

CURRICULUM VITAE, **HYUN MYUNG**

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PERSONAL IDENTIFICATION

- Given Name: Hyun
- Family Name: MYUNG
- Gender: Male
- Date of Birth: Aug. 15, 1970
- Nationality: Republic of Korea
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Professor, School of Electrical Engineering,
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RESEARCH INTERESTS

- Robot Navigation
 - 3D SLAM (Simultaneous Localization And Map-Building)
 - Vision and Magneto-Inertial-based Localization / Positioning
 - Real-Time Path Planning, Optimal Path Planning
 - Formation Control for Swarm Robots
 - Biomimetic Robotics
 - Image Processing / Computer Vision / Object Recognition and Tracking
 - Gesture Recognition for HRI (Human Robot Interaction)
- Machine Learning, Artificial Intelligence
 - Evolutionary Computation (EC): Genetic Algorithms, Evolutionary Programming
 - Neural Networks, Deep Learning, Fuzzy Logic Control/System, Neuro-Fuzzy System
 - Intelligent Control/System
- Construction IT
 - Structural Health Monitoring (SHM) using Vision-based Smart Sensor Technology
 - Urban Robotics for U-City

- IT for U-Space (Ubiquitous Space)
- RF-based Seamless Indoor / Outdoor Positioning
- Skills
 - Computer Languages: C/C++, Visual C++, Embedded Visual C++, Python, Matlab, COM, ATL, LISP, Html, VRML, AVR family, DSP (TI TMS Series), ARM programming
 - Design Tools: Webots (3D Robot Simulator), SolidWorks, OrCAD, 3DStudioMAX, Dreamweaver, Fireworks, Flash, Photoshop

EDUCATION

Mar. 1994 – Aug. 1998	Ph.D. , Dept. of Electrical Engineering, KAIST, Daejeon, Korea.
Mar. 1992 – Feb. 1994	M.S. , Dept. of Electrical Engineering, KAIST, Daejeon, Korea.
Mar. 1988 – Feb. 1992	B.S. , School of Electrical Engineering and Computer Science (<i>Summa Cum laude</i>), KAIST, Daejeon, Korea.
Mar. 1986 – Feb. 1988	Gwangju Science High School, Gwangju, Korea

PROFESSIONAL EXPERIENCE

Jan. 2019 – Present	Full Professor , School of Electrical Engineering, KAIST, Daejeon, Korea. Head , KAIST Robotics Program (July 2018 ~) Adjunct Professor , KI for AI (Nov. 2018 ~)
Sep. 2018 – Dec. 2018	Full Professor , Dept. of Civil and Environmental Eng., KAIST, Daejeon, Korea. Head , KAIST Robotics Program (July 2018 ~) Adjunct Professor , KI for AI (Nov. 2018 ~)
Mar. 2016 –	Tenured Professor
Sep. 2012 – Aug. 2018	Associate Professor , Dept. of Civil and Environmental Eng., KAIST, Daejeon, Korea. Adjunct Professor , KAIST Robotics Program
Feb. 2016 – Feb. 2017	Visiting Scholar , Univ. of California, Davis, CA, USA
Mar. 2008 – Aug. 2012	Assistant Professor , Dept. of Civil and Environmental Eng., KAIST, Daejeon, Korea. Joint Appointment , KAIST Institute for Urban Space and Systems, Daejeon, Korea. Adjunct Professor , KAIST Robotics Program
Jul. 2003 – Feb. 2008	Principal Researcher , Samsung Advanced Institute of Technology, Samsung Electronics Co. Ltd., Yongin, Korea <ul style="list-style-type: none"> • Principal Researcher and Project Leader, Robot Navigation Group, Micro Systems Lab. • Samsung-Certified 6-Sigma Black Belt • Visited MIT Media Lab as a visiting researcher during Sponsor Week (Dec. 2005)
Feb. 2002 – Jun. 2003	CTO , Emersys Corp. (http://emersys.co.kr) (ETRI Spin-off Company) <ul style="list-style-type: none"> • CTO (Chief Technical Officer) and Director of Digital Contents Research Lab.

	<ul style="list-style-type: none"> Directed the Development of SoundPro and MavenXP Product
Sep. 1998 – Feb. 2002	Senior Researcher , ETRI (Electronics and Telecommunications Research Institute, http://www.etri.re.kr), Daejeon, Korea <ul style="list-style-type: none"> Senior Researcher, Virtual Reality R&D Center
Mar. 1994 – Aug. 1998	Ph. D. Candidate , KAIST, Dept. of Electrical Engineering (Ph.D), Daejeon, Korea <ul style="list-style-type: none"> Doctoral dissertation on “Evolutionary Scheme for Constrained Optimization Problems”

HONORS & AWARDS

- ISR (Intelligent Service Robotics) Best Paper Award*, Int’l Conf. on Ubiquitous Robots, Honolulu, Hawaii, June 28, 2018.
- 2018 *KAIST Synergic Research Prize* (with Prof. Junmo Kim, Dept. EE), May 25, 2018.
- Prime Minister’s Citation Award* at 2018 National Science Day, April 20, 2018.
- IROS Academic Award, ICROS (Institute for Control, Robotics, and Systems)*, Oct. 18, 2016.
- Selected as KAIST's Top 10 research accomplishments of 2015, Mar. 2016.
- Best Paper Award, *ICROS (Institute for Control, Robotics, and Systems)* Annual Conference, March 2016.
- Best Poster Paper Award, *URAI (Int’l Conf. on Ubiquitous Robots and Ambient Intelligence)* 2015, Oct. 2015
- Best Presentation Award, *ICCAS (Int’l Conf. on Control, Automation, and Systems)* 2015, Oct. 2015.
- Awarded *Yonam Overseas Visiting Scholar Fellowship*, LG Yonam Foundation, June 2015.
- Selected as Highlights of 2014 in *MST (Measurement Science and Technology) Journal*, 2015.
- Best Paper Award, *ICROS (Institute for Control, Robotics, and Systems)* Annual Conference, May 2015.
- Best Robot Vision Paper Award, Asian Federation of Computer Vision (AFCV), *KRoC (Korea Robotics Conference)*, May 2015.
- Best Poster Paper Award, *KRoC (Korea Robotics Conference)*, May 2015.
- The Best Paper Award, *KUUV (Korea Unmanned Underwater Vehicle)* Spring Conference, March 2015.
- Selected as *the Exemplary Achievements of 2014 that put Each College in the Spotlight*, KAIST, 2015.
- IJCAS (Int’l Journal of Control, Automation, and Systems)* Academic Activity Award, Dec. 15, 2014.
- The Best Paper Award, *Journal of KROS (Korea Robotics Society)*, Dec. 5, 2014.
- 4th place, Kinect Robot Navigation Contest, *IROS (IEEE/RSJ International Conference on Intelligent Robots and Systems)*, Chicago, Sep. 2014.
- The Best Paper Award, *ICROS (Institute for Control, Robotics, and Systems)* Daejeon Chungcheong Section Annual Conference, Korea, Nov. 19, 2014.
- Included in *TOP 100 Engineers* 2017, 2015, 2013, *IBC (Int’l Biographical Center, Cambridge, England)*
- Included in *Marquis Who’s Who in the World* 2012 - 2019

- Selected as *the Exemplary Achievements of 2013 that put Each College in the Spotlight*, KAIST, 2014.
- Best Paper Award from *KIPO (Korea Intellectual Property Office)*, Oct. 2013.
- The Best Paper Award, ICROS (Institute for Control, Robotics, and Systems) Annual Conference, Korea, May 24, 2013.
- *KAIST Technology Innovation Award*, KAIST, Dec. 26, 2012.
- Selected as *10th in Top 25 Hottest Articles in Ocean Engineering Journal*, July 2012.
- The Best Paper Award, ICROS (Institute for Control, Robotics, and Systems) Daejeon Chungcheong Section Annual Conference, Korea, Dec. 21, 2012.
- Academic Activity Award, ICROS (Institute for Control, Robotics, and Systems), Korea, Oct. 19, 2012.
- The Best Paper Award, KRoC (Korea Robotics Society Annual Conference), Korea, June 22, 2012.
- The Best Paper Award, ICROS (Institute for Control, Robotics, and Systems) Annual Conference, Korea, April 6, 2012.
- The Best Paper Award, ICROS (Institute for Control, Robotics, and Systems) Daejeon Chungcheong Section Annual Conference, Korea, Dec. 23, 2010.
- The Best Paper Award, ICROS (Institute for Control, Robotics, and Systems) Annual Conference, Korea, May 28, 2010.
- 4th Place, Underwater Robot Competition 2010, Underwater Robot Convention in JAMSTEC (Japan Agency for Marine-Earth Science and Technology), Japan, Mar. 2010.
- Presidential Award and Outstanding Poster Award, Freshmen Design Course, KAIST, Jan. 2009.
- Bronze prize for the Samsung Tech. Conference, Nov. 2005.
- New Researcher Scholarship from Korea Research Foundation, Jan. 1998 – Dec. 1998.
- Scholarship from Samsung HumanTech Thesis Prize, Feb. 1996 – Sep. 1998.
- Bronze prize for the 2nd Samsung HumanTech Thesis Prize, Feb. 1996.
- *Graduated First* in EECS School of KAIST: KAIST chairman of board of directors prize, *Summa Cum laude*, Feb. 1992.
- Jeonil Scholarship (Gwangju Science High School, Gwangju, Korea, 1987)
- Encouragement award for Nation-wide Math Olympiad competition (1986)

SUMMARY OF PUBLICATIONS

- **Refereed International Journal Papers: 76 papers (SCI(E): 66 papers)**
- **International Conferences: 217 papers**
- **Refereed Domestic Journal Papers: 20 papers**
- **Domestic Conferences: 98 papers**
- **7 Books, 3 Book chapters, Translation of 2 Books (English to Korean)**

REFEREED JOURNAL PUBLICATIONS (International)

