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Curriculum vitae

Seung-Won Kim

Senior Research Scientist

Center for Medical Robotics

Robotics and Media Institute

Korea Institute of Science and Technology (KIST)

& Assistant Professor

Division of Nano & Information Technology (HCI & Robotics)

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EDUCATION

Seoul National University

B.S., School of Mechanical & Aerospace Engineering — *Mar. 2005 – Feb. 2009*

Ph.D., School of Mechanical & Aerospace Engineering — *Mar. 2009 – Feb. 2016*

Advisor: Prof. Kyu-Jin Cho

Dissertation: Bend Propagating Actuation Utilizing a Characteristic of Developable Surface of Bistable Structure

RESEARCH EXPERIENCE

Soft Machines Lab at Department of Mechanical Engineering, Carnegie Mellon University, PA, U.S.A.

As Visiting Faculty working with Prof. Carmel Majidi — *Jan. 2020 – Present*

- Worked for developing variable stiffness mechanism utilizing low melting point material and/or shear thickening fluid

Center for Medical Robotics in Korea Institute of Science and Technology, Seoul, Korea

Senior Researcher — *Mar. 2018 – Present*

- Worked for developing medical & healthcare service robots

- Worked for Human Plus(Augmentation) Technology

Healthcare Robotics Research Group in Korea Institute of Science and Technology, Seoul, Korea
Researcher *June. 2016 – Feb. 2018*

- Worked for developing healthcare service robots

Institute of Advanced Machinery and Design in Seoul National University, Seoul, Korea
Senior Researcher under Prof. Kyu-Jin Cho *Mar. 2016 – Apr. 2016*

- Worked for developing soft manipulator and robots
- Investigated and assisted for planning a proposal of Engineering Research Center for soft robotics organized by National Research Foundation of Korea

Biorobotics Laboratory in Seoul National University, Seoul, Korea
Research Assistant under Prof. Kyu-Jin Cho *Mar. 2009 – Feb. 2016*

- Worked for developing soft bio-inspired robots and mechanisms
- Assisted for planning research proposals and writing research reports

SCHOLARSHIP

Global Ph.D. Fellowship

- Scholarship funded by National Research Foundation of Korea (Mar. 2011 ~ Feb. 2014)
- Financial support to Ph.D. candidates for outstanding research proposal & achievements
- Research Title “Development of Core Elemental Technology for Multi-scale Bio-inspired Robot”

Brain Korea 21

- Scholarship funded by National Research Foundation of Korea (Sept. – Dec. 2010)
- Financial support to graduate students with outstanding academic achievements

Support of Lecture & Research

- Scholarship funded by Seoul National University (Sept. – Dec. 2009)
- Financial support to graduate students for lecture & research assistance

Superior Academic Performance

- Scholarship funded by Seoul National University
- Financial support to students with outstanding academic achievements
- One year of full funding(Sept. 2005 – June 2006) and 2 years of partial funding(Sept. – Dec. 2006, Sept. 2007 – Dec. 2008)

HONOR & AWARDS

1. **Research Development Team Award** about “Human Plus R&D Project”, Korea Institute of Science and Technology (KIST), Feb. 2018
2. **Outstanding Presenter Award**, International Symposium on Green Manufacturing and Applications

(ISGMA), 2015

3. **Model cases of Creative Synergy Converging Research to open a new future**, Project "Fundamental Technology for Biomimetic Soft Morphing" accomplishment was awarded by Convergence Research Policy Center in Korea Institute of Science and Technology (KIST), 2014
4. **Best Paper Award**, Autumn conference of the Korean Society for Composite Materials, 2013
5. **Best Poster Award**, International Symposium on Green Manufacturing and Applications (ISGMA), 2012
6. **Best Paper Award in Robot & Automation**, Spring Conference of the Korean Society for Precision Engineering, 2010
7. **Best Student Paper Award**, IEEE/RSJ, EMBS International Conference on Biomedical Robotics and Biomechatronics (BIOROB), 2010

