.0231v1>
- [T-4] H. Lin and P. J. Antsaklis, “A necessary and sufficient condition for robust asymptotic stabilizability of continuous-time uncertain switched linear systems,” *ISIS Technical Report ISIS-2004-002*, March 2004.  
<http://www.nd.edu/~isis/tech.html>
- [T-5] H. Lin, G. Zhai, and P. J. Antsaklis, “Set-valued observer design for a class of uncertain linear systems with persistent disturbance and measurement noise,” *ISIS Technical Report ISIS-2003-003*, April 2003.  
<http://www.nd.edu/~isis/tech.html>

- [T-6] H. Lin and P. J. Antsaklis, "Uniformly ultimate boundedness control for uncertain switched linear systems," *ISIS Technical Report ISIS-2003-004*, August 2003.  
<http://www.nd.edu/~isis/tech.html>
- [T-7] H. Lin and P. J. Antsaklis, "Robust tracking and regulation control of uncertain piecewise linear systems," *ISIS Technical Report ISIS-2003-005*, October 2003.  
<http://www.nd.edu/~isis/tech.html>
- [T-8] H. Lin and P. J. Antsaklis, "HYSTAR : A Matlab toolbox for robust regulation control of uncertain piecewise linear systems," *ISIS Technical Report ISIS-2003-006*, October 2003.  
<http://www.nd.edu/~isis/tech.html>

### **Dissertation**

- [D-1] H. Lin, *Robust Analysis and Synthesis of Uncertain Linear Hybrid Systems with Networked Control Applications*, Ph.D. dissertation under the supervision of Dr. Panos J. Antsaklis, University of Notre Dame, USA, June 2005.  
<http://etd.nd.edu/ETD-db/theses/available/etd-07122005-170426/>