* *The corresponding author is underlined.*

1. Yu-Cheol Lee and **Hyun Myung**, "Hierarchical Sampling Optimization of Particle Filter for Global Robot Localization in Pervasive Network Environment," *ETRI Journal*, [DOI], Apr. 2019. (SCI)
2. Hyungjin Kim, Seungwon Song, and **Hyun Myung**, "GP-ICP: Ground Plane ICP for Mobile Robots," *IEEE Access*, [DOI], vol.7 no.1, pp.76599-76610, Dec. 2019. (SCIE)
3. Kyukwang Kim, Jieum Hyun, Hyeongkeun Kim, Hwijoon Lim and **Hyun Myung**, "A Deep Learning-Based Automatic Mosquito Sensing and Control System for Urban Mosquito Habitats," *Sensors*, [DOI], vol.19, no.12, 2785, June 2019. (SCIE)
4. Wonkeun Youn and **Hyun Myung**, "Robust Interacting Multiple Model with Modeling Uncertainties for Maneuvering Target Tracking," *IEEE Access*, [DOI], vol.7, no.1, pp.65427-65443, Dec. 2019. (SCIE)
5. Yu-Cheol Lee and **Hyun Myung**, "Indoor Localization Method based on Sequential Motion Tracking Using Topological Path Map," *IEEE Access*, [DOI], vol.7, no.1, pp.46187-46197, Dec. 2019. (SCIE)
6. Wancheol Myeong and **Hyun Myung**, "Development of a Wall-climbing Drone Capable of Vertical Soft Landing using a Tilt-rotor Mechanism," *IEEE Access*, [DOI], vol.7, no.1, pp.4868-4879, Dec. 2019. (SCIE)
7. Jongheon Kim, Heung Woon Jang, Jae-Uk Shin, Jung-Wuk Hong, and **Hyun Myung**, "Development of a Mole-like Drilling Robot System for Shallow Drilling," *Accepted to IEEE Access*, [DOI], Nov. 2018. (SCIE)
8. Kyukwang Kim and **Hyun Myung**, "Autoencoder-combined Generative Adversarial Networks for Synthetic Image Data Generation and Detection of Jellyfish Swarm," *IEEE Access*, [DOI], vol.6, no.1, pp.54207-54214, Dec. 2018. (SCIE)
9. Seungmok Lee, Jae Woo Kim, and **Hyun Myung**, "Split-and-Merge-based Genetic Algorithm (SM-GA) for LEGO Brick Sculpture Optimization," *IEEE Access*, [DOI], vol.6, no.1, pp.40429-40438, Dec. 2018. (SCIE)
10. Donghoon Kim, Seung-Mok Lee, Sungwook Jung, Jungmo Koo and **Hyun Myung**, "Particle swarm optimization-based receding horizon formation control of multi-agent surface vehicles," *ARR (Advances in Robotics Research)*, vol.2, no.2, pp.161-182, [DOI], Jun. 2018.
11. Kyukwang Kim, Jieum Hyun and **Hyun Myung**, "Adaptive planar vision marker composed of LED arrays for sensing under low visibility," *ARR (Advances in Robotics Research)*, vol.2, no.2, pp.141-149, [DOI], Jun. 2018.
12. Seunghye Lee, Jungmo Koo, Jinki Kim and **Hyun Myung**, "Robust 2D human upper-body pose estimation with fully convolutional network," *ARR (Advances in Robotics Research)*, vol.2, no.2, pp.129-140, [DOI], Jun. 2018.
13. Kyukwang Kim, Hyeongkeun Kim, and **Hyun Myung**, "Bio-inspired Robot Swarm Control Algorithm for Dynamic Environment Monitoring," *ARR (Advances in Robotics Research)*, vol.2, no.1, pp.1-11, [DOI], Mar. 2018.
14. Donghwa Lee, Hyungjin Kim, Sungwook Jung, and **Hyun Myung**, "Depth-Hybrid Speeded-Up Robust Features (DH-SURF) for Real-Time RGB-D SLAM," *ARR (Advances in Robotics Research)*, vol.2, no.1, pp.33-44, [DOI], Mar. 2018.
15. Byeolteo Park and **Hyun Myung**, "Resilient underground localization using magnetic field anomalies for drilling environment," *IEEE Trans. Industrial Electronics*, vol.65, no.2, pp.1377-1387, [DOI], Feb. 2018. (SCI)
16. Jongheon Kim and **Hyun Myung**, "Development of a Novel Hybrid-type Rotary Steerable System for Directional Drilling," *IEEE Access*, vol.5, no.1, pp.24678-24687, [DOI], Dec. 2017. (SCIE)
17. Sungwook Jung, Hoon Cho, Donghoon Kim, Kyukwang Kim, Jong-In Han, and **Hyun Myung**, "Development of Algal Bloom Removal System Using Unmanned Aerial Vehicle and Surface Vehicle," *IEEE Access*, vol.5, no.1, pp.22166-22176, [DOI], Dec. 2017. (SCIE)
18. Suyoung Choi, Wancheol Myeong, Yonghun Jeong, and **Hyun Myung**, "Vision-based Hybrid 6DOF Displacement Estimation for Precast Concrete Member Assembly," *Smart Structures and Systems*, vol.20, no.4, pp.397-413, [DOI], Sep. 2017. (SCIE)
19. Haemin Jeon, Youngjae Kim, Wancheol Myeong, and **Hyun Myung**, "One-way ViSP (Visually Servoed Paired structured light system) for structural displacement monitoring," *Smart Materials and Structures*, vol.26, no.8, p.085044 (10pp), [DOI], July 2017. (SCI)

20. Hyungjin Kim, Bingbing Liu, Chi Yuan Goh, Serin Lee, **Hyun Myung**, “Robust Vehicle Localization using Entropy-weighted Particle Filter-based Data Fusion of Vertical and Road Intensity Information for a Large Scale Urban Area,” *IEEE RA-L (Robotics and Automation Letters)*, vol.2, no.3, pp.1518-1524, [DOI], July 2017.
21. Haemin Jeon, Su-Young Choi, Jae-Uk Shin, Youngjae Kim and **Hyun Myung**, “High-speed 6-DOF structural displacement monitoring by fusing ViSP (Visually Servoed Paired structured light system) and IMU with extended Kalman filter,” *SCHM (Structural Control and Health Monitoring)*, vol.24, no.6, e1926, [Link], June 2017. (SCIE)
22. Jongdae Jung, Ji-Hong Li, Hyun-Taek Choi, and **Hyun Myung**, “Localization of AUVs Using Visual Information of Underwater Structures and Artificial Landmarks,” *Journal of Intelligent Service Robots*, vol.10, no.1, pp.67-76, [DOI], Jan. 2017. (SCIE)
23. Jae-Uk Shin, Haemin Jeon, Suyoung Choi, Youngjae Kim, and **Hyun Myung**, “Laser Pose Calibration of ViSP for Precise 6-DOF Structural Displacement Monitoring,” *Smart Structures and Systems*, vol.18, no.4, pp.801-818, [DOI], Oct. 2016. (SCIE)
24. Kyukwang Kim, Hyeong Keun Kim, Hwijoon Lim, and **Hyun Myung**, “A Low Cost/Low Power Open Source Sensor System for Automated Tuberculosis Drug Susceptibility Testing,” *Sensors*, vol.16, no.6, 942, [Link], June 2016. (SCIE)
25. Hanguen Kim, Donghoon Kim, Hyongjin Kim, Jae-Uk Shin, and **Hyun Myung**, “An extended any-angle path planning algorithm for maintaining formation of multi-agent jellyfish elimination robot system,” *IJCAS (Int'l Journal of Control, Automation, and Systems)*, vol.14, no.2, pp.598-607, [DOI], April 2016. (SCIE, IF=1.065)
26. Hanguen Kim, Jungmo Koo, Donghoon Kim, Sungwook Jung, Jae-Uk Shin, Serin Lee, and **Hyun Myung**, “Image-Based Monitoring of Jellyfish using Deep Learning Architecture,” *IEEE Sensors*, vol.16, no.8, pp.2215-2216, [DOI], Apr. 2016. (SCI)
27. Hangeun Kim, Sangwon Lee, Youngjae Kim, Serin Lee, Dongsung Lee, Jinsun Ju, and **Hyun Myung**, “Weighted Joint-Based Human Behavior Recognition Algorithm using Only Depth Information for Low-Cost Intelligent Video-Surveillance System,” *Expert Systems With Applications*, vol.45, pp.131-141, [DOI], Mar. 2016. (SCIE, IF=3.928)
28. Donghoon Kim, Jae-Uk Shin, Hyongjin Kim, Hanguen Kim, Donghwa Lee, Seung-Mok Lee, and **Hyun Myung**, “Development and Experimental Testing of an Autonomous Jellyfish Detection and Removal Robot System,” *IJCAS (Int'l Journal of Control, Automation, and Systems)*, vol.14, no.1, pp.312-322, [DOI], Feb. 2016. (SCIE)
29. Taehwan Lee, Hanguen Kim, **Hyun Chung**, Yuseok Bang, and **Hyun Myung**, “Energy Efficient Path Planning for a Marine Surface Vehicle Considering Heading Angle,” *Ocean Engineering*, vol.107, pp.118-131, [DOI], Oct., 2015. (SCI, IF=1.351)
30. Seung-Mok Lee and **Hyun Myung**, “Receding Horizon Particle Swarm Optimisation-based Formation Control with Collision Avoidance for Nonholonomic Mobile Robots,” *IET Control Theory & Applications*, vol.9, no.14, pp.2075-2083, [Link], Sep. 2015. (SCI, IF=2.048)
31. Hyungjin Kim, Donghwa Lee, Taekjun Oh, Hyun-Taek Choi, and **Hyun Myung**, “A Probabilistic Feature Map-Based Localization System Using a Monocular Camera,” *Sensors*, vol.15, no.9, pp.21636-21659, [Link], Aug. 2015. (SCIE, IF=2.245)
32. Ki-Baek Lee, **Hyun Myung**, and **Jong-Hwan Kim**, “On-line Multi-objective Evolutionary Approach for Navigation of Humanoid Robots,” *IEEE Trans. Industrial Electronics*, vol.62, no.9, pp.5586-5597, [DOI], [DOI], Sep. 2015. (SCI, IF=6.5)
33. Seung-Mok Lee, Jongdae Jung, and **Hyun Myung**, “Geomagnetic Field-based Localization with Bicubic Interpolation for Mobile Robots,” *IJCAS (Int'l Journal of Control, Automation, and Systems)*, vol.13, no.4, pp.967-977, [DOI], Aug. 2015. (SCIE, IF=1.065)
34. Jongdae Jung, Taekjun Oh, and **Hyun Myung**, “Magnetic field constraints and sequence-based matching for indoor pose graph SLAM,” *Robotics and Autonomous Systems*, vol.70, pp.92-105, [DOI], Aug. 2015. (SCIE, IF=1.462)
35. Taekjun Oh, Donghwa Lee, Hyongjin Kim and **Hyun Myung**, “Graph Structure-Based Simultaneous