PATENTS

1. **Seungwon Kim**, Byung Jin Cho, Choong Sun Kim, "Rigidity Tunable Mechanism and Endoscope Utilizing Thermoelectric Modules and Phase Changeable Materials at Low Temperature," No. 10-2019-0130940, *Oct. 21, 2019*. **(Application)**
2. Junku Yuh, Sung Chul Kang, Woosub Lee, **Seungwon Kim**, Jiyoen Song, Gang-Tae Bae, "Standing Assistance Apparatus," No. 16/166158, *Oct. 22, 2018*. **(Application, USA patent)**
3. Junku Yuh, Sung Chul Kang, Woosub Lee, **Seungwon Kim**, Jiyoen Song, Gang-Tae Bae, "Standing Assistance Apparatus," No. 10-2088420, *Mar. 6, 2020*. (**Registration**)
4. Sung Chul Kang, **Seungwon Kim**, Jiyoen Song, Gang-Tae Bae, "Patient Transfer Apparatus," No. 10-2031057, *Oct. 4, 2019*. (**Registration**)
5. Sung Chul Kang, Woosub Lee, **Seungwon Kim**, Gang-Tae Bae, Dong Eun Choi, Jiyoen Song, "Cart Robot," No. 10-1872282, *May 24, 2017*. (**Registration**)
6. Sung Chul Kang, Woosub Lee, **Seungwon Kim**, Dong Eun Choi, Gang-Tae Bae, Jiyoen Song, "Power Assistive Modular Robot," No. 10-1976410, *May 2, 2019*. (**Registration**)
7. Sung Chul Kang, Woosub Lee, **Seungwon Kim**, Dong Eun Choi, Gang-Tae Bae, Jiyoen Song, "Device for supporting sit-to-stand motion," No. 10-1959377, Korea, *Apr. 24, 2017*. (**Registration**)
8. Sujin Kwon, MinHo Sohn, Byungsam Yu, Kyu-Jin Cho**, Seung-Won Kim**, "Flexible Display Device," No. 10-2015-0099371, Korea, *July 13, 2015*. (Co-worked with LG Display, **Application**)
9. Kyu-Jin Cho, JunYoung Lee, **Seung-Won Kim**, "Bi-stable Structure with Polymer Sheet," No. 10-1522816, Korea, *May 18, 2015*. (**Registration**)
10. Kyu-Jin Cho, Je-Sung Koh, **Seung-Won Kim**, Minkyun Noh, YoungSun Park, "Bio-inspired Moment Shifting Latch and Small-Scale Jumping Robot Leg using the same," No. 10-1258755, Korea, *Apr. 22, 2013*. (**Registration**)
11. Maenghyo Cho, Kyu-Jin Cho, Je-Sung Koh, **Seung-Won Kim**, "Bistable intelligence morphing active plate," No. 10-1239218, Korea, *Feb. 26, 2013*. (**Registration**)

TEACHING EXPERIENCE

UST-KIST School, Korea May – June, 2019

Teaching, "Introduction to Nano & Information Technology"

- Lecture for introduction of robotics

Kyung Hee University Global Campus, Korea Mar. 31, 2015
Apr. 7, 2016

Seminar on "Bio-inspired robots and Artificial Muscle Actuators"

- One-day lecture of 30 undergraduate students

Seoul National University, Korea Sept. – Dec. 2012

Teaching Assistant, "Biologically Inspired Robotics" (Prof. Kyu-Jin Cho)

- Prepared of the lecture note and graded the homework
- Opening TA session of 13 graduate students

Seoul National University, Korea Sept. – Dec. 2009

Teaching Assistant, "Dynamics" (Prof. Kyu-Jin Cho)

- Prepared of the lecture note and graded the homework
- Opening TA session of 90 undergraduate students

Seoul National University, Korea Mar. – June 2009

Teaching Assistant, "System Analysis in Mechanical and Aerospace Engineering" (Prof. Kyu-Jin Cho)

- Prepared of the lecture note and graded the homework
- Opening TA session of 106 undergraduate students

Seoul National University, Korea Mar. 2019 – Feb. 2020
Mar. 2009 – Feb. 2010
Mar. 2010 – Feb. 2011
Mar. 2012 – Feb. 2013

B.S. Thesis Tutor

- Led the B.S. Thesis of 4 undergraduate students
- 3 students received the outstanding B.S. Thesis award

