

RESEARCH ACHIEVEMENTS

◆ Funding Records

1. Title: “Robust Iterative Learning Control for Linear Systems with Time-Invariant Parametric Uncertainties”, Principal Investigator, funded by Hanoi University of Science and Technology, 4/2010 – 12/2010.
2. Title: “Advanced modeling and economic model predictive control for steam boilers”, Co-Investigator, funded by AUN-SEED/Net, JICA, 5/2014 – 12/2015.

◆ Invited Talks

1. Title: “Cooperative Control of Multi-Agent Dynamical Systems”, Electrical Engineering Special Seminar, Department of Electrical Engineering, Chulalongkorn University, June 2014.
2. Title: “Robust Iterative Learning Control for Linear Systems with Time-Invariant Parametric Uncertainties”, AUN-SEED/Net Open House, Hanoi University of Science and Technology, November 2009.

◆ Original Papers

1. [Dinh Hoa Nguyen](#), "Minimum-Rank Dynamic Output Consensus Design for Heterogeneous Nonlinear Multi-Agent Systems", *IEEE Transactions on Control of Network Systems* (in press). [DOI: 10.1109/TCNS.2016.2580908](#)
2. [Dinh Hoa Nguyen](#), "Reduced-order Distributed Consensus Controller Design via Edge Dynamics", *IEEE Transactions on Automatic Control*, vol. 62(1), pp. 475-480, 2017. [DOI: 10.1109/TAC.2016.2554279](#)
3. Dinh Hoa Nguyen, David Banjerdpongchai, "Iterative Learning Control of Energy Management System: Survey on Multi-Agent System Framework", *Engineering Journal*, vol. 20(5), pp. 1-4, 2016. [DOI: 10.4186/ej.2016.20.5.1](#)
4. [Dinh Hoa Nguyen](#), "A sub-optimal Consensus Design for Multi-Agent Systems based on Hierarchical LQR", *Automatica*, vol. 55, pp. 88-94, 2015.
5. [Dinh Hoa Nguyen](#), Shinji Hara, "Hierarchical Decentralized Controller Synthesis for Heterogeneous Multi-agent Dynamical Systems by LQR", *SICE Journal of Control, Measurement, and System Integration*, vol. 8 (4), pp. 295-302, 2015.
6. [Dinh Hoa Nguyen](#), Shinji Hara, "Entrainment analysis in Goodwin-type nonlinear oscillator networks driven by external periodic signals", *SICE Journal of Control, Measurement, and System Integration*, vol. 7 (6), pp. 337-346, 2014.
7. [Dinh Hoa Nguyen](#), David Banjerdpongchai, "A convex optimization approach to Robust Iterative Learning Control for linear systems with time-varying parametric uncertainties", *Automatica*, vol. 47, pp. 2039-2043, 2011.
8. [Dinh Hoa Nguyen](#), David Banjerdpongchai, "Robust Iterative Learning Control for linear systems with time-invariant parametric uncertainties and repetitive

- disturbance", *ECTI Transaction on Electrical Engineering, Electronics and Communications*, vol. 9(1), pp. 169-176, 2011.
9. Dinh Hoa Nguyen, David Banjerdpongchai, "A convex optimization design of Robust Iterative Learning Control for linear systems with iteration-varying parametric uncertainties", *Asian Journal of Control-Special Issue on Iterative Learning Control*, vol. 13 (1), pp. 75-84, 2011.
 10. Dinh Hoa Nguyen, David Banjerdpongchai, "Robust Iterative Learning Control for linear systems with multiple time-invariant parametric uncertainties", *International Journal of Control*, vol. 83 (12), pp. 2506 — 2518, 2010.
 11. Dinh Hoa Nguyen, David Banjerdpongchai, "An LMI approach for Robust Iterative Learning Control with Quadratic Performance Criterion", *Journal of Process Control*, vol. 19, pp. 1054-1060, 2009.

