

# RESUME

## Hyo-Sung Ahn, Ph.D.

### Coordinates

Hyo-Sung Ahn, Professor & Dasan Professor  
 Distributed Control and Autonomous Systems Lab (DCASL)  
 School of Mechanical Eng.  
 Gwangju Institute of Science and Technology (GIST)  
 123 Cheomdangwagi-ro, Buk-gu, Gwangju 500-712, Korea

Office: Mecha. Building 204  
 Phone: 82-62-970-2398  
 Fax: 82-62-970-2384  
 E-mail: hyosung@gist.ac.kr  
 Homepage: <http://dcas.gist.ac.kr>

### Educations

Ph.D. Electrical & Computer Engineering	Utah State University	UT, USA	2006
M.S. Electrical Engineering	Uni. of North Dakota	ND, USA	2003
M.S. Astronomy (major: Astrodynamics and Space Sci.)	Yonsei University	Seoul, Korea	2000
B.S. Astronomy & Atmospheric Science	Yonsei University	Seoul, Korea	1998

### Employments

Professor	School of Mechanical Eng., Gwangju Institute of Science and Technology (GIST)	Korea	03/2016 –
Associate Professor	School of Mechatronics, Gwangju Institute of Science and Technology (GIST)	Korea	10/2012 – 02/2016
Assistant Professor	Dept. of Mechatronics, Gwangju Institute of Science and Technology (GIST)	Korea	07/2007 – 09/2012
Senior Researcher	Electronics and Telecommunications Research Institute (ETRI), Intelligent Robot Research Division	Korea	06/2006 – 07/2007
Adjunct Assistant Professor	University of Science and Technology	Korea	08/2006 – 07/2007
Research Engineer	Space Development and Research Center, Korea Aerospace Ind. LTD	Korea	09/2000 – 12/2001

### Research Interests

- ◆ *Formation control*
- ◆ *Distributed coordination for interconnected systems*
- ◆ *Iterative learning control/Adaptive learning control*
- ◆ *Network localization*

### Research Experiences

- ◆ **Automation and Autonomous Systems** (*Wireless Localization, Robot Intelligence, Scheduling, Mobile Robot Navigation, Sensor Integration for Autonomous Systems*)
- ◆ **Control Systems and Applications** (*Formation Control, Learning Control, Compensation of Mechanical Hard Nonlinearities, Synchronization & Consensus, Fractional-order Dynamics Systems, Interval Computations, Complex Interconnected Systems, Control Applications*)
- ◆ **Aerospace Navigation and Control** (*Navigation, Attitude Determination, Attitude Dynamics & Control*)

### Honor and Awards

- ◆ GIST 2016 Research Award for Most Citations
- ◆ ICROS Ko Myoung-Sam Academic Award (고명삼학술상), Oct. 2016, ICROS
- ◆ IJCAS (Int. J. Control, Automation & Systems) Academic activity award, Dec. 2014
- ◆ Recipient of the Knowledge Creation Grand Prize Award, MSIP (Ministry of Science, ICT and Future Planning), KISTI (Korea Institute of Science and Technology Information), Dec. 2014.
- ◆ GIST Dasan Distinguished Professor (Dasan Professor) 2013/11-2018/10
- ◆ Commendation from Minister of Ministry of Science, ICT and Future Planning, Korea, 2014
- ◆ GIST School of Mechatronics 2011 Citations per faculty
- ◆ Award of Appreciation for Symposium Chair at the 2007, 2009, 2010, 2011 ASME/IEEE Int. Conf. Mechatronics and Embedded Systems and Applications, ASME Division of Design Eng. – Mechatronic and Embedded Systems and Applications Committee
- ◆ Outstanding Graduate Research Assistant Award, Dept. of Electrical and Computer Engineering, Utah State University, 2005-2006