ACADEMIC SERVICES

Reviewer of Academic Journals and Conferences

- IEEE Transactions on Robotics (*TRO*)
- IEEE/ASME Transactions on Mechatronics (*TMECH*)
- International Conference on Robotics and Automation (*ICRA*)
- International Conference on Intelligent Robots and Systems (*IROS*)
- International Conference on Soft Robotics (*RoboSoft*)
- Smart Materials and Structures (*SMS*)
- Bioinspiration & Biomimetics (*BIOBIO*)
- Soft Robotics (*SoR*o)

Member

- IEEE Member, *Sept. 2016 – Present*
- IEEE Student Member, *Mar. 2010 – Jan. 2016*

TECHNICAL SKILLS

- **Manufacturing & Experiment technologies**
  - A. *Smart Composite Microstructure(SCM) process* with various composite materials including glass fiber and carbon fiber reinforced prepreg(CFRP)
  - B. *Shape Deposition Manufacturing(SDM)* with rapid prototyping(RP) & Polymer molding
  - C. *Shape Memory Alloy actuator heat annealing process*
  - D. *Fabrication devices* (CNC milling/drilling/lathe, 3D printing, heat pressor, laser cutter, heat annealing with oven or furnace, auto-clave, spin-coating)
  - E. *Experiment devices* (Universal tensile test machine, High speed camera, Differential scanning calorimetry(DSC))
- **Software**
  - A. *Computer aided design, CAD* (SolidWorks, AutoCAD, PowerMILL, Eagle Layout Editor)
  - B. *Numerical analysis* (MATLAB, ANSYS, ABAQUS)
  - C. *Data analysis* (Origin)
  - D. *Embedded control & DAQ* (NI LabView & CompactRIO, Arduino)
  - E. *Video & Image processing* (Adobe Premiere Pro & Photoshop, ProAnalyst)

RESEARCH PROJECT ACTIVITIES

CAS-surgery4.0: target-selective fluorescence imaging guided micro surgical robots Jan. 2018 – Dec. 2020

- funded by Korea Institute of Science and Technology (KIST)
- participating researcher

KIST Joint Research Lab.
: Fundamental Research on Soft Bio-inspired Robotics Technology for Medical Robots July 2018 – Dec. 2020

- funded by Korea Institute of Science and Technology (KIST)
- participating as a cooperating researcher

Development of Fundamental Core Technology of Smart Garment for Physical Optimization April 2018 – Nov. 2018

- funded by National Research Foundation of Korea, Ministry of Science and ICT
- participating researcher

Project Planning for Development of Convergence April 2017 – Dec. 2017

Technology of Human Augmentation

- funded by National Research Foundation of Korea, Ministry of Science and ICT
- participating researcher

Development of Robot Systems for Total Nursing Service

June 2016 – May. 2018

- funded by Korea Evaluation Institute of Industrial Technology, Ministry of Trade, Industry and Energy
- participating researcher

Development of Fundamental Technology of Soft Robotics for Advanced Soft Gripper

June 2015 – Apr. 2016

- funded by National Research Foundation of Korea, Ministry of Science, ICT and Future Planning
- participating researcher

Fundamental Technology for Active Morphing Flexible Display

Oct. 2014 – Oct. 2015

- funded by LG Display
- participating researcher

Biomimetic Robot Research Center

Oct. 2013 – Dec. 2015

- funded by Defense Acquisition Program Administration & Agency for Defense Development
- participating researcher

Development of Core Elemental Technology for Multi-scale Bio-inspired Robot

Mar. 2011 – Feb. 2013

- Global Ph.D. Fellowship funded by National Research Foundation of Korea, Ministry of Science, ICT and Future Planning
- director of project

Development of Multi-functional Endoskeleton for Biomimetic Robots

May 2009 – April 2011

- funded by National Research Foundation of Korea, Ministry of Science, ICT and Future Planning
- participating researcher

Fundamental Technology for Biomimetic Soft Morphing

Sept. 2009 – June 2014

- funded by National Research Foundation of Korea, Ministry of Science, ICT and Future Planning
- participating researcher
- managing project as a student representative for 3 years (July 2011 – June 2014)