- Localization and Mapping Using a Hybrid Method of 2D Laser Scan and Monocular Camera Image in Environments with Laser Scan Ambiguity,” *Sensors*, vol.15, no.7, pp.15830-15852, [Link], July 2015. (SCIE, IF=2.245)
36. Jongdae Jung, Seung-Mok Lee, and **Hyun Myung**, “Indoor Mobile Robot Localization and Mapping Based on Ambient Magnetic Fields and Aiding Radio Sources,” *IEEE Trans. Instrumentation & Measurement*, vol.64, no.7, pp.1922-1934, [DOI], July 2015. (SCI, IF=1.71)
 37. Hanguen Kim, Sangwon Lee, Dongsung Lee, Soonmin Choi, Jinsun Ju, and **Hyun Myung**, “Real-time human pose estimation and gesture recognition from depth images using superpixels and SVM classifier,” *Sensors*, vol.15, no.6, pp.12410-12427, [Link], May 2015. (SCIE, IF=2.245)
 38. Kyukwang Kim and **Hyun Myung**, “Sensor Node for Remote Monitoring of Waterborne Disease-Causing Bacteria,” *Sensors*, vol.15, no.5, pp.10569-10579, [Link], May 2015. (SCIE, IF=2.245)
 39. Seung-Mok Lee, Jongdae Jung, **Hyun Myung**, “DV-SLAM (Dual-sensor-based Vector-field SLAM) and Observability Analysis,” *IEEE Trans. Industrial Electronics*, vol.62, no.2, pp.1101-1112, [DOI], Feb. 2015. (SCI, IF=6.5)
 40. Seung-Mok Lee, Hanguen Kim, **Hyun Myung**, and Xin Yao, “Cooperative Coevolutionary Algorithm-based Model Predictive Control Guaranteeing Stability of Multi-Robot Formation,” *IEEE Trans. Control Systems Technology*, vol.23, no.1, pp.37-51, [DOI], Jan. 2015. (SCI, IF=2.521)
 41. Donghwa Lee, Haemin Jeon, and **Hyun Myung**, “Pose-graph optimized displacement estimation for structural displacement monitoring,” *Smart Structures and Systems*, vol.14, no.5, pp.943-960, [DOI], Nov. 2014. (SCIE, IF=1.16)
 42. Byeolteo Park and **Hyun Myung**, “Underground localization using dual magnetic field sequence measurement and pose graph SLAM for directional drilling,” *Measurement Science and Technology*, vol.25, no.12, 125101 (12pp), [DOI], Oct. 2014. (SCI, IF=1.352)
 43. Haemin Jeon, Wancheol Myeong, Jae-Uk Shin, Jong-Woong Park, Hyung-Jo Jung, **Hyun Myung**, “Experimental Validation of ViSP (Visually Servoed Paired Structured Light System) for Structural Displacement Monitoring,” *IEEE/ASME Trans. Mechatronics*, vol.19, no.5, pp.1603-1611, [DOI], Oct. 2014. (SCI, IF=3.652)
 44. Donghwa Lee, **Hyun Myung**, “Solution to the SLAM Problem in Low Dynamic Environments Using a Pose Graph and an RGB-D Sensor,” *Sensors*, vol.14, no.7, pp.12467-12496, [Link], July 2014. (SCIE, IF=2.245)
 45. Serin Lee, Hanguen Kim, Sangwon Lee, Youngjae Kim, Dongsung Lee, Jinsun Ju, and **Hyun Myung**, “Detection of a Suicide by Hanging Based on a 3D Image Analysis,” *IEEE Sensors*, vol.14, no.9, pp.2934-2935, [DOI], Sept. 2014. (SCI, IF=1.852)
 46. Hanguen Kim, Donghoon Kim, Jae-Uk Shin, Hyongjin Kim, and **Hyun Myung**, “Angular Rate-Constrained Theta* Algorithm for Unmanned Surface Vehicles,” *Ocean Engineering*, vol.84, pp.37-44, [DOI], July 2014 (SCI, IF=1.337)
 47. Donghoon Kim, Donghwa Lee, **Hyun Myung**, and Hyun-Taek Choi, “Artificial Landmark-based Underwater Localization for AUV Using Weighted Template Matching,” *Journal of Intelligent Service Robots*, vol.7, no.3, pp.175-184, [DOI], July 2014 (SCIE)
 48. **Hyun Myung**, Yang Wang, Shih-Chung Jessy Kang, and XiaoQi Chen, “Survey on robotics and automation technologies for civil infrastructure,” *Smart Structures and Systems*, vol.13, no.6, pp.891-899, [DOI], June 2014. (SCIE, IF=1.16)
 49. Haemin Jeon, Youngjae Kim, Donghwa Lee, and **Hyun Myung**, “Vision-based remote 6-DOF structural displacement monitoring system using a unique marker,” *Smart Structures and Systems*, vol.13, no.16, pp.927-942, [DOI], June 2014. (SCIE, IF=1.16)
 50. Seung-Mok Lee, Hanguen Kim, Serin Lee, and **Hyun Myung**, “Nash equilibrium-based geometric pattern formation control for nonholonomic mobile robots,” *Advances in Robotics Research*, vol.1, no.1, pp.41-59, [DOI], Jan. 2014. (ISSN: 2287-4984)
 51. Donghwa Lee, Tae Jin Jung, Kyun Kyung Lee, and **Hyun Myung**, “Source Ranging with an Underwater Geographic Point in Non-Cooperative Bistatic Sonar,” *Measurement Science and Technology*, vol.25, no.1, 015004 (8pp), [DOI], Jan. 2014. (SCI, IF=1.435)

52. Seung-Beom Han, Jong-Hwan Kim, and **Hyun Myung**, "Landmark-based Particle Localization Algorithm for Mobile Robots with a Fish-eye Vision System," *IEEE/ASME Trans. on Mechatronics*, vol.18, no.6, pp.1745-1756, [DOI], Dec. 2013. (SCI, IF=3.652)
53. Yunhua Li, Yang Wang, J. Geoffrey Chase, Jouni Mattila, **Hyun Myung**, and Oliver Sawodny, "Survey and Introduction to the Focused Section on Mechatronics for Sustainable and Resilient Civil Infrastructure," *IEEE/ASME Trans. on Mechatronics*, vol.18, no.6, pp.1637-1646, [DOI], Dec. 2013. (SCI, IF=3.652)
54. Serin Lee, Cheol-Hu Kim, Dae-Gun Kim, Han-Guen Kim, Phill-Seung Lee, and **Hyun Myung**, "Remote guidance of untrained turtles by controlling voluntary instinct behavior," *PLOS One*, vol.8, no.4, [DOI], Mar. 2013. (SCIE, IF=4.092)
55. Haemin Jeon, Jae-Uk Shin and **Hyun Myung**, "The displacement estimation error back-propagation (DEEP) method for a multiple structural displacement monitoring system," *Measurement Science and Technology*, vol.24, 045104 (9pp), [DOI], Mar. 2013. (SCI, ISSN: 0957-0233, IF=1.494)
56. Hyoungki Lee, Jongdae Jung, Kiwan Choi, Jiyoung Park, **Hyun Myung**, "Fuzzy-logic-assisted interacting multiple model (FLAIMM) for mobile robot localization," *Robotics and Autonomous Systems*, vol.60, no.12, pp.1592-1606, [DOI], Dec. 2012. (SCIE, ISSN: 0921-8890, IF=1.448)
57. Donghwa Lee, Tae Jin Jung, Kyun Kyung Lee, and **Hyun Myung**, "Source Information Estimation Using Enemy's Single-Ping and Geographic Information in Non-Cooperative Bistatic Sonar," *IEEE Sensors Journal*, vol.12, no.9, pp.2784-2790, [DOI], Sep. 2012. (SCIE, ISSN: 1530-437X, IF=1.471)
58. Donghwa Lee, Gonyop Kim, Donghoon Kim, **Hyun Myung**, Hyun-Taek Choi, "Vision-based object detection and tracking for autonomous navigation of underwater robots," *Ocean Engineering*, vol.48, pp.59-68, [DOI], July 2012. (SCI, ISSN: 0029-8018, IF=1.161) *Selected as 10th in Top 25 Hottest Articles in Ocean Engineering*
59. **Hyun Myung**, Jongdae Jung, and Haemin Jeon, "Robotic SHM and Model-based Positioning System for Monitoring and Construction Automation," *ASE (Advances in Structural Engineering)*, vol.15, no.6, pp.943-954, [DOI], June 2012. (SCIE, ISSN: 1369-4332, IF=0.465)
60. Hyoung-Ki Lee, Kiwan Choi, Jiyoung Park, and **Hyun Myung**, "Self-calibration of gyro using monocular SLAM for an indoor mobile robot," *IJCAS (International Journal of Control, Automation, and Systems)*, vol.10, no.3, pp.558-566, [DOI], June 2012. (SCIE, ISSN: 1598-6446, IF=0.853)
61. Haemin Jeon, Jae-Uk Shin, and **Hyun Myung**, "Incremental displacement estimation of structures using paired structured light," *Smart Structures and Systems*, vol.9, no.3, pp.273-286, [DOI], Mar. 2012. (SCIE, ISSN: 1738-1584, IF=1.316)
62. Haemin Jeon, Yousuk Bang, and **Hyun Myung**, "A Paired Visual Servoing System for 6-DOF Displacement Measurement Structures," *SMS (Smart Materials and Structures)*, vol.20, p.045019, [DOI], Mar. 2011. (SCI, ISSN: 0964-1726, IF=2.094)
63. **Hyun Myung**, Seungmok Lee, and Bum-Joo Lee, "Paired Structured Light for Structural Health Monitoring Robot System", *Int'l Journal of SHM (Structural Health Monitoring)*, vol.10, no.1, pp.49-64, [DOI], Jan. 2011. (SCIE, ISSN: 1475-9217, IF=2.068)
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INVITED TALKS AND LECTURES

International

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2. **Hyun Myung**, “Drone Technologies for Smart Cities,” Invited talk at [*Drone Conference in Seoul*](#), Seoul, Korea, Nov. 10, 2017.
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9. **Hyun Myung**, “Robot Navigation and Monitoring Technologies for U-City,” Keynote Lecture at *RiTA (Robot Intelligence Technology and Applications)* Conference, Denver, US, Dec. 20, 2013.
10. **Hyun Myung**, “Recent Advances in Urban Robotics,” Invited talk at *NUS (National Univ. of Singapore)*, Singapore, Nov. 19, 2013.
11. **Hyun Myung**, “Trends and Recent Advances in Urban Robotics,” *The Eighth KAIST-Tongji Symposium on Civil Engineering*, KAIST, Korea, July 29, 2013. (Keynote Speech)
12. **Hyun Myung**, “Recent Advances in Urban Robotics,” *Asia-Pacific Student Summer School on Smart Structures Technology*, KAIST, Korea, July 25, 2013.
13. **Hyun Myung**, “Recent Advances in Urban Robotics,” *The Seventh Tongji Univ.-KAIST Symposium on Civil Engineering*, Shanghai, China, July 23, 2012.
14. **Hyun Myung**, “Introduction to Urban Robotics Lab,” *The Fifth Tongji Univ.-KAIST Symposium on Civil Engineering*, Shanghai, China, January 19, 2010.
15. **Hyun Myung**, “Soft Computing-based Active Control,” *The KAIST-Tongji Univ. Summer School*, KAIST, Korea, July. 22, 2009.
16. **Hyun Myung**, “Robotics for Civil Engineering,” *The Third KAIST-Tongji Univ. Symposium on Civil Engineering*, Shanghai, China, January 13, 2009.
17. **Hyun Myung**, “Toward Intelligent Home & Civil Robot,” Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, August 18, 2008.
18. **Hyun Myung**, “Active Structural Control - Intelligent Control,” *Asia-Pacific Student Summer School on Smart Structures Technology*, KAIST, Korea, Aug. 1, 2008.
19. **Chung-Bang Yun**, **Hyung-Jo Jung**, **Hyun Myung**, “R&D and Application Activities in Korea,” *The Fifth International Workshop on Structural Control and Monitoring*, Dalian, China, June 4-8 2008.