## **Professional Experience and Professional Memberships**

2015.5-2017.04	Chair, Technical Committee on Control Theory (TCCT), ICROS
2005-	Senior Member (2016.12-), IEEE (Institute of Electrical and Electronics Engineers) CSS and IES
2007-	Senior Member (2015-), ICROS (Institute of Control, Robotics and Systems)
2007-2013	Symposium Chair, Autonomous Systems and Ambient Intelligence, IEEE/ASME Int. Conf. Mechatronic and Embedded Systems and Applications (MESA)
2008, 2010	Associate Editor, IEEE Multi-conference on Systems and Control
08, 10, 12, 14, 16	Associate Editor, IEEE Int. Conf. Control Automation, Robotics, and Vision (ICARCV)
2016	Award Committee, 2016 ICARCV
2008	Associate Editor, IEEE/ASME Advanced Intelligent Mechatronics (AIM)
2009-2017	Associate Editor, Chinese Conf. Decision and Control (CCDC)
2009-10	Guest Editor, European Journal of Control
2009-10	Guest Editor, Asian Journal of Control
2010	Associate Editor, IEEE ISSCAA
2016	Associate Editor, Seventh Int. Conf. on Intelligent Control and Information Processing (ICICIP)
2010-2013	Editor, Journal of Astronomy and Space Sci
2013-2015	Associate Editor, International Journal of Advanced Robotic Systems
2014-	Associate Editor, Journal of Intelligent and Robotic Systems
2014-	Associate Editor, Int. Journal of Control, Automation & Systems
2014.12-	Associate Editor, IEEE Trans. Industrial Electronics
2015.04-	Associate Editor, Journal of the Franklin Institute
2017	Workshop/Tutorials Chair/Associate Editor, The 2017 Asian Control Conference
2017	Associate Editor, IEEE Int. Conf. Advanced Intelligent Mechatronics (AIM)
2017	Associate Editor, IEEE Int. Conference on Robotics and Automation (ICRA)
2017	Associate Editor, IFAC World Congress

### ◆ Organizer

- 2008 GIST Information and Mechatronics Week: Workshop on Robotics and Control organizing chair
- 2008 IFAC WC: session organizer (ILC/Autonomous systems)
- 2009 ICCAS-SICE: ILC session organizer
- 2009 Organizer & Program Chair Symposium on Learning Control (<http://dcas.gist.ac.kr/ilc2009/>)
- 2013 ICCAS Session organizer (ILC)
- 2015 IEEE MSC Session organizer (Formation control and network localization)
- 2016 1<sup>st</sup> Int. Symposium on Formation Control and Distributed Coordination, GIST, Sept. 12-17, 2016 (Organizer)
- 2016 ICCAS Session organizer (under TCCT)

### ◆ Int. Program Committee (IPC)/ Organizing Committee

- 2008 IEEE International Conference on Industrial Informatics
- 2008, 2013 ICINCO (Int. Conf. Informatics in Control, Automation and Robotics)
- 2009 International Conference on Human Computer Interaction (HCI, IIIT)
- 2009 IFAC Networked Robotics
- 2009-2012 ICINCO (Int. Conf. Informatics in Control, Automation and Robotics)
- 2012 FDA (2012-May; minisymposium chair)
- 2009 Korean Automatic Control Conference (KACC)
- 2009 International Conference on Mechatronics and Information Technology (ICMIT2009)
- 2011 ICROS Annual Conference
- 2011 International Conference on Control, Automation, and Systems: Workshop & Tutorial chair
- 2013 International Conference on Control, Automation, and Systems: Session organization chair
- 2016 ICSAI (Int. Conf. on Systems and Informatics)

## **Funding (PI)**

1. **More than 35 External & Internal Projects Completed and On-going (~350 Million Won per Year)**

## **Mentoring**

1. 8 Ph.D students completed (*by Feb. 2016*)
  - Dr. Kwang-Kyo Oh (Feb. 2013) Korea Institute of Industrial Technology/ Senior researcher
  - Dr. Hwan Hur (Aug. 2013) Korea Basic Science Institute/ Senior researcher
  - Dr. Byeong-Yeon Kim (Feb. 2014) Korea Atomic Energy Research Institute/ Senior researcher
  - Dr. Young-Cheol Choi (Feb. 2015) Korea Agency for Technology and Standards/ Public official