◆ Refereed Proceedings

1. Tuynh Van Pham, Dinh Hoa Nguyen, David Banjerdpongchai, "Decentralized Iterative Learning Control of Building Temperature Control System", *2017 SICE International Symposium on Control Systems*, Okayama, Japan (accepted).
2. Dinh Hoa Nguyen, Tatsuo Narikiyo, Michihiro Kawanishi, "Demand Response Collaborative Management by a Distributed Alternating Direction Method of Multipliers", *2016 IEEE PES Innovative Smart Grid Technologies – Asia Conference*, Melbourne, Australia.
3. Dinh Hoa Nguyen, Huynh Ngoc Tran, Tatsuo Narikiyo, Michihiro Kawanishi, "Stability Certificate for Transmission Power Grids under Network Changes", *2016 IEEE International Conference on Sustainable Energy Technologies (Invited Paper)*, Hanoi, Vietnam.
4. Dinh Hoa Nguyen, Tatsuo Narikiyo, Michihiro Kawanishi, "Dynamic Environmental Economic Dispatch: A Distributed Solution based on an Alternating Direction Method of Multipliers", *2016 IEEE International Conference on Sustainable Energy Technologies*, Hanoi, Vietnam (Best Presentation Award).
5. Dinh Hoa Nguyen, Tatsuo Narikiyo, Michihiro Kawanishi, "A Distributed Optimal Power Dispatch Control Approach for Environment-Friendly Power Grids", *2016 SICE Annual Conference*, Tsukuba, Japan.
6. Dinh Hoa Nguyen, Tatsuo Narikiyo, Michihiro Kawanishi, "On Consensus of Nonlinear Multi-Agent Systems with Output Constraints", *6th IFAC Workshop on Distributed Estimation and Control in Networked Systems, 2016, Tokyo, Japan*.
7. Dinh Hoa Nguyen, Tatsuo Narikiyo, Michihiro Kawanishi, "Multi-Agent System Consensus under Input and State Constraints", *2016 European Control Conference*, Aalborg, Denmark.
8. Dinh Hoa Nguyen, Tatsuo Narikiyo, Michihiro Kawanishi, "Output Consensus Design for Heterogeneous Multi-Agent Systems with Application to Smart Grids", *2015 IEEE Conference on Decision and Control, Osaka, Japan*.

9. Dinh Hoa Nguyen, Tatsuo Narikiyo, Michihiro Kawanishi, "A novel distributed optimal approach to power coordination in Wind Power Plants", *2015 IEEE Multi-Conference on Systems and Control, Sydney, Australia*.
10. Dinh Hoa Nguyen, Shinji Hara, "Hierarchical Decentralized Stabilization for Networked Dynamical Systems by LQR Selective Pole Shift", *19th IFAC World Congress, 2014, Cape Town, South Africa*.
11. Dinh Hoa Nguyen, Shinji Hara, "Synchronization behaviors in Goodwin oscillator networks driven by external periodic signals", *European Control Conference, 2013, Zurich, Switzerland*.
12. Tong Duy Son, Dinh Hoa Nguyen, Hyo-Sung Ahn, "Iterative Learning Control for Optimal Multiple-point Tracking", *50th IEEE Conference on Decision and Control & European Control Conference, Orlando, Florida, USA, 2011*.
13. Tong Duy Son, Dinh Hoa Nguyen, Hyo-Sung Ahn, "An Interpolation Method for Multiple Terminal Iterative Learning Control", *IEEE Multi-Conference on Systems and Control, Denver, Colorado, USA, 2011*.
14. Dinh Hoa Nguyen, David Banjerdpongchai, "Robust Iterative Learning Control for Linear Systems Subject to Time-Invariant Parametric Uncertainties and Repetitive Disturbances", *7th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), 2010, Chiangmai, Thailand*.
15. Dinh Hoa Nguyen, David Banjerdpongchai, "Robust Iterative Learning Control for Linear Systems with Time-Varying Parametric Uncertainties", *48th IEEE Conference on Decision and Control (IEEE CDC), 2009, Shanghai, China*.
16. Dinh Hoa Nguyen, David Banjerdpongchai, "Robust Iterative Learning Control for Linear Systems with Iteration-Varying Parametric Uncertainties", *7th Asian Control Conference (ASCC), 2009, Hong Kong*.
17. Dinh Hoa Nguyen, David Banjerdpongchai, "Robust Iterative Learning Control for Linear Systems with Time-Invariant Parametric Uncertainties", *ICCAS-SICE International Joint Conference, 2009, Fukuoka, Japan*.
18. Dinh Hoa Nguyen, David Banjerdpongchai, "Robust Iterative Learning Control for Flexible Link under Parametric Uncertainty", *6th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), 2009, Pattaya, Thailand*.
19. Dinh Hoa Nguyen, David Banjerdpongchai, "An LMI approach for Robust Iterative Learning Control with Quadratic Performance Criterion", *10th International Conference on Control, Automation, Robotics and Vision (ICARCV), 2008, Hanoi, Viet Nam*.