Domestic (Korean)

1. **Hyun Myung**, “Robotics and AI Technologies for Smart Cities,” Plenary talk at 2018 Korea BIM Symposium, Kyungbuk National Univ., Daegu, Nov. 1, 2018.
2. **Hyun Myung**, “Robotics for Smart City & Factory,” Invited talk at Workshop on robot intelligence industry convergence technology, Daejeon Lotte City Hotel, Oct. 23, 2018.
3. **Hyun Myung**, “Robotics for Smart Cities,” Invited talk at Graduate School of Convergence Science and Technology, Seoul National Univ., Sep. 11, 2018.
4. **Hyun Myung**, “Robotics and AI for Smart Cities,” Invited talk at KAIST Summer Camp, Aug. 4, Aug. 6, KAIST, 2018.
5. **Hyun Myung**, “Robot Technology for Disaster Safety,” Invited talk at ROKA (Republic of Korea Army) 4.0 Special Training Course, KAIST, Feb. 8, 2018.

6. **Hyun Myung**, “Trends and Challenges in Autonomous Robot Navigation,” Invited talk at Chungbuk National University, Aug. 22, 2017.
7. **Hyun Myung**, “Robot Technology in Future Cities,” Invited talk at KAIST Camp, KAIST, July 24, 2017.
8. **Hyun Myung**, “Robot Technology in Future Urban Environment,” Invited talk at Science Touch @ Friday, NRF, July 7, 2017.
9. **Hyun Myung**, “Intelligent Disaster Management Using Robots,” Invited talk at Public Safety and Security Academy, Ministry of Public Safety and Security, Sejong, Mar. 7, 2017.
10. **Hyun Myung**, “Recent Advances in Urban Robotics,” Invited talk at SG Lab., Computer Science Dept., KAIST, Daejeon, Aug. 21, 2015.
11. **Hyun Myung**, “Future City and Robots,” Invited talk at Midam Scholarship Foundation, KAIST ICC Campus, Daejeon, July 27, 2015.
12. **Hyun Myung**, “Robotics for fusion of Civil-IT,” Invited talk at Science Academy, KSA (Kwangju Science Academy) for the Gifted, Gwangju, May 21, 2015.
13. **Hyun Myung**, “Hybrid Directional Drilling and Underground Localization Technology,” Invited lecture, Workshop on Polar Extreme Engineering, *Korea Polar Research Institute*, Incheon, June 19, 2015.
14. **Hyun Myung**, “Recent Advances in Urban Robotics and Navigation Technologies,” Invited lecture, Dept. Electrical Engineering, *Korea Univ.*, Seoul, Dec. 16, 2014.
15. **Hyun Myung**, “Recent Advances in Urban Robotics and Robot Navigation Technologies,” Invited lecture, Dept. Mechanical and Aerospace Engineering, *SNU (Seoul National University)*, Dec. 5, 2014.
16. **Hyun Myung**, “Swarm Marine Robots for Efficient Marine Works,” Invited talk, MOU ceremony with NIA (National Information Society Agency, Ministry of Science, ICT, and Future Planning), Seoul, May 28, 2014.
17. **Hyun Myung**, “Urban Robotics in the Future,” Invited talk, *Daejeon Eoeun Elementary School*, Daejeon, Apr. 15, 2014.
18. **Hyun Myung**, “Urban Robotics,” Invited talk, *KPF (KAIST Presidential Fellowship) student meeting*, KAIST, Apr. 4, 2014.
19. **Hyun Myung**, “Advances in Marine Robotics,” Invited talk, KCG (Korea Costal Guard) Research Institute, Cheonan, Feb. 14, 2014.
20. **Hyun Myung**, “Core Technologies of Urban Robotics,” Invited talk at 4th Future Spatial Information Forum, Yonsei Univ., Nov. 28, 2013
21. **Hyun Myung**, “Robots in the future city,” Invited talk at World Vision Dream School, Daejeon EXPO Science Park, Oct. 26, 2013
22. **Hyun Myung**, “Robot Navigation Technology for U-City,” Invited talk at Yonsei Univ., Apr. 20, 2013
23. **Hyun Myung**, “Robot Navigation Technology for U-City,” Invited talk at HFRNet, Inc., Apr. 17, 2013
24. **Hyun Myung**, “Urban Robotics in the Future,” Invited talk, *Daejeon Eoeun Elementary School*, Daejeon, Apr. 12, 2013.
25. **Hyun Myung**, “Marine Robotics and Its Application to Jellyfish Removal”, KCG (Korea Costal Guard) Research Institute, Incheon, Nov. 16, 2012.
26. **Hyun Myung**, “Introduction to Marine Robotics and Jellyfish Removal Robot - JEROS”, NFRDI (Nat'l Fisheries R&D Institute), Busan, Sep. 12, 2012.
27. **Hyun Myung**, “Introduction to Jellyfish Removal Robot”, Korea Western Power, Co. Ltd., Gunsan, Sep. 4, 2012.
28. **Hyun Myung**, “Robots in the future city,” Invited talk as a Science and Technology Ambassador, Daejeon Dunwon Elementary School, June 5, 2012.
29. **Hyun Myung**, “Precision Navigation Technology,” KRRI (Korea Railroad Research Institute), Sept. 7, 2011.

30. **Hyun Myung**, “Introduction to USV/UUV Navigation Technology,” PIRO (Pohang Institute of Intelligent Robotics), Pohang, Korea, Aug. 30, 2011.
31. **Hyun Myung**, “Introduction to Robot Navigation and Localization Technology,” ETRI, Daejeon, Korea, Aug. 22, 2011.
32. **Hyun Myung**, “A Review on Optimization Techniques,” Samsung Electronics, Yongin, Korea, Feb. 22, 2011.
33. **Hyun Myung**, “Recent Studies on USV/UUV Navigation,” ONR (Office of Naval Research) Global, UK, KAIST, Korea, Jan. 28, 2011.
34. **Hyun Myung**, “Autonomous Navigation for ASV/AUV,” Invited Talk, Samsung Thales Co., Gumi, Korea, Jan. 27, 2011.
35. **Hyun Myung**, “Introduction to Robot Navigation Technology,” *Intelligent Robot Seminar Series* hosted by Daejeon Technopark, Chungnam Univ., Korea, Aug. 21, 2009.
36. **Hyun Myung**, “R&D Status of Civil Robots,” *Invited Lecture of Future Civil Engineering Committee, KSCE (Korean Society of Civil Engineers)*, Seoul, Korea, Nov. 25, 2008.
37. **Hyun Myung**, “Introduction to Intelligent Civil Robot,” *Technical Seminar in Conjunction with Asia-Pacific Student Summer School on Smart Structures Technology*, Lotte Hotel, Ulsan, Korea, Aug. 14, 2008.
38. **Hyun Myung**, “Technology Trends of Civil Robotics,” *Intelligent Robot Workshop*, BK21 Mechatronics Division, Chungnam Univ., Korea, June 30, 2008.

UNIVERSITY COMMITTEE SERVICES

June 2017 – Aug. 2018	AI Worldcup Organizing Committee , KAIST, Daejeon, Korea.
May 2017 – Present	Steering Committee for GCORE (Global Center for Open Research with Enterprise) , KAIST, Daejeon, Korea
Jan. 2017 – Present	Steering Committee for KI for Robotics , KAIST, Daejeon, Korea.
June 2017 – Present	Steering Committee for KI for AI , KAIST, Daejeon, Korea.
Mar. 2017 – Present	Representative Professor for Robotics Program , KAIST, Daejeon, Korea.
Jan. 2017 – Dec. 2017	Committee Member of Professors’ Association , KAIST, Daejeon, Korea
June 2013 – Present	Steering Committee for Robotics Program , KAIST, Daejeon, Korea.
Apr. 2017 – Apr. 2019	Commissioned Admission Officer , KAIST, Daejeon, Korea.
May 2013 – Apr. 2015	Commissioned Admission Officer , KAIST, Daejeon, Korea.
Mar. 2015 – Feb. 2017	Academic Affair Committee , KAIST, Daejeon, Korea.
2010 - Present	Steering Committee for U-City Program , KAIST, Daejeon, Korea.
2010 - 2011	Screening Committee for 2+3 Fusion Course , KAIST, Daejeon, Korea.

Feb. 2011 – Dec. 2011	Freshmen Advising Professor, KAIST, Daejeon, Korea.
Sep. 2010	Screening Committee for Undergraduate Research Project (URP) Program Workshop, KAIST, Daejeon, Korea.
Mar. 2010 – Dec. 2016	KPF (KAIST Presidential Fellowship) Student Search Committee, KAIST, Daejeon, Korea.
Aug. 2009 – Aug. 2011	Steering Committee for Incheon Robotics Graduate School, KAIST, Daejeon, Korea.
2009	Committee for Long-Term Development of KI, KAIST, Daejeon, Korea.
2008 – Present	Screening Committee for Future City Idea Competition, Dept. of CEE, KAIST, Daejeon, Korea.
2008 – Present	Student Selection Committee, Dept. of CEE, KAIST, Daejeon, Korea.
2008	Future Construction Task Force Team, KAIST Institute for IT Convergence, KAIST, Daejeon, Korea.
2008	Screening Committee for Undergraduate Research Project (URP) Program Workshop, KAIST, Daejeon, Korea.