- Dr. Ji-Hwan Son (Feb. 2015) Electronics and Telecommunications Research Institute/ Senior researcher
  - Dr. Sang-Chul Lee (Aug. 2015) Korea Basic Science Institute/ Senior researcher
  - Dr. Seung-Ju Lee (Aug. 2015) Post-Doc. Korea Food Research Institute
  - Dr. Young-Hun Lim (Feb. 2016) Post-Doc. DCASL, GIST
2. 17 MS student completed (*by Feb. 2016*)
- Han-Eol Kim (Feb. 2011) Samsung Medison
  - Tae-Kyung Lee (Feb. 2011) Doosan DST
  - Tong Duy Son (Feb. 2012)
  - Sang-Hyuk Yun (Feb. 2012) LG Electronics
  - Je-Young Jeong (Feb. 2013) ADD
  - Yun-Tae Kim (Feb. 2014) Hyundai Motor
  - Seok-Young Han (Aug. 2015)

### Teaching

07F, 09F, 10F, 14S, 16S	Nonlinear control
09S, 10S, 13F, 15F	Modern control
08F	Intelligent control
08S	Advanced robot dynamics and control
11S, 14F	Robust control
11F	Power dynamics and control (under the course name of "Power electronics")
12S, 14S, 15S, 16S	Complex variables (1/4 semester)
15S	Formation control
16F	Linear Systems Theory
17S	Microcontroller and embedded systems (with Lab.)

### Selected Invited Talks (since March 2015)

1. Distance-based control of K3 and K4 formations in 2-dimensional space (with real implementations), 12-04-2017, **DGIST**
2. Formation control: Background, Motivations, Theory and Implementation, 09-02-2017, **Agency for Defense Development**
3. Distance-based control of K3 and K4 formations in 2-dimensional space, 10-11-2016, **CMC Workshop on Collective Dynamics of Many-Body Systems and Related Topics (Seoul National University)**
4. Introduction of navigation and control systems of small drones, 26-09-2016, **KITECH**
5. Formation control of multi-drones, 09-09-2016, **Robodrone Koera Forum 2016**
6. Formation control of drones, **Korea Army Information School**, 03-08-2016
7. Formation control of a group of UAVs, **Korea Aerospace Research Int.** 08-04-2016
8. Stabilization of rigid formation and open problems, **Fukuoka Workshop on Nonlinear Control Theory**, 13-12-2015
9. Distributed coordination and control for energy distribution in smart grid networks, **DGIST**, 10-11-2015
10. Distributed formation control inspired from collective animal motions: Motivations, formation systems, formation control, and experimental tests, **The 12th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI 2015)**, 30-10-2015
11. Distributed coordination and control in interconnected networks: Basic theory and applications, **Seoul National University**, 10-08-2015
12. Distributed control in cyber-physical energy networks and formation systems, **Australian National University**, 18-09-2015
13. Distributed coordination and control for energy distribution in smart grid network, **Xi'an Jiaotong University**, 26-07-2015
14. Control of multiple drones, **ICROS Annual Conference**, Daejeon, 07-05-2015
15. Distributed control of micro-grid networks, **KEPCO KPS**, 11-03-2015

## PUBLICATIONS

### **Book Publication (1 book)**

1. **Hyo-Sung Ahn**, Kevin L. Moore, YangQuan Chen “Iterative learning control: Robustness and monotonic convergence for interval systems,” *Communications and Control Engineering Series (CCE)*, Springer-Verlag, London, 2007.