◆ **Vietnamese Journals**

1. Dinh Hoa Nguyen, "Analysis of modulatory effects to Central Pattern Generator networks", *Journal of Science and Technology-Technical Universities*, vol. 107, pp. 99-102, 2015.

2. Dinh Hoa Nguyen, "On the synchronization of heterogeneous phase oscillator networks", *Journal of Science and Technology-Vietnam Academy of Science and Technology*, vol. 52(6), pp. 673-683, 2014.
3. Dinh Hoa Nguyen, "LQR Controller Design for Selective Eigenvalues Shifting", *Journal of Science and Technology-Thai Nguyen University*, vol. 8 (122), pp 161-166, 2014.
4. Hoang Duc Quynh, Dinh Hoa Nguyen, Nguyen Doan Phuoc, "Some Approaches for Synthesizing Model Predictive Controllers for Quick-Opening Industrial Valves", *Journal of Science and Technology-Thai Nguyen University*, No. 122, Vol. 8, pp 167-171, 2014.
5. Dinh Hoa Nguyen, "A Distributed Cooperative LQR Control Method for Autonomous Vehicles", *Journal of Military Science and Technology*, vol. 4, pp. 33-39, 2014.
6. Dinh Hoa Nguyen, "An LQR-based cooperative, distributed control method for autonomous vehicle networks", *Journal of Science and Military Technology – Special Issue on Automation*, vol. 4, pp. 33-39, 2014.
7. Dinh Hoa Nguyen, Doan Phuoc Nguyen, "H-infinity computation for multi-agent dynamical systems", *Journal of Computer Science and Cybernetics*, vol. 29(3), pp. 241-251, 2013.
8. Xuan Loc Nguyen, Dinh Hoa Nguyen, Phung Quang Nguyen, "Exact Linearization Control of Brushless DC Motor", *Automation Today, Special Issue of Automatic Control Technology, June 2007*.

◆ Other Proceedings

1. Hoang Minh Son, Dinh Hoa Nguyen, "Model Predictive Control using Combined State-feedback and Output-feedback for Large-delay Systems", *9th National Conference on Mechanics*, 2012, Hanoi, Vietnam.
2. Dinh Hoa Nguyen, Doan Phuoc Nguyen, "H-infinity norm computation of multi-agent systems", *1st Vietnam Conference on Control and Automation*, 2011, Hanoi, Vietnam.

◆ Unrefereed Papers

1. Pham Van Tuynh, Dinh Hoa Nguyen, David Banjerdpongchai, "Design of Distributed Consensus Controller for Building Temperature Control System", *AUN/SEED-Net Regional Conference on Electrical and Electronics Engineering*, 2016, Hanoi, Vietnam.
2. Dinh Hoa Nguyen, Tatsuo Narikiyo, Michihiro Kawanishi, "Output Consensus Design for Heterogeneous Multi-Agent Systems with Application to Smart Grids", *6th Symposium on Smart Energy Technology*, Toyota Technological Institute, Nagoya, Japan, 1/9/2015.
3. Dinh Hoa Nguyen, Phuong Nam Dao, David Banjerdpongchai, "A survey on Iterative Learning Control for Multi-Agent Systems", *AUN/SEED-Net International Conference*, 2014, Kuala Lumpur, Malaysia.

4. Dinh Hoa Nguyen, Shinji Hara, "A Time-Domain Harmonic Balance Method for Oscillatory Networks", *Symposium on Developments in Control Theory towards Global Control*, 2012, Tokyo, Japan.
5. Dinh Hoa Nguyen, Shinji Hara, "Central Pattern Generator Network Design-An LMI approach", *1st Asian Symposium on Automatic Control*, 2011, Ho Chi Minh City, Vietnam.