PROFESSIONAL AFFILIATIONS

- **Senior Member, IEEE** (The Institute of Electrical and Electronics Engineers), May 2015 – Present
- Member, *IEEE* (The Institute of Electrical and Electronics Engineers), 2008 – April 2015
- **Senior Member, ICROS** (Institute for Control, Robotics, and Systems), 2014 – Present
- Member, *ICROS* (Institute for Control, Robotics, and Systems), 2008 – 2013
- Member, *KROS* (Korea Robotics Society), 2008 – Present
- Member, *KSCE* (Korean Society of Civil Engineers), 2008 – Present
- Member, *IEEK* (The Institute of Electronics Engineers of Korea), 2009 – 2013

PROFESSIONAL SERVICE ACTIVITIES

- Co-Editors-in-Chief, *Int'l Journal of ARR (Advances in Robotics Research)*, 2017-Present
- Associate Editor, *Int'l Journal of Control, Automation, and Systems (IJCAS)*, 2014-Present
- Guest Editor, *Special Issue on Robotics and Automation for Civil Infrastructure, SSS (Smart Structures and Systems)*, 2013-2014
- Member of Editorial Board, *Int'l Journal of ARR (Advances in Robotics Research)*, 2012-2017
- Guest Editor, *Focused Section on Mechatronics for Sustainable and Resilient Civil Infrastructure, IEEE-ASME Trans. Mechatronics*, 2012-2013
- Member of Editorial Board, *KROS (Korea Robotics Society)*, 2011-Present
- Guest Editor, *Journal of ICROS (Institute for Control, Robotics, and Systems)*, 2015
- Member of Board of Directors, *ICROS (Institute for Control, Robotics, and Systems)*, 2014-Present
- Member of Board of Directors, *KRSA (Korea Robot Soccer Association)*, 2012-Present
- Member of Board of Directors, *KROS (Korea Robotics Society)*, 2012-Present
- Chair of Board of Directors, *ICROS (Institute for Control, Robotics, and Systems) Daejeon-Chungchung Section*, 2017
- Member of Board of Directors, *ICROS (Institute for Control, Robotics, and Systems) Daejeon-Chungchung Section*, 2008–Present
- Short Course Instructor, Intelligent Robot Seminar Series *hosted by Daejeon Technopark*, Chungnam Univ., Korea, Aug. 21, 2009
- Daejeon Chapter Secretariat, *IEEE CIS (Computational Intelligence Society)*, 2011- Present

Technical Journal Reviewer for

- *Advances in Structural Engineering (ISSN 1369-4332)*
- *Circuits, Systems and Signal Processing (ISSN 0278-081X)*
- *IEEE CI (Computational Intelligence) Magazine (ISSN 1556-603X)*
- *IEEE Trans. Evolutionary Computation (ISSN 1089-778X)*
- *IEEE/ASME Trans. Mechatronics (ISSN 1083-4435)*
- *IJCAS (International Journal of Control, Automation, and Systems), ICROS (ISSN 1598-6446)*

- *Intelligent Service Robotics* (ISSN 1861-2776)
- *International Journal of Advanced Robotic Systems* (ISSN 1729-8806)
- *Journal of Bridge Engineering, ASCE* (ISSN 1084-0702)
- *Journal of ICROS (Institute for Control, Robotics, and Systems)* (ISSN 1976-5622)
- *Journal of Intelligent and Robotic Systems* (ISSN 0921-0296)
- *Journal of KROS (Korea Robotics Society)* (ISSN 1975-6291)
- *Journal of Mechanical Engineering Science* (ISSN 0954-4062)
- *Journal of Mechanical Science and Technology* (ISSN 1738-494X)
- *Measurement* (ISSN 0263-2241)
- *Ocean Engineering* (ISSN 0029-8018)
- *Ocean Systems Engineering* (ISSN 2093-6702)
- *Robotics and Autonomous Systems* (ISSN 0921-8890)
- *Sensors Journal* (ISSN 1424-8220)
- *SSS (Smart Structures and Systems)* (ISSN 1738-1584)
- *Structural Health Monitoring* (ISSN 1475-9217)
- *The IES Journal Part A: Civil and Structural Engineering* (ISSN 1937-3260)

Conference Organization

- **Honorary General Co-Chairs**, *Int'l Conf. RiTA (Robot Intelligence Technology and Applications)* 2019, KAIST, Korea, Dec. 1-3, 2019.
- **General Co-Chairs**, *Int'l Conf. RiTA (Robot Intelligence Technology and Applications)* 2018, Putrajaya, Malaysia, Dec. 16-18, 2018.
- **Associate Editor**, *IEEE Int'l Conference on Robotics and Automation (ICRA)* 2018, Brisbane, Australia, May 21-25, 2018.
- **General Chair**, *Int'l Conf. RiTA (Robot Intelligence Technology and Applications)* 2017, KAIST, Korea, Dec. 13-15, 2017.
- **Co-Chair**, *ANBRE-ICARR17 (The 2017 Int'l Conf. on Advances in Robotics Research)*, KINTEX, Aug. 28 - Sept. 1, 2017.
- **Associate Editor**, *IEEE Int'l Conference on Robotics and Automation (ICRA)* 2017, Singapore, May 29-June 3, 2017.
- **Member of Organizing Committee**, *ICROS (Institute for Control, Robotics, and Systems) Annual Conference*, Sokcho, May 11-13, 2017.
- **Associate Editor**, *IEEE Int'l Conference on Robotics and Automation (ICRA)* 2016, Stockholm, Sweden, May 16-21, 2016.
- **Program Co-Chair**, *Int'l Conf. RiTA (Robot Intelligence Technology and Applications)* 2015, Bucheon, Korea, Dec. 14-16, 2015.
- **Member of Organizing Committee**, *ICCAS (International Conference on Control, Automation and Systems)*, BEXCO, Busan, Oct. 13-16, 2015.
- **Program Co-Chair**, *URAI (International Conference on Ubiquitous Robots and Ambient Intelligence)*, KINTEX, Ilsan, Oct.28-30, 2015.
- **Program Chair**, *ICROS (Institute for Control, Robotics, and Systems) Annual Conference*, DCC, Daejeon, May 6-8, 2015.

- **Member of Organizing Committee**, *DARS (Int'l Symposium on Distributed Autonomous Robotic Systems)*, Daejeon, Korea, Nov. 2014.
- **Program Co-Chair**, *Int'l Conf. RiTA (Robot Intelligence Technology and Applications)* 2014, Beijing, China, Nov. 2014.
- **Member of Organizing Committee (Program Chair)**, *KROC (Korea Robotics Society Annual Conference)*, Buyeo Lotte Resort, June 19-20, 2014.
- **Local Scientific Committee Member**, *ICCES* 2014, Changwon, June 12-17, 2014.
- **Program Co-Chair**, *Int'l Conf. RiTA (Robot Intelligence Technology and Applications)* 2013, Denver, US, Dec. 2013.
- **Member of Organizing Committee**, *URAI (International Conference on Ubiquitous Robots and Ambient Intelligence)* 2013, Jeju, Korea, Oct. 2013.
- **Member of Organizing Committee**, *ASEM13 (World Congress on Advances in Structural Engineering and Mechanics)*, Jeju, Sept. 2013.
- **Member of Organizing Committee**, *IEEE RO-MAN (International Conference on Ubiquitous Robots and Ambient Intelligence)* 2013, Gyeongju, Korea, Aug. 2013.
- **Co-Organizer**, *Asia-Pacific Student Summer School on Smart Structures Technology*, KAIST, Korea, July 22 - Aug. 9, 2013.
- **Program Co-Chair**, *RiTA (Robot Intelligence Technology and Applications)* Conference 2012, Gwangju, Korea, Dec. 2012.
- **Member of Organizing Committee**, *URAI (International Conference on Ubiquitous Robots and Ambient Intelligence)* 2012, Daejeon, Korea, Oct. 2012.
- **Local Arrangement Chair**, *Int'l Conf. on Humanized Systems (ICHS)*, Aug. 16-18, 2012.
- **Member of Organizing Committee**, *FIRA (Federation of Int'l Robot-Soccer Association)* 2012, Bristol, UK, Aug. 2012.
- **Symposium Co-Organizer**, *Advances In Smart Materials, Systems And Analyses For Civil Infrastructure*, *WCCM (World Congress on Computational Mechanics)* 2012, Sao Paulo, Brazil, July 2012.
- **Member of Program Committee**, *RSS (Robotics: Science and Systems)* 2012, Sydney, July 2012.
- **Member of Organizing Committee**, *DCEE(First Int'l Workshop on Design in Civil and Environmental Engineering)* 2011 Workshop, Korea, April 2011.
- **Member of Program Committee**, *ICCCT* 2011, Korea, Oct. 2011.
- **Member of Program Committee**, *ISNIT (Int'l Symposium on Nature-Inspired Technology)* 2012, Korea, Jan. 2012
- **Member of Organizing Committee**, *4th International Conf. on Intelligent Robotics and Applications (ICIRA 2011)*, Aachen, Germany, Dec. 6-9, 2011.
- **Member of Program Committee**, *RSS (Robotics Science and Systems)* 2011, LA, USA, June 27-30, 2011.
- **Member of Organizing Committee**, *IEEE DEST (Digital Eco System)* 2011, Daejeon, Korea, May 31- June 3, 2011.
- **Member of Organizing Committee**, *FIRA Robot World Congress*, Bangalore, India, Sept. 15–19, 2010.
- **Member of Organizing Committee**, *KROC (Korea Robotics Society Annual Conference)*, Jeonju,

July 1-3, 2010.

- **Member of Organizing Committee**, *FIRA CIRAS (International Conference on Computational Intelligence, Robotics and Autonomous Systems)*, Incheon, Korea, Aug. 16-18, 2009.
- **Member of Organizing Committee**, *IEEE CIRA (Int'l Symposium on Computational Intelligence in Robotics and Automation)*, Daejeon, Korea, Dec. 15-18, 2009.
- **Member of Organizing Committee**, *KROC (Korea Robotics Society Annual Conference)*, KAIST, July 1-3, 2009.
- **Member of Program Committee**, *Congress on Evolutionary Computation (CEC2001)*, COEX, Korea, May 27-30, 2001.
- **Secretariat**, *SEAL(Simulated Evolution And Learning) '96 Conference*, KAIST, Daejeon, Korea, Nov. 1996.

Session Organizer and Chair

- **Mini-Symposium Organizer**, "Control & Robotics," *ICSSS (Int'l Conference on Smart Structures and Systems)* 2015, Incheon, Aug 25-29, 2015
- **Special Session Organizer and Chair**, "Mechatronics and robotics for civil structures," *ICCES* 2014, Changwon, June 12-17, 2014
- **Session Chair**, Session on "Civil Engineering," *KKHTCNN* 2013, Singapore, Nov. 19, 2013
- **Session Chair**, Session on "Mechatronics System," *ICROS Annual Conference*, 2012, COEX, Seoul, Korea, April 2012
- **Session Chair**, *The Twenty-Fourth KKCNN Symposium on Civil Engineering*, Hyogo, Japan, Dec. 2011
- **Session Chair**, *ASEM11+ (Int'l Conf. on Structural Engineering and Mechanics)*, Seoul, Sept. 2011
- **Session Chair**, *ICROS Annual Conference*, Gwangju, May 2011
- **Track Chair, Session Chair**, *IEEE DEST (Digital Eco System) 2011*, Daejeon, Korea, May 31- June 3, 2011.
- **Chair**, Session on "Mechatronics System Design and Control," *ICCAS (International Conference on Control, Automation and Systems)* 2010, KINTEX, Korea, Dec. 2010
- **Chair**, Seminar on "Green Home/Building Construction Strategy for Green Environment," Korea Association of Smart Home, Seoul, Nov. 3, 2009.
- **Co-Chair**, Session on "Localization, Path Planning, Obstacle Avoidance," *FIRA RoboWorld Congress CIRAS (International Conference on Computational Intelligence, Robotics and Autonomous Systems)*, Incheon, Korea, Aug. 16-18, 2009.