### **Book Chapters (2 book chapters)**

1. **Hyo-Sung Ahn**, Wonpil Yu “Indoor Localization Techniques Based on Wireless Sensor Networks,” Chapter 13 in *Mobile Robots - State of the Art in Land, Sea, Air, and Collaborative Missions*, Edited by: XiaoQi Chen, Y.Q. Chen and J.G. Chase, ISBN 978-953-307-001-8, Publisher: InTech, May 2009
2. YangQuan Chen, Kevin L Moore, Hyo-Sung Ahn, “Iterative learning control. Book Chapter of Seel, N. M., *Encyclopedia of the Science of Learning*, Springer-Verlag, New York, 2012

### **Referred Int. Journal Publications** (The asterisk \* designates my (ex-) students)

1. Young-Hun Lim\*, **Hyo-Sung Ahn**, “Consensus with output saturations,” *IEEE Trans. on Automatic Control*, Vol. , No. , pp. -, April. 2018 (TAC2018-1)
2. Yan Geng, Xiaoe Ruan, **Hyo-Sung Ahn**, “Data-driven networked optimal iterative learning control for discrete linear time-varying systems with one-operation Bernoulli-type communication delays,” *Discrete Dynamics in Nature and Society*, Vol. , No. , 2017
3. **Hyo-Sung Ahn**, Byeong-Yeon Kim\*, Young-Hun Lim\*, Byung-Hun Lee\*, Kwang Kyo Oh\*, “Distributed coordination for optimal energy generation and distribution in cyber-physical energy networks,” *IEEE Transactions on Cybernetics*, Vol. , No. , 2017 (T-Cyb2017) (한전과제)
4. Seung-Ju Lee\*, Dong June Park, Joon Ha Kim, **Hyo-Sung Ahn**, “Distributed coordination of asymmetric compartmental systems under time-varying inputs and its applications,” *IEEE Trans. Control Systems Technology*, Vol. , No. , 2017 (TCST2017) (무인이동체사업)
5. Sang-Chul Lee\*, **Hyo-Sung Ahn**, “Distributed H-infinity filtering and synchronization of diffusively state-coupled heterogeneous systems,” *Int. J. Robust and Nonlinear Control*, Vol., No., , pp. - , 2017 (IJRNC2017).
6. Zhiyong Sun, Brian D. O. Anderson, Mohammad Deghat, **Hyo-Sung Ahn**, “Rigid formation control of double-integrator systems,” *Int. J. Control*, Vol. No., 2017 (IJC2017)
7. Zhiyong Sun, Myoung-Chul Park\*, Brian D. O. Anderson, **Hyo-Sung Ahn**, “Distributed stabilization control of rigid formations with prescribed orientation,” *Automatica*, Vol. 78, April, pp. 250-257, 2017 (Auto2017-2). ()
8. Minh Hoang Trinh\*, Viet Hoang Pham\*, Myoung-Chul Park\*, Zhiyong Sun, Brian D. O. Anderson, **Hyo-Sung Ahn**, “Comments on “Global stabilization of rigid formations in the plane””, *Automatica*, Vol. 77, March, pp. 393-396, 2017 (Auto2017-1). (CT 과제)
9. Sung-Mo Kang\*, Myoung-Chul Park\*, **Hyo-Sung Ahn**, “Distance-based cycle-free persistent formation: Global convergence and experimental test with a group of quadcopters,” *IEEE Trans. Industrial Electronics*, Vol. 64, No. 1, pp. 380-389, 2017 (TIE2017; Conference version: C15-5). (창조도전 과제)
10. Byeong-Yeon Kim\*, Kwang-Kyo Oh\*, Kevin L. Moore, **Hyo-Sung Ahn**, “Distributed coordination and control of multiple photovoltaic generators for power distribution in a microgrid,” *Automatica*, Vol. 73, November, pp. 193-199, 2016 (Auto2016-3). (창조도전 과제)
11. Byung-Hun Lee\*, **Hyo-Sung Ahn**, “Distributed formation control via global orientation estimation,” *Automatica*, Vol. 73, November, pp. 125-129, 2016 (Auto2016-2). (CT 과제)
12. Young-Hun Lim\*, **Hyo-Sung Ahn**, “Partial consensus of identical feedforward dynamic systems with input saturations,” *Int. J. Robust and Nonlinear Control*, Vol. 26, No 11, July, 2016, pp. 2494-2510 (IJRNC2016-1). (CT 과제)
13. Minh Hoang Trinh\*, Gwi-Han Ko\*, Viet Hoang Pham\*, Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, “Guidance using bearing-only measurements with three beacons in the plane,” *Control Engineering Practice*, Vol. 51, June, pp. 81-91, 2016 (CEP2016). (CT 과제)