Developing of Design and Manufacturing for Multi-scale Mass-deployable cooperative robots Sept. 2009 – Mar. 2013

- funded by National Research Foundation of Korea, Ministry of Science, ICT and Future Planning
- participating researcher

PUBLICATIONS

International Journals

2020

1. Choong Sun Kim, Ock Kyun Oh, Hyeongdo Choi, Yong Jun Kim, Gyu Soup Lee, Hyun Jeong Kim, Carmel Majidi, **Seung-Won Kim**, and Byung Jin Cho, "Variable rigidity module with a flexible thermoelectric device for bi-directional temperature control," *Submitted,* 2020.
2. **Seung-Won Kim***, Sung Hee Kim*, Choong Sun Kim, Kyoungsoo Yi, Jun-Sik Kim, Byung Jin Cho, and Youngsu Cha, "Thermal display glove for interacting with virtual reality," *Scientific Reports,* accepted, June 2020. (*Co-first authorship)

2015

3. **Seung-Won Kim**, Jong-Gu Lee, Sungmin An, Maenghyo Cho, and Kyu-Jin Cho, "A large-stroke shape memory alloy spring actuator using double-coil configuration," *Smart Materials and Structures(SMS),* **24**(9), 095014, Aug. 2015. [SCI]
4. Jong-Gu Lee, Junghyun Ryu, **Seung-Won Kim**, Je-Sung Koh, Kyu-Jin Cho, and Maenghyo Cho, "Effect of initial tool-plate curvature on snap-through load of unsymmetric laminated cross-ply bistable composites," *Composite Structures (CS),* **122**, pp. 82-91, Apr. 2015. [SCIE]

2014

5. Junghyun Ryu, Jong-Gu Lee, **Seung-Won Kim**, Je-Sung Koh, Kyu-Jin Cho, and Maenghyo Cho, "Generalized curvature tailoring of bistable CFRP laminates by curing on a cylindrical tool-plate with misalignment," *Composites Science and Technology (CST),* **103**, pp. 127-133, Aug. 2014. [SCI]
6. **Seung-Won Kim**, Je-Sung Koh, Jong-Gu Lee, Junghyun Ryu, Maenghyo Cho, and Kyu-Jin Cho, "Flytrap-inspired robot using structurally integrated actuation based on bistability and a developable surface," *Bioinspiration & Biomimetics (BIOBIO),* **9**(3), 036004, Mar. 2014. [SCIE]

2013

7. Dae-Young Lee, Je-Sung Koh, Ji-Suk Kim, **Seung-Won Kim**, and Kyu-Jin Cho, "Deformable-wheel Robot based on Soft Material," *International Journal of Precision Engineering and Manufacturing (IJPEM),* **14**(8), pp. 1439-1445, Aug. 2013. [SCIE]

2012

8. Junghyun Ryu, Jung-Pyo Kong, **Seung-Won Kim**, Je-Sung Koh, Kyu-Jin Cho, and Maenghyo Cho, "Curvature tailoring of unsymmetric laminates with an initial curvature," *Journal of Composite Materials (JCM),* **47**(25), pp. 3163-3174, Oct. 2012. [SCI]
9. Minkyun Noh, **Seung-Won Kim**, Sungmin An, Je-Sung Koh, and Kyu-Jin Cho, "Flea-Inspired Catapult Mechanism for Miniature Jumping Robots," *IEEE Transactions on Robotics (TRO),* **28**(5), pp. 1007-1018, Oct. 2012. [SCI]

● International Conferences

2019

1. **Seung-Won Kim**, "Thermomechanical characteristics of a shape memory polymer for a variable stiffness mechanism in medical applications," *The 4th International Conference on Active Materials and Soft Mechatronics (AMSM)*, Oct. 2019.
2. **Seung-Won Kim,** "Modular and affordable power assist module for various physical care services," *The 13th International Society of Physical and Rehabilitation Medicine World Congress (ISPRM)*, June 2019.
3. **Seung-Won Kim**, Sung Hee Kim, and Youngsu Cha, "A Thermal Stimulating Glove for Virtual Reality," *2019 The 2nd IEEE International Conference on Soft Robotics (RoboSoft)*, *Late Breaking Results*, Apr. 2019

2018

4. **Seung-Won Kim**, "Variable Stiffness Mechanism with Low Melting Point Materials for Medical Applications," *The 3rd International Workshop on Active Materials and Soft Mechatronics (AMSM)*, Oct. 2018.
5. **Seung-Won Kim**, Jiyoen Song, Seungbeum Suh, Woosub Lee, and Sungchul Kang, "Design and Experiment of a Passive Sit-to-Stand and Walking (STSW) Assistance Device for the Elderly," *40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, July 2018.