RESEARCH GRANTS

1. **Principle Investigator**, Next generation intelligent assistant and component technology development II, Samsung Electronics, 2018-07-14~2019-07-13, 100,000,000 KRW
2. **Principle Investigator**, Development of autonomous robot localization and mapping technology in various indoor outdoor environments II, Commercializations Promotion Agency for R&D Outcomes,

2018-04-01~2019-03-31, 120,000,000 KRW

3. **Principle Investigator**, UAV localization technology using sensor fusion with GPS, Samsung Electronics, 2018-02-19~2018-12-31, 90,000,000 KRW
4. **Principle Investigator**, Target Classification and Learning Data Processing Module of Video-images, Pixoneer, Co., 2018-01-01~2019-11-30, 181,800,000 KRW
5. **Co-Principle Investigator**, Core-technology development for low-altitude UTM (Unmanned Aircraft System Traffic Management), 2018-01-01~2018-12-31, KIAST, 69,940,000 KRW
6. **Principle Investigator**, Development of an embedded directional drilling robot for drilling and exploration under 300m depth (mole-bot), KEIT, 2017-04-01~2019-12-31, 800,000,000 KRW
7. **Principle Investigator**, Next generation intelligent assistant and component technology development, Samsung Electronics, 2017-06-15~2018-06-14, 100,000,000 KRW
8. **Co-Principle Investigator**, Adaptive machine learning technology for autonomous and intelligent digital companion, 2017-09-01~2018-06-30, 200,000,000 KRW
9. **Principle Investigator**, Development of autonomous robot localization and mapping technology in various indoor outdoor environments, Commercializations Promotion Agency for R&D Outcomes, 2017-06-01~2018-03-31, 90,000,000 KRW
10. **Co-Principle Investigator**, Development of indoor scout robot systems for complex disaster situation, KEIT, 2017-01-01~2018-12-31, 325,000,000 KRW
11. **Co-Principle Investigator**, Development of robot intelligence technology for seamless indoor outdoor mobility robust to environmental changes, KEIT, 2017-01-01~2018-12-31, 340,000,000 KRW
12. **Principle Investigator**, Robot System for Reconnaissance, Removal, and Rescue to Reduce Lift Loss in Beaches, 2015-11-01~2017-10-31, NRF, 400,000,000 KRW
13. **Co-Principle Investigator**, Fast structural inspection and evaluation technology for bridges based on unmanned inspection device, 2017-03-01~2018-12-31, KAIA, 239,680,000 KRW
14. **Principle Investigator**, Wall-climbing drone-based wall maintenance system for high-rise buildings, 2017-06-01~2017-12-31, KAIST, 50,000,000 KRW
15. **Co-Principal Investigator**, ICT-based Partial Substitution Technology for Long Life-Span Bridge, MOLIT (Ministry of Land, Infrastructure and Transport), 2017-04-01~2018-01-31, 57,770,000 KRW
16. **Principle Investigator**, Formation control of jellyfish removal robots and image-based jellyfish distribution recognition system using an AUV, KIAT, 2014-09-01~2017-08-30, 369,795,000 KRW
17. **Principle Investigator**, Active underwater navigation technique for efficient underwater surveillance, KRISO, 2015-02-01~2015-11-30, 50,000,000 KRW
18. **Principle Investigator**, Environment-adaptive swarm robots using evolutionary mechanism, KSA, 2015-03-01~2015-12-31, 22,000,000 KRW
19. **Principle Investigator**, Pose-graph optimization and node pruning algorithms for multiple robots, LG Electronics, 2015-04-01~2015-12-16, 60,000,000 KRW
20. **Principle Investigator**, HRHRP for Fire Buster, KAIST, 2015-07-01~2015-12-31, 60,000,000 KRW
21. **Principle Investigator**, Localization technique for a quadrotor-type wall-climbing robot, KAIST,

2015-06-29~2015-12-18 , 2,500,000 KRW

22. **Principal Investigator**, Pilot Test of Directional Drilling System, KEIT (Korea Evaluation Institute of Industrial Technology), 2013-11-01 - 2014-11-30, 280,000,000 KRW
23. **Principal Investigator**, Optimization Technique for Conversion of Traditional Architectural Data, ETRI (Electronics and Telecommunications Research Institute), 2014-07-04 - 2015-02-28, 50,000,000 KRW
24. **Principal Investigator**, 3D Depth Sensor-based Skeleton Extraction and Gesture Recognition, Samsung S1, 2013-04-01 - 2014-10-31, 130,000,000 KRW
25. **Principal Investigator**, Small-size Marine Robot for Oil Spill Protection, KIRIA (Korea Institute for Robot Industry Advancement), 2014-05-01 – 2015-04-30, 110,000,000 KRW
26. **Co-Principal Investigator**, ICT-based Partial Substitution Technology for Long Life-Span Bridge, MOLIT (Ministry of Land, Infrastructure and Transport), 2013-06-01 – 2015-04-30, 150,000,000 KRW
27. **Principal Investigator**, System for Reconnaissance and Removal of Harmful Jellyfish to Prevent Damage, NRF (Nat'l Research Foundation of Korea), 2013-05-01 - 2016-04-30, 150,000,000 KRW
28. **Principal Investigator**, Autonomous Underwater Navigation Technology with 1.0 m Localization Error, KIRO (Korea Institute of Robot Convergence), 2012-12-01 - 2016-11-30, 150,000,000 KRW
29. **Principal Investigator**, Gamma Spectrogram Detection Technology for Unconventional Reserves, KIGAM (Korea Institute of Geoscience And Mineral Resources), 2012-11-01 - 2015-10-31, 220,000,000 KRW
30. **Principal Investigator**, ROTUS (Robust and Low-Cost Autonomous Outdoor Navigation Technology), ETRI (Electronics and Telecommunications Research Institute), 2012-04-01 - 2015-03-31, 320,000,000 KRW
31. **Principal Investigator**, Test and Performance Evaluation of DGPS-Integrated Navigation Device, Dusi Tech, 2013-05-01 - 2013-11-30, 20,000,000 KRW
32. **Principal Investigator**, Feasibility Test of Mobile Vehicle Localization for Acquiring Indoor Positioning Database, Samsung Electronics, 2013-08-01 - 2013-12-20, 65,000,000 KRW
33. **Principal Investigator**, Depth Sensor-based SLAM Technology, Samsung Electronics, 2012-05-24 - 2012-12-31, 70,000,000 KRW
34. **Principal Investigator**, RF-based SLAM Technology, Samsung Electronics, 2012-05-11 - 2013-04-10, 60,000,000 KRW
35. **Principal Investigator**, Stable Boring and Management Technology for Shale-Gas, KETEP (Korea Institute of Energy Technology Evaluation and Planning), 2011-07-01 - 2014-06-30, 300,000,000 KRW
36. **Principal Investigator**, Localization and Path Planning for Automatic Valet Parking, ETRI (Electronics and Telecommunications Research Institute), 2011-09-26 - 2012-01-30, 50,000,000 KRW
37. **Principal Investigator**, Vision-based Localization and Mapping for Autonomous Navigation of Underwater Robot, KRISO (Korea Research Institute of Ships and Ocean Engineering), 2010-02-01 - 2014-11-30, 220,000,000 KRW
38. **Principal Investigator**, Development of Automation Technology for Shipping Crane, RIST (Research Institute of Industrial Science and Technology), 2010-10-16 - 2011-10-15, 25,000,000 KRW
39. **Co-Principal Investigator**, Development of a Remote Fish Guidance System, ICC Project, KAIST,

2010-09-01 – 2011-08-31, 20,000,000 KRW

40. **Co-Principal Investigator**, Robot Intelligence Technology Research Center, MKE (Ministry of Knowledge and Economy), 2010-05-01 - 2014-04-30, 180,000,000 KRW
41. Participating Researcher, Development of Intelligent Robot Fish for Aquarium, Daejeon Metro-City TechnoPark, 2009-11-01 - 2010-08-31, 136,000,000 KRW
42. **Principal Investigator**, Development of Cooperative Swarm Robot System for Marine Works and its Application to Jellyfish Removal, NRF (Nat'l Research Foundation of Korea), 2010-05-01 - 2013-04-30, 150,000,000 KRW
43. **Principal Investigator**, Development of Core Technology of Autonomous Navigation System of Mobile Harbor, KORDI(Korea Ocean Research & Development Institute), 2010-05-01 - 2011-04-30, 156,525,000 KRW
44. **Advisor**, RF beacon-based Indoor Robot Localization, Samsung Electronics Co. Ltd., 2009-07-01 – 2010-06-30, 30,000,000 KRW
45. **Principal Investigator**, Development of Autonomous Docking System for Mobile Harbor, KAIST, 2009-06-01 - 2009-12-31, 60,000,000 KRW
46. **Principal Investigator**, Development of Embedded Robot System for Health Monitoring of Massive Structures, NRF(Nat'l Research Foundation of Korea), 2009-05-01 - 2012-04-30, 159,750,000 KRW
47. **Principal Investigator**, Performance Improvement of RF-based Indoor Localization System, KAIST, 2008-12-29 - 2009-05-29, 2,000,000 KRW
48. **Principal Investigator**, Application of IT-based Technology to U-Space (U-Eco City), MLTM (Ministry of Land, Transport, and Marine Affairs), 2008-11-14 - 2011-07-29, 201,777,450 KRW
49. **Principal Investigator**, U-Space Construction Technology, MLTM, 2008-11-14 - 2009-06-29, 109,677,000 KRW
50. **Principal Investigator**, Construction of IT convergence technology education system by investigating industry needs, KORPA (Korea Radio Promotion Agency), 2008-08-05 - 2008-11-30, 13,400,000 KRW
51. **Principal Investigator**, Structural Health Monitoring Robot System, KAIST, 2008-06-01 - 2008-12-31, 30,000,000 KRW
52. **Principal Investigator**, Robot Navigation Algorithm, Samsung Electronics, 2005.9 – 2008. 2
53. Participating Researcher, Context Awareness Technology for Service Agent, Samsung Electronics, 2003.7 – 2004.10
54. **Co-Principal Investigator**, SmarTV, MIC (Ministry of Information and Communication), 2002.1 – 2003. 6
55. **Principal Investigator**, Next Generation Human-Computer Interface Using EEG, MIC, 2002.2 – 2003.4
56. Participating Researcher, 5.1 Channel 3D Sound Processing Technology for Games, MIC, 2002.1 – 2002. 12
57. Participating Researcher, Medical Virtual Reality, MPB(Ministry of Planning and Budget, 2000. 1 – 2002.2
58. Participating Researcher, Audio Content Production System for Digital TV Content, MIC, 1999. 1 - 1999.12
59. Participating Researcher, Development of Realistic Sound Technology for Moving Objects, MIC, 1998. 9 - 1998. 12