14. Byeong-Yeon Kim\*, **Hyo-Sung Ahn**, "Distributed coordination and control for freeway traffic network using consensus algorithm", *IEEE Systems J.*, Vol. 10, No. 1, pp. 162-168, March 2016 (ISJ2016-2; *Conference version: C13-2*). (연구재단 교통망)
15. Seung-Ju Lee\*, **Hyo-Sung Ahn**, "Shock propagation in cascade systems: Analysis and applications", *IEEE Systems J.*, Vol. 10, No. 1, pp. 59-68, March 2016 (ISJ2016-1; *Conference version: C13-1*) (연구재단 교통망)
16. Kwang-Kyo Oh\*, Byeong-Yeon Kim\*, Hyun Rok Cha, Kevin L. Moore, **Hyo-Sung Ahn**, "Consensus of generalized integrators: Convergence rate and disturbance attenuation property," *Automatica*, Vol. 65, No. 3, pp. 115-119, March 2016 (Auto2016-1). (CT 과제)
17. Myoung-Chul Park\*, **Hyo-Sung Ahn**, "Distance-based acyclic minimally persistent formations with non-steepest descent control," *Int. J. of Control, Automation and Systems*, Vol. 14, No. 1, pp. 163-173, Feb., 2016 (IJCAS2016-1). (CT 과제)
18. Sung-Mo Kang\*, **Hyo-Sung Ahn**, "Design and realization of distributed adaptive formation control law for multi-agent systems with moving leader," *IEEE Trans. Industrial Electronics*, Vol. 63, No. 2, pp. 1268-1279, Feb., 2016 (TIE2016; *Conference version: C14-1*). (CT 과제)
19. Seung-Ju Lee\*, Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, "Non-trivial output synchronization of heterogeneous passive systems," *IEEE Trans. on Automatic Control*, Vol. 60, No. 12, pp. 3322-3327, Dec. 2015 (TAC2015-3). (연구재단 교통망)
20. Young-Cheol Choi\*, Ji-Hwan Son\*, **Hyo-Sung Ahn**, "Fault detection and isolation for a small CMG-based satellite: A fuzzy Q-learning approach," *Aerospace Science and Technology*, Vol. 47, Dec., pp. 340-355, 2015 (AST2015). (IITP 과제)
21. Ji-Hwan Son\*, **Hyo-Sung Ahn**, "Formation coordination for the propagation of a group of mobile agents via self-mobile localization," *IEEE Systems J.*, Vol. 9, No. 4, pp. 1285-1298, Dec. 2015 (ISJ2015-1; *Conference version: C09-17*). (연구재단 교통망)
22. Young-Hun Lim\*, **Hyo-Sung Ahn**, "Consensus under saturation constraints in interconnection states," *IEEE Trans. on Automatic Control*, Vol. 60, No. 11, pp. 3053-3058, Nov. 2015 (TAC2015-2). (연구재단 교통망)
23. Byeong-Yeon Kim\*, Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, "Coordination and control for energy distribution in distributed grid networks: Theory and application to power dispatch problem," *Control Engineering Practice*, Vol. 43, Oct., pp. 21-38, 2015 (CEP2015)) (연구재단 교통망)
24. Myoung-Chul Park\*, Kyungmin Jeong, **Hyo-Sung Ahn**, "Formation stabilization and resizing based on the control of inter-agent distances," *Int. J. Robust and Nonlinear Control*, Vol. 25, No. 14, pp. 2532-2546, Sept. 2015 (IJRNC2015-1; *Conference version: C13-6*). (Tensegrity 과제)
25. Minh Hoang Trinh\*, Byung-Hun Lee\*, **Hyo-Sung Ahn**, "The Fermat-Weber location problem in single integrator dynamics using only local bearing angles," *Automatica*, Vol. 59, Sept., pp. 90-96, 2015 (Auto2015-2) (CT 과제)
26. Seung-Ju Lee\*, **Hyo-Sung Ahn**, "Distributed coordination for connectivity adjustment of linear compartmental systems," *IEEE Trans. on Automatic Control*, Vol. 60, No. 8, Aug., pp. 2231-2236, 2015 (TAC2015-1) (연구재단 교통망)
27. Ji-Hwan Son\*, **Hyo-Sung Ahn**, "A robot learns how to entice a bio-insect," *IEEE Intelligent Systems*, Vol. 30, No. 4, July/August, pp. 54-63, 2015. (연구재단 교통망)
28. Myoung-Chul Park\*, **Hyo-Sung Ahn**, "Stabilization of directed cycle formations and application to two-wheeled mobile robots," *IET Control Theory & Applications*, Vol. 9, No. 9, June 2015, pp. 1338-1346 (CTA2015). (연구재단 교통망)
29. Young-Cheol Choi\*, **Hyo-Sung Ahn**, "Nonlinear control of quadrotor for point tracking: Actual implementation and experimental tests," *IEEE/ASME Trans. on Mechatronics*, Vol. 20, No. 3, pp. 1179-1192, June 2015 (TMECH2015-1) (연구재단 교통망)
30. Kwang-Kyo Oh\*, Myoung-Chul Park\*, **Hyo-Sung Ahn**, "A survey of multi-agent formation control," *Automatica*, Vol. 53, March, pp. 424-440, 2015 (Auto2015). (연구재단 교통망)
31. Kwang-Kyo Oh\*, Fadel Lashhab, Kevin L. Moore, Tyrone L. Vincent, **Hyo-Sung Ahn**, "Consensus of positive real systems cascaded with a single integrator," *Int. J. Robust and Nonlinear Control*, Vol. 25, No. 3, Feb. 2015, pp. 418-429 (IJRNC2015-2).
32. Byeong-Yeon Kim\*, **Hyo-Sung Ahn**, "Consensus-based coordination and control for building automation systems," *IEEE Trans. on Control Systems Technology*, Vol. 23, No. 1, Jan. 2015, pp. 364-371 (TCST2015-1; *Conference version: C13-9*) (연구재단 교통망)
33. Sang-Chul Lee\*, Kyungmin Jeong, **Hyo-Sung Ahn**, "Disturbance estimation, compensation, and dynamic shaping: New