2017

6. Jiyeon Song, **Seung-Won Kim**, Dong Eun Choi, Gang-Tae Bae, Woosub Lee, and Sung Chul Kang, "Development of a passive standing-up assistance device for the elderly," *The 2017 IEEE International Conference on Multisensor Fusion and Integration for Intelligent systems (MFI)*, Nov. 2017.
7. Gang-Tae Bae, **Seung-Won Kim**, Dong Eun Choi, Changhyun Cho, Woosub Lee, and Sung Chul Kang, "Omni-directional power-assist-modular(PAM) mobile robot for total nursing service system," *14th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, June 2017.

2015

8. **Seung-Won Kim** and Kyu-Jin Cho, "A bistable mechanism using residual stress for morphing structures," *2015 International Symposium on Green Manufacturing and Applications (ISGMA)*, June 2015. **Outstanding Presentation Award**

2014

9. Jong-Gu Lee, Junghyun Ryu, Maenghyo Cho, **Seung-Won Kim**, and Kyu-Jin Cho, "Evaluation of initial curvature effect on the snap-through load of bi-stable composites," *55th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (AIAA SciTech)*, Jan. 2014.

2013

10. **Seung-Won Kim**, Jun-Young Lee, and Kyu-Jin Cho, "Towards a Bistable Morphing Winglet for Unmanned Aerial Vehicle(UAV)," *2013 The 44th International Symposium on Robotics (ISR)*, Oct. 2013.
11. Jong-Gu Lee, Junghyun Ryu, **Seung-Won Kim**, Kyu-Jin Cho, and Maenghyo Cho, "A study on the design guideline of SMA spring with the initial curvature added bi-stable composite," *2013 International Conference on Advances in Interaction & Multiscale Mechanics (AIMM)*, Sept. 2013.
12. Jung-Young Lee, **Seung-Won Kim**, and Kyu-Jin Cho, "Venus flytrap inspired bistable morphing winglet," *2013 The 7th World Congress on Biomimetics, Artificial Muscles and Nano-Bio (BAMN)*, Aug. 2013.
13. Junghyun Ryu, Jong-Gu Lee, **Seung-Won Kim**, Jun-Young Lee, Kyu-Jin Cho, and Maenghyo Cho, "Unexpected twisting curvature generation of bistable CFRP laminate due to the uncertainty of lay-up sequence and negative initial curvature," *The 19th International Conference on composite Materials*

(ICCM), July 2013.

14. Je-Sung Koh, Sunpill Jung, Minkyun Noh, **Seung-Won Kim**, and Kyu-Jin Cho, "Flea inspired catapult mechanism with active energy storage and release for small scale jumping robot," *Proceedings of the 2013 IEEE International Conference on Robotics and Automation (ICRA)*, May 2013.

2012

15. Je-Sung Koh, Dae-Young Lee, **Seung-Won Kim**, and Kyu-Jin Cho, "Deformable soft wheel robot using hybrid actuation," *2012 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Oct. 2012.