60. Participating Researcher, SMT Production Support System, Mirae Industrial System Co., 1998. 1 - 1998. 8
61. Participating Researcher, Development of High-Speed Parallel Evolutionary Computation S/W and Its Application Techniques, MOST (Ministry of Science and Technology), 1996.12 - 1999. 10
62. Participating Researcher, SMT (Surface Mounting Technology) In-line Production Preparation Software System, LG Industrial Systems, 1995. 3 - 1998. 2
63. Participating Researcher, Simulation System for Fuzzy Control of Boiler-Turbine Startup/Shutdown System, MOST (Ministry of Science and Technology), 1992 - 1994

Outside Consulting

Consultation on “3D SLAM (Simultaneous Localization And Mapping) Technology for Drones,” *Samsung Heavy Industry Co. Ltd.*, Geoje, Korea, Jan. 30, 2018 (500,000 KRW)

Consultation on “Engineering Education for 4th Industry Revolution: Machine Learning and Cyber Physical Systems,” *The National Academy of Engineering of Korea*, Seoul, Korea, Sep. – Dec. 2017 (2,000,000 KRW)

Consultation on “Indoor and Outdoor SLAM (Simultaneous Localization And Mapping) Technology,” *Hyundai WIA Co. Ltd.*, Changwon, Korea, Dec. 26, 2017 (300,000 KRW)

Consultation on “Indoor and Outdoor SLAM (Simultaneous Localization And Mapping) Technology,” *Comotomo Co. Ltd.*, Seoul, Korea, Oct. 19, 2017 (300,000 KRW)

Consultation on “Indoor and Outdoor SLAM (Simultaneous Localization And Mapping) Technology,” *NT Robot Co. Ltd.*, Seoul, Korea, Sep. 22, 2017 (300,000 KRW)

Consultation on “Indoor and Outdoor SLAM (Simultaneous Localization And Mapping) Technology,” *Zero One Craft Co. Ltd.*, Daejeon, Korea, Aug. – Dec. 2017 (Technology transfer-related)

Consultation on “Indoor and Outdoor SLAM (Simultaneous Localization And Mapping) Technology,” *DRB Fatec Co. Ltd.*, Busan, Korea, Aug. – Dec. 2017 (Technology transfer-related)

Consultation on “Dynamics Model and HILS Development for DP (Dynamic Positioning) System Performance Evaluation,” *Khan Co. Ltd.*, Geoje, Korea, Jan. 2014 – Mar. 2014. (9,000,000 KRW)

Consultation on “RF-based Robot Localization Technology,” *Samsung Electronics Co. Ltd.*, Yongin, Korea, July 2009 – June 2010. (30,000,000 KRW)

Technology Transfer

- “3D SLAM technology for augmented reality in mobile devices,” *Alchera Co. Ltd.*, Pangyo, Korea, Mar. 2018. (40,000,000 KRW)
- “3D SLAM technology for dynamic indoor autonomous navigation,” *Zero One Craft Co. Ltd.*, Daejeon, Korea, Aug. 2017. (110,000,000 KRW)
- “3D SLAM technology for dynamic indoor autonomous navigation,” *DRB Fatec Co. Ltd.*, Busan, Korea,

May 2017. (110,000,000 KRW)

- “JEROS (Jellyfish removal robot system),” *Rastech, Co. Ltd.*, Daejeon, Korea, Mar. 2014. (110,000,000 KRW)

COURSES TAUGHT

Fall 2018, 2017, 2015, 2014, 2013, 2012, 2011, 2010	<p>Instructor, CE208: <i>IT in Construction Engineering</i>, KAIST, Daejeon, Korea.</p> <ul style="list-style-type: none">• 3 units, undergraduate course• [2015 FCE: 4.81, 12 students registered]• [2014 FCE: 4.35, 17 students registered]• [2013 FCE: 4.29, 30 students registered]• [2012 FCE: 4.09, 37 students registered]• [2011 FCE: 3.90, 51 students registered]• [2010 FCE: 3.97, 37 students registered] <p>This course focuses on basic IT technologies for civil engineers. Basic electronics, communication systems, various smart sensors will be studied and the students can apply this knowledge to structural health monitoring and control. Robotic manipulator and mobile robot will be briefly introduced along with the soft computing and intelligent control techniques.</p>
Summer 2013, 2011	<p>Co-Instructor, CE481: <i>Special Topics in Civil and Environmental Engineering (Smart Technologies in Civil Engineering)</i>, KAIST, Daejeon, Korea.</p> <ul style="list-style-type: none">• 3 units, undergraduate course, <i>Group teaching of three Professors</i>• [2013 FCE: 3.86, 28 students registered]• [2011 FCE: 4.80, 23 students registered]• This course deals with smart technologies for civil engineering. The smart sensors, construction robotics, energy harvesting technologies are introduced.
Spring 2015, 2012, 2011	<p>Co-Instructor, CE553: <i>IT for U-Space</i>, KAIST, Daejeon, Korea.</p> <ul style="list-style-type: none">• 3 units, undergraduate/graduate course, <i>Group teaching of six to eight Professors</i>• [2015 FCE: 4.16, 19 students registered]• [2012 FCE: 3.84, 48 students registered]• [2011 FCE: 3.84, 24 students registered]• This course deals with basic IT technologies which will be used in Ubiquitous-Space. Signals and systems and basic circuit analysis as well as smart sensors and structural control theory will be introduced. In addition, intelligent building system, intelligent transportation system will be also dealt with.
Spring 2018, 2015, 2013, 2011,	<p>Instructor, CE558: <i>Introduction to Civil Robotics</i>, KAIST, Daejeon, Korea.</p> <ul style="list-style-type: none">• 3 units, undergraduate/graduate course• [2015 FCE: 4.29, 17 students registered]• [2013 FCE: 4.09, 19 students registered]• [2011 FCE: 4.48, 16 students registered]

2009	<ul style="list-style-type: none"> • [2009 FCE: 4.34, 11 students registered] • This course is targeted to familiarize graduate students with civil robotics. This course helps students understand general mobile robotics issues and apply robot techniques to their application area. Specifically the students can understand fundamental principles of mobile robotics by simulating their application worlds with robotics simulation tool such as Webots and MSRS (Microsoft Robotics Studio).
Spring 2017, 2014, 2012, 2010, 2009	<p>Instructor, CE551: <i>Soft Computing Technique for Engineering Design</i>, KAIST, Daejeon, Korea.</p> <ul style="list-style-type: none"> • 3 units, undergraduate/graduate course • [2017 FCE: 4.00, 21 students registered] • [2014 FCE: 4.16, 8 students registered] • [2012 FCE: 4.56, 12 students registered] • [2010 FCE: 4.19, 19 students registered] • [2009 FCE: 4.53, 15 students registered] • This course deals with various soft computing techniques for solving various engineering and mechanical / structural design problems. This course puts emphasis on the most recent soft computing techniques such as particle swarm optimization, evolutionary computation (EC), neural networks, fuzzy logic as well as intelligent control schemes and classical design optimization techniques.
Summer 2009	<p>Co-Instructor, CE411: <i>Practice in Structural Engineering</i> (Smart Materials and Structures), KAIST, Daejeon, Korea.</p> <ul style="list-style-type: none"> • 3 units, undergraduate course [2009 FCE: 4.69, 21 students registered] • This is a summer course offered during the KAIST-Tongji University Joint Summer Program at KAIST. This course is taught by four instructors over 2 month time period focusing on introduction to smart materials, sensing technologies, and their applications to smart structures. About 28 students from both institutes attended this course.
Spring 2009	<p>Project Advisor, URP495: <i>Undergraduate Research Project</i>, KAIST, Daejeon, Korea.</p> <ul style="list-style-type: none"> • 3 units, undergraduate course [2 students registered] • This course focuses on the performance improvement of RF-based indoor localization system
Fall 2008	<p>Project Advisor, ED100: <i>Design and Communication</i> (Freshmen Design), KAIST, Daejeon, Korea.</p> <ul style="list-style-type: none"> • 3 units, undergraduate course [2008 FCE: N/A, 25 students registered] • This course introduces the fundamentals of conceptual design and critical thinking to students to produce a paradigm shift in the way students think, view the world, and view their role in the world. The students will be asked to undertake a term project titled “Structural Inspection Robot System” as a team to learn about design and communication by doing it by themselves.
Fall 2008	<p>Instructor, CE559: <i>Special Topics in Construction IT</i> (Introduction to Civil Robotics), KAIST, Daejeon, Korea.</p>

- 3 units, undergraduate/graduate course [2008 FCE: 3.85, 19 students registered]
- This course is targeted to familiarize graduate students with civil robotics. This course helps students understand general mobile robotics issues and apply robot techniques to their application area. Specifically the students can understand fundamental principles of mobile robotics by simulating their application worlds with robotics simulation tool such as Webots and MSRS (Microsoft Robotics Studio).

MEDIA & PRESS

• JEROS: Multi-agent Jellyfish Removal Robot System

Recently, enormous damage caused by the drastically overpopulated jellyfish has been reported in more than 14 countries and the damage is estimated to be over 300M USD per year in South Korea. In this research, a jellyfish removal robot system, named JEROS (Jellyfish Elimination RObotic Swarm), has been developed. The JEROS composed of an USV (Unmanned Surface Vehicle) and a jellyfish shredding device installed underneath the USV, was extended to the multi-agent robot system that can autonomously navigate and remove jellyfish while maintaining its formation. The feasibility of the formation control and the performance of jellyfish removal were demonstrated through field tests. In 2014, JEROS has been selected as one of the Vitamin Projects by the government and the technology has been transferred to a company, who had a pilot service in Masan Bay located in the southern coast of Korea. This research is expected to be utilized for monitoring of the ocean environment, reconnaissance of the coastal area, etc.

JEROS has been featured in more than 35 international press and media including IEEE Spectrum, Discovery, The Economist, Robotics Business Review, etc. JEROS was also introduced in major broadcasting systems in Korea: MBC, KBS1, SBS, YTN, Arirang TV, etc. For further information, please visit our website at <http://urobot.kaist.ac.kr/press>.