- approach and an application to output stabilization of multiple cooperative control,” *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol. 137, No. 1, pp. 011008-1- 011008-10, Jan. 2015 (DSMC2015)
34. Seung-Ju Lee\*, **Hyo-Sung Ahn**, “Controller designs for bilateral teleoperation with input saturation,” *Control Engineering Practice*, Vol. 33, pp. 35-47, Dec. 2014 (CEP2014; *Conference versions: C10-8, C11-14*)
  35. Sang-Chul Lee\*, Yan Li, YangQuan Chen, **Hyo-Sung Ahn**, “H<sub>∞</sub> and sliding mode observers for LTI fractional-order dynamic systems with initial memory effect,” *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol. 136, No. 5, pp. 051022-1 -051022-13, September 2014 (DSMC2014; *Conference version: C12-05*)
  36. Kwang-Kyo Oh\*, Kevin L. Moore, **Hyo-Sung Ahn**, “Disturbance attenuation in a consensus network of identical linear systems: An H<sub>∞</sub> approach,” *IEEE Trans. on Automatic Control*, Vol. 59, No. 8, pp. 2164-2169, Aug. 2014 (TAC2014-2; *Conference version: C13-5*). (연구재단 교통망)
  37. Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, “Distance-based undirected formations of single- and double-integrator modeled agents in n-dimensional space”, *Int. J. Robust and Nonlinear Control*, Vol. 24, No. 12, pp. 1809-1820, Aug. 2014 (IJRNC2014).
  38. Byeong-Yeon Kim\*, Taekyung Lee\*, Young-Soo Kim, **Hyo-Sung Ahn**, “Iterative learning control for spatially interconnected systems”, *Applied Mathematics & Computation*, Vol. 237, June, 2014, pp. 438-445.
  39. Sang-Chul Lee\*, **Hyo-Sung Ahn**, “H<sub>∞</sub> filtering for time-invariant continuous-discrete linear systems,” *Journal of the Franklin Institute*, Vol. 351, No. 3, 2014, March, 2014, pp. 1316-1334 (JFI2014-2)
  40. Young-Hun Lim\*, **Hyo-Sung Ahn**, “Relative position keeping in satellite formation flying with input saturation,” *Journal of the Franklin Institute*, Vol. 351, No. 2, Feb., 2014, pp. 1112-1129 (JFI2014-1; *Conference versions: C11-11, C11-17*)
  41. Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, “Formation control and network localization via orientation alignment,” *IEEE Trans. on Automatic Control*, Vol. 59, No. 2, pp. 540-545, 2014 (TAC2014; *Conference versions: C12-3, C12-12*).
  42. Ji-Hwan Son\*, Young-Cheol Choi\*, **Hyo-Sung Ahn**, “Bio-insect and artificial robot interaction using cooperative reinforcement learning,” *Applied Soft Computing*, Vol. 25, pp. 322-335, December, 2014 (ASC2014; *Conference version: C12-6*)
  43. Hwan Hur\*, **Hyo-Sung Ahn**, “Unknown input H<sub>∞</sub> Observer-based localization of mobile robot with sensor failure,” *IEEE/ASME Trans. on Mechatronics*, Vol. 19, No. 6, pp. 1830-1838, December 2014 (TMECH2014) (연구재단 교통망)