2011

16. Jong-Gu Lee, Junghyun Ryu, **Seung-Won Kim**, Kyu-Jin Cho, and Maenghyo Cho, "Analysis of the Critical Moment Triggering Off Snap-through of Bistable Composite with Initial Curvature," *2012 2nd International Conference on Computational Design in Engineering (CODE)*, Computational Structural Engineering Institute of Korea, Nov. 2011.
17. Junghyun Ryu, Jong-Gu Lee, **Seung-Won Kim**, Je-Sung Koh, Kyu-Jin Cho, and Maenghyo Cho, "Instability of Principal Curvature Direction of Unsymmetric Cross-ply Laminates due to Uncertainty of Lay-up Sequence," *2012 2nd International Conference on Computational Design in Engineering (CODE), Computational Structural Engineering Institute of Korea*, Nov. 2011.
18. Je-Sung Koh, **Seung-Won Kim**, Minkyun Noh, and Kyu-Jin Cho, "Biologically inspired robots using smart composite microstructures," *2011 8th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Nov. 2011.
19. **Seung-Won Kim**, Je-Sung Koh, and Kyu-Jin Cho, "Active morphing robot inspired by the pre-strained fiber structure of the Venus flytrap," *2011 8th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Nov. 2011.
20. **Seung-Won Kim**, Je-Sung Koh, and Kyu-Jin Cho, "Design & Analysis a flytrap robot using bi-stable composite," *Proceedings of the 2011 IEEE International Conference on Robotics and Automation (ICRA)*, May 2011.
21. Minkyun Noh, **Seung-Won Kim**, and Kyu-Jin Cho, "A miniature jumping robot with flea-inspired catapult system: active latch and trigger," *Proceedings of 2011 International Workshop on Bio-inspired Robots*, Apr. 2011.

2010

22. **Seung-Won Kim**, Je-Sung Koh, Maenghyo Cho, and Kyu-Jin Cho, "Towards a bio-mimetic flytrap robot based on a snap-through mechanism," *Proceedings of the 2010 3rd IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics (BIOROB)*, Sept. 2010.
Best Student Paper Award

● Domestic Journals

1. Je-Sung Koh, Dae-Young Lee, Ji-Suk Kim, **Seung-Won Kim**, and Kyu-Jin Cho, "Design and Fabrication of Soft Deformable Wheel Robot using Composite Materials and Shape Memory Alloy Coil Spring Actuators," *Journal of the Korean Society for Precision Engineering*, **30**(1), pp. 47-52, Jan. 2013.
2. **Seung-Won Kim**, Je-Sung Koh, Maenghyo Cho, and Kyu-Jin Cho, "Soft Morphing Motion of Flytrap Robot using Bending Propagating Actuation," *Journal of Institute of Control, Robotics and Systems*, **18**(3), pp. 168-174, Mar. 2012.
3. Je-Sung Koh, **Seung-Won Kim**, and Kyu-Jin Cho, "Biomimetic miniature jumping robot," *Robot and Human*, **9**(1), pp. 3-12, Feb. 2012.

● Domestic Conferences

2019

1. **Seung-Won Kim** and Ki Hun Kang, "Analysis of Tensile·Thermal Properties of Field's metal for Design of Variable Stiffness Mechanism," *The 14th Korea Robotics Society Annual Conference (KROC)*, Jan. 2019.

2018

2. **Seung-Won Kim**, Ji-Yeon Song, Seungbeum Seo, Woo-Sub Lee, and Sung-Chul Kang, "A Passive Sit-to-Stand & Walk Assistive Device for Indoor Movements of the Elderly," *The 13th Korea Robotics Society Annual Conference (KROC)*, Jan. 2018.

2017

3. Ji-Yeon Song, **Seung-Won Kim**, Dong-Eun Choi, Gang-Tae Bae, Woo-Sub Lee, and Sung-Chul Kang, "Development of a weight compensational passive sit-to-stand assist device for the elderly," *The 12th Korean Robotics Society Annual Conference (KROC)*, Feb. 2017.

2014

4. Jun-Young Lee, **Seung-Won Kim**, and Kyu-Jin Cho, "Development of bi-stable structure with polymer and pneumatic actuation of the structure," *2014 Autumn Conference of the Korean Society for Precision Engineering (KSPE)*, Oct. 2014.
5. **Seung-Won Kim** and Kyu-Jin Cho, "Fabrication and actuation characteristics of double coil SMA spring," *2014 Autumn Conference of the Korean Society for Precision Engineering (KSPE)*, Oct. 2014.
6. **Seung-Won Kim** and Kyu-Jin Cho, "Parametric study of bistable metallic structure," *2014 Spring Conference of the Korean Society for Precision Engineering (KSPE)*, May 2014.
7. Jun-Young Lee, **Seung-Won Kim** and Kyu-Jin Cho, "Development of bio-mimetic bistable structure with polymer," 2014 *Spring Conference of the Korean Society of Mechanical Engineers on Bioengineering*, May 2014.