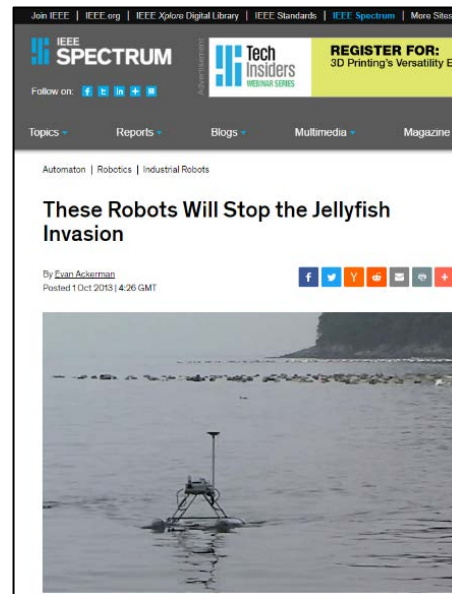
Broadcast via YTN and KBS News (Sept. 2014)

List of press releases (International)

- New Scientist (July, 2016): [Jellymageddon: Can we stop the rise of the jellyfish?](#)
- BBC World News (June 2, 2015): [The Robot Jellyfish Shredders](#)
- Robotics Business Review (May 08, 2014): [The Quiet Giant of Asian Robotics: Korea](#)
- IEEE Spectrum: [These Robots Will Stop the Jellyfish Invasion](#)
- The Economist: [Robochop - An automated jellyfish exterminator takes to the sea](#)
- Discovery News: [Robot Targets Jellyfish And Shreds Them](#)
- USA Today: [South Korean engineers develop robots to kill jellyfish](#)
- Phys org: [Jellyfish exterminator robot developed](#)
- CNET: [Humanity fights jellyfish invasion with hunter-killer robots](#)
- Guardian: [JEROS: Robots that Eliminate JellyFish Effectively](#)
- GEEK: [JEROS jellyfish elimination robot can pulverize 400kg of jellyfish an hour](#)
- DVICE: [JEROS the jellyfish-shredding robot saves the sea](#)
- Generation-NT: [JEROS : un robot autonome chasseur de méduses](#)
- Franchiseherald: [Underwater Robot 'JEROS' Finds and Shreds Jellyfish \(VIDEO\)](#)
- Nature World News: [Korean Lab Creates Jellyfish Lawnmower, Can Destroy 2,000 Pounds per Hour](#)
- HNGN: [Robot Shreds Jellyfish; Can Destroy 2,000 Pounds An Hour](#)
- Gizmodo: [This Underwater Terminator Is A Floating Jellyfish Abattoir](#)
- Gizmodo Australia: [This Underwater Terminator Is A Floating Jellyfish Abattoir](#)
- Pulse2: [South Korean Engineers Are Building Robots To Destroy Jellyfish](#)
- JWZ: [JEROS: Jellyfish Elimination Robotic Swarm](#)
- The Verge: [Swimming robot hunts overpopulated jellyfish and shreds them](#)
- FAST Coexist: [These Robots Hunt Jellyfish--And Then Liquefy Them With Rotating Blades Of Death](#)
- Independent: [Jellyfish 'pulverizing' robots trained in Korea to hunt down their prey](#)
- SLATE: [Jellyfish vs. Robots: Battle for Planet Earth](#)
- IBTimes: ['Terminator' Robots Kill Jellyfish, 'Sliced Up' To Eliminate Swarms](#)
- Dailymail: [The jellyfish mincer: Terrifying robot which can devour 900kg of fish an hour could help save millions of dollars a year](#)
- Science Times: [Jellyfish-Shredding Robot Eliminates 2000 Pounds Of Jellyfish An Hour](#)
- Popular Science: [Jellyfish Terminator Robots Suck Up 2,000 Pounds Of Jellies Per Hour](#)
- Mirror: [Jellyfish 'Terminator' robots sent by scientists to say 'hasta la vista' to marine pests](#)
- CNET Asia: [KAIST develops a jellyfish exterminator](#)
- KPopStarz: [Jellyfish Force Nuclear Reactor To Shut Down, May Become More Common- But Maybe Robots Will Shred Them](#)
- Vision Systems: [UNMANNED AQUATIC ROBOTS HUNT AND KILL JELLYFISH](#)
- i4u: [Jellyfish Killer Robot JEROS is Developed](#)
- Red Orbit: [A Battle Between Robot And Jellyfish](#)
- Red Orbit: [Robotic Jellyfish Shredder Takes On Growing Marine Menace](#)
- Sail World: [JEROS: the jellyfish juicer](#)
- Telegraph: [Jellyfish shredding robot tested to control swarms](#)
- Ecnet Solutions: [JEROS jellyfish elimination robot can pulverize 400kg of jellyfish an hour](#)
- Boing Boing: [Jellyfish-killing robots](#)
- AzoRobotics: [Robotic Swarm Pulverizes Jellyfish Traffic in the Ocean](#)
- Tech News Tube: [JEROS jellyfish elimination robot can pulverize 400kg of jellyfish an hour](#)
- KAIST Breakthroughs: [Jellyfish terminator](#)



BBC News (June, 2015)



IEEE Spectrum (Oct. 2013)



Donga Ilbo (July 2014)



Donga Ilbo (June 2012)



Arirang TV (Aug. 2014)



MBC News (Aug. 2013)



New Scientist (July 2016)



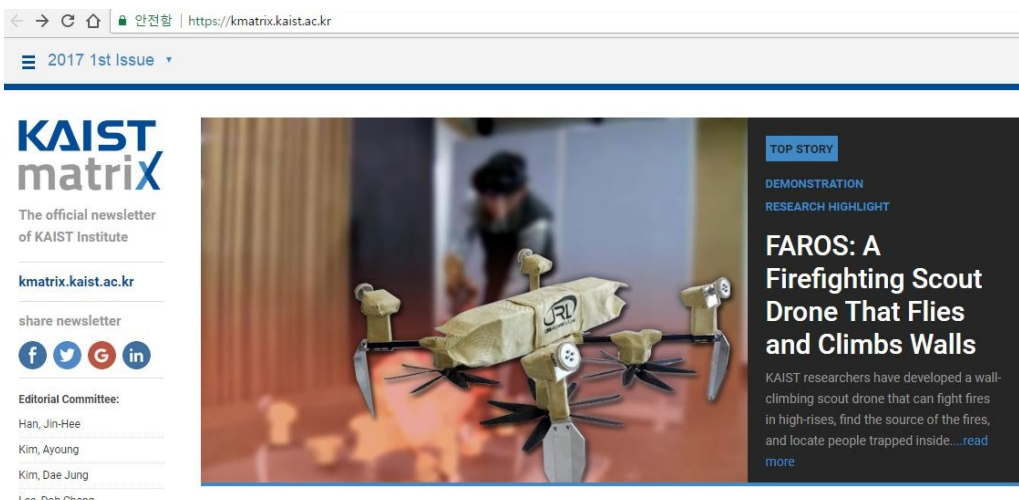
Donga Science (Aug. 2014)

• Wall-Climbing Drone

As civil structures become massive and high, the maintenance and inspection for the structures are getting important. It has a problem of the large cost due to the staffing professionals, lack of professional manpower and high risk for hard to reach areas. To solve these problems, the needs of wall-climbing robots are emerged. Infrastructure-based wall-climbing robots have been studied for a long time to inspect and maintain an outer wall of building with high payload and safety. However, the infrastructure must be installed on the wall to use the robot and it can injure the exterior of the structure. Consequently, the architects don't prefer the infrastructure-based wall-climbing robots. In case of the non-infra-based wall-climbing robot, it is researched to overcome the aforementioned problems and gaining attention recently. Most of the non-infra-based wall-climbing robots stick to the wall using adhesion mechanisms such as magnetics, vacuum system or adhesion materials instead of the infrastructure that is installed on the wall, but most of the technologies are in the laboratory level since the payload, safety, and maneuverability are not satisfactory. To overcome these problems, a MAV(Micro Aerial Vehicle) type wall-climbing robot is proposed in this research. The robot is designed to climb a wall and fly with four rotors and wheels. It can fly using the thrust forces generated by four rotors. Also, it can stick to the wall with the same thrust forces and then climb the wall with four wheels. The wall-climbing robot can stabilize its position even if it is suddenly detached from the wall by unexpected disturbances using the flying capability. It makes the maneuverability and safety of the robot improved. The forward dynamics and inverse dynamics of the robot are solved and the controllers are proposed. Also, it is verified through experiments with a prototype. For further information, please visit our website at <http://urobot.kaist.ac.kr/press>.

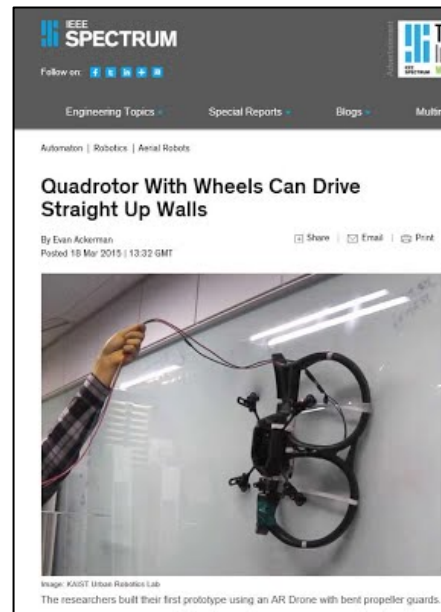
List of press releases

- Discovery Channel, Canada (March 2016): [FAROS \(Fireproof Aerial Robot System\)](#)
- BBC World News (June 2015) : [The drone that can climb walls](#)
- IEEE Spectrum: [Quadrotor With Wheels Can Drive Straight Up Walls](#)
- Popular Science: [Watch This Creepy Drone Climb A Wall](#)
- Discovery News: [Drone Can Climb Up Walls and Fly Back Down](#)
- Idea Connection: [Wall-Climbing Drone Can Also Fly if it Falls](#)
- Robot News: <http://www.irobotnews.com/news/articleView.html?idxno=4567> (in Korean)
- MBC News: [FAROS](#) (in Korean)
- KI Matrix Newsletter: [FAROS: A firefighting scout drone that flies and climbs walls](#)





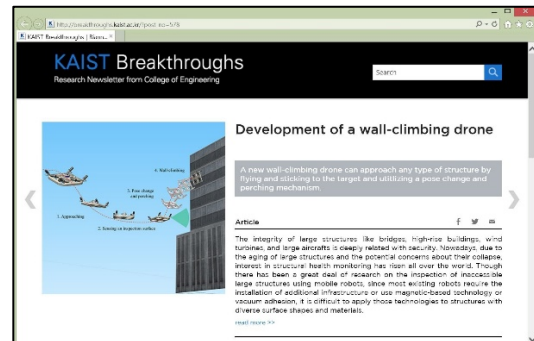
BBC News (June, 2015)



IEEE Spectrum (Mar. 2015)



MBC News (Apr. 2016)



KAIST Breakthroughs (Mar. 2016)



Discovery Channel (Mar. 2016)

- **3D mapping and localization technology for autonomous navigation**

Developed localization and 3D map-building technology using fusion of low-cost sensors (tilted 2D laser scanner, camera, and magnetic sensor) for autonomous mobile robots in indoor and outdoor areas where no GPS signal is received. It was selected as the 10 most important patent technology of 2017 KAIST 4th industrial revolution (broadcasted on KBS and YTN news).



KBS News (Mar. 2017)



YTN News (Mar. 2017)