  44. Hwan Hur\*, **Hyo-Sung Ahn**, “Unknown input observer-based filterings for mobile pedestrian localization using wireless sensor networks,” *IEEE Sensors J.*, Vol. 14, No. 8, pp. 2590-2600, August 2014 (Sensors2014)
  45. Seung-Ju Lee\*, Sang-Chul Lee\*, **Hyo-Sung Ahn**, “Design and control of tele-matched surgery robot”, *Mechatronics*, Vol. 24, No. 5, pp. 395-406, Aug. 2014 (Mech2014)
  46. Ji-Hwan Son\*, **Hyo-Sung Ahn**, “Bio-insect and artificial robot interaction: Learning mechanism and experiment,” *Soft Computing*, Vol. 18, No. 6, pp. 1127-1141, 2014 (SOCO2014; *Conference versions: C09-4, C09-15*)
  47. Jae-Gyeong Lee\*, **Hyo-Sung Ahn**, Kwang-Hee Ko, Semyung Wang, Ok-Chul Jung, Su-Jin Choi, and Daewon Chung, “Generation of satellite tracking profile: Problems and validation algorithms,” *Advances in Space Research*, Vol. 54, No. 6, pp. 1092-1107, Sep. 2014 (ASR2014).
  48. Young-Hun Lim\*, **Hyo-Sung Ahn**, “On the positive invariance of polyhedral sets in fractional-order linear systems,” *Automatica*, Vol. 49, No. 12, Dec., 2013, pp. 3690-3694 (Auto2013-4).
  49. Byeong-Yeon Kim\*, **Hyo-Sung Ahn**, “A design of bilateral teleoperation systems using composite adaptive controller,” *Control Engineering Practice*, Vol. 21, No. 12, Dec., pp. 1641-1652, 2013 (CEP2013).
  50. Byeong-Yeon Kim\*, Young-Soo Kim, **Hyo-Sung Ahn**, “Stability analysis of spatially interconnected discrete-time systems with random delays and structured uncertainties,” *Journal of the Franklin Institute*, Vol. 350, No. 7, Sep., 2013, pp. 1719-1738 (JFI2013-1)
  51. Young-Hun Lim\*, **Hyo-Sung Ahn**, “Decentralized control of nonlinear interconnected systems under both amplitude and rate saturations,” *Automatica*, Vol. 49, No. 8, August 2013, pp. 2551-2555 (Auto2013-3).
  52. **Hyo-Sung Ahn**, “An algorithm to determine linear independence of a set of interval vectors,” *Applied Mathematics & Computation*, Vol. 219, No. 22, July 2013, pp. 10822-10830 (AMC2013-1).
  53. Tong Duy Son\*, **Hyo-Sung Ahn**, Kevin L. Moore, “Iterative learning control in optimal tracking problems with specified data points”, *Automatica*, Vol. 49, No. 5, May 2013, pp. 1465-1472 (Auto2013-2; *Conference versions: C11-5, C11-9, C11-18*).
  54. Young-Hun Lim\*, Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, “Stability and stabilization of fractional-order linear systems subject to input saturation,” *IEEE Trans. on Automatic Control*, Vol. 58, No. 4, pp. 1062-1067, April 2013 (TAC2013-2).

55. Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, "Formation control of mobile agents based on distributed position estimation," *IEEE Trans. on Automatic Control*, Vol. 58, No. 3, pp. 737-742, March 2013 (TAC2013-1; *Conference version: C11-7*).
56. Young-Hun Lim\*, **Hyo-Sung Ahn**, "Stability analysis of linear systems under state and rate saturations," *Automatica*, Vol. 49, No. 2, Feb., 2013, pp. 496-502 (Auto2013-1).
57. Seung-Ju Lee\*, Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, "Passivity-based output synchronization of port-controlled Hamiltonian and general linear interconnected systems", *IET Control Theory & Applications*, Vol. 7, No. 2, Jan., 2013, pp. 234-245 (CTA2013; *Conference version: C12-1, C12-7*).
58. Byung-Hun Lee\*, Hwan Hur\*, **Hyo-Sung Ahn**, "Environmental-adaptive bias calibration in wireless localization," *IEEE Communications Letters*, Vol. 17, No. 4, pp. 717-720, April 2013 (Commletters2013).
59. Hwan Hur\*, **Hyo-Sung Ahn**, "Discrete-time  $H_{\infty}$  filtering for mobile robot localization using wireless sensor network," *IEEE Sensors Journal*, Vol. 13, No. 1, pp. 245-252, January 2013 (Sensors2013)
60. **Hyo-Sung Ahn**, "Leader-follower type relative position keeping in satellite formation flying via robust exponential stabilization," *Int. J. Robust and Nonlinear Control*, Vol. 22, No. 18, Dec. 2012, pp. 2084-2099 (IJRNC2012).
61. **Hyo-Sung Ahn**, Young-Soo Kim, YangQuan Chen, "An interval Kalman filtering with minimal conservatism," *Applied Mathematics and Computation*, Vol. 218, No. 18 (May), pp. 9563-9570, May 2012 (AMC2012)
62. Ying Luo, YangQuan Chen, Hyo-Sung Ahn, YouGuo Pi, "Fractional order periodic adaptive learning compensation for the state-dependent periodic disturbance," *IEEE Trans. Control Systems Technology*, Vol. 20, No. 2 (March), pp. 465-472, 2012 (TCST2012; *Conference version: C08-18*)
63. Kwang-Kyo Oh\*, **Hyo-Sung Ahn**, "Formation control of mobile agents based on inter-agent distance dynamics," *Automatica*, Vol. 47, No. 10, pp. 2306-2312, 2011 (Auto2011; *Conference versions: C11-2, C11-1*)
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