2013

8. Jong-Gu Lee, Junghyun Ryu, **Seung-Won Kim**, Kyu-Jin Cho, and Maenghyo Cho, "Estimation of initial curvature effect on the critical load of bi-stable composite," *2013 Autumn Conference of the Korean Society for Composite Materials*, Nov. 2013. **Best paper award**
9. Junghyun Ryu, **Seung-Won Kim**, Jun-Young Lee, Kyu-Jin Cho, and Maenghyo Cho, "Curvature analysis and expectation of bi-stable copper plate," 2013 *Spring Conference of the Korean Society of Mechanical Engineers on CAE & Applied Dynamics*, May 2013.
10. Jong-Gu Lee, Junghyun Ryu, **Seung-Won Kim**, Kyu-Jin Cho, and Maenghyo Cho, "Stability of bistable composite with initial curvature," *2013 Spring Conference of Computational Structural Engineering Institute of Korea*, Apr. 2013.

2012

11. Ji-Suk Kim, Jun-Young Lee, **Seung-Won Kim**, and Kyu-Jin Cho, "Controlling bistability of shape memory polymer coated carbon fiber reinforced plastic with temperature," *2012 Autumn Conference of the Korean Society for Precision Engineering (KSPE)*, Oct. 2012.
12. **Seung-Won Kim** and Kyu-Jin Cho, "Development of an energy efficient lightweight gripper inspired by the flytrap," *2012 International Symposium on Green Manufacturing and Applications (ISGMA)*, Aug. 2012. **Best Poster Award**

13. Je-Sung Koh, Dae-Young Lee, **Seung-Won Kim**, and Kyu-Jin Cho, "Design and fabrication of composite sheet spoke for torque transmission of small scale morphing wheel," *2012 Spring Conference of the Korean Society for Precision Engineering (KSPE)*, May 2012.

2011

14. Je-Sung Koh, **Seung-Won Kim**, Renshe Wu, Sung-Hyuk Song, Sung-Hoon Ahn, and Kyu-Jin Cho, "Hybrid actuating system based morphing robot for disaster area exploration," *2011 Spring Conference of the Korean Society for Precision Engineering (KSPE)*, June 2011.
15. Jong-Gu Lee, **Seung-Won Kim**, Kyu-Jin Cho, and Maenghyo Cho, "Curvature tailoring and analysis of bi-stable composite plate through the control of initial curvature," *2011 Spring Conference of the Korean Society of Mechanical Engineers on CAE & Applied Dynamics*, Apr. 2011.

2010

16. **Seung-Won Kim**, Minkyun Noh, and Kyu-Jin Cho, "The flea inspired small-scale jumping robot with composite and shape memory alloy spring actuator," 2010 *Autumn Conference of the Korean Society for Precision Engineering (KSPE)*, November 2010.
17. Jungpyo Kong, **Seung-Won Kim**, Je-Sung Koh, Kyu-Jin Cho, and Maenghyo Cho, "A study on unsymmetric laminates including initial curvature effect," *2010 Autumn Conference of the Korean Society for Aeronautical & Space Sciences*, Nov. 2010.
18. **Seung-Won Kim**, Je-Sung Koh, and Kyu-Jin Cho, "Bio-mimetic flytrap robot: sensing & trapping," *International Symposium on Nature-Inspired Technology (ISNIT)*, Oct. 2010.
19. **Seung-Won Kim**, Young-Sun Park, and Kyu-Jin Cho, "Jumping device with shape memory alloy actuators and antagonistic mechanism," *2010 Spring Conference of the Korean Society for Precision Engineering (KSPE)*, May 2010. **Best paper award in robot & automation part**

2009

20. **Seung-Won Kim**, Chong-Nam Chu, and Kyu-Jin Cho, "Manufacturing of shape memory alloy sheet micro actuator using laser machining," *2009 Spring Conference of the Korean Society for Precision Engineering (KSPE)*, June 2009.