

Hee Doo Yang

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Research Interests: Robotics, Exoskeletons, Soft robotics, Continuum robotics, Manipulation

EDUCATION

2017. Aug. **Virginia Polytechnic Institute and State University** Blacksburg, VA
- Present **Doctor of Philosophy** in Mechanical Engineering (4.0/4.0)
Advisor : Dr. Alan T. Asbeck
Thesis : *Inflatable soft robots and Soft/Rigid Hybrid Robots for human/robot interaction*
2015. Aug. **Virginia Polytechnic Institute and State University**
- 2017. May. **Master of Science** in Mechanical Engineering (4.0/4.0) Blacksburg, VA
Advisor : Dr. Alan T. Asbeck
Thesis : *The design, fabrication, and evaluation of a novel pneumatic artificial muscle actuator*
2007. Mar. **Pusan National University** Busan
- 2015. Feb. **Bachelor of Science** in Nanomechatronics Engineering Republic of Korea
Advisor : Dr. Tae June Kang and Dr. Deug Woo Lee
Thesis : *A tubing shaped, flexible thermal energy harvester based on a carbon nanotube sheet electrode*

RESEARCH EXPERIENCE

2016. Mar. **Graduate Research Assistant (GRA) | Assistive Robotics Laboratory**
- Present Department of Mechanical Engineering, Virginia Tech
✓ Control a soft/rigid pneumatic torso (a 4-DOF robot manipulator), a revolving robot, and a deformable robot
✓ Design a new manufacturing method for soft robots and soft/rigid hybrid robots
✓ Design, fabrication, and evaluation of novel pneumatic artificial muscle actuators and pneumatic arm exoskeletons
✓ Fundamental research into novel pneumatic and cable-driven structures
2016. Jul. 11 **CEED Imagination Summer Camp Workshop | Assistive Robotics Laboratory**
- 22 **Main Instructor**
Department of Mechanical Engineering, Virginia Tech
✓ Creation of a pneumatic powered soft robotic gripper to demonstrate the concept of soft robotics to middle school students
2014. Sep **Research Internship | Nano-energy Laboratory**
- 2015. Jun. Department of Nanomechatronics Engineering, Pusan National University
✓ Design and control a tubing shaped flexible thermal energy harvester based on a carbon nanotube sheet electrode

2012. Dec. **Undergraduate Research Program | Nano-energy Laboratory**
 - 2013. Feb. Department of Nanomechatronics Engineering, Pusan National University
 ✓ Control and Design manufacturing process about waste thermal energy harvester based on liquid thermoelectric

PUBLICATIONS

A. International Journal Publications

- 2019 **Hee Doo Yang**, Alan T. Asbeck, “*Modeling and Characterization of a Novel Elbow Exoskeleton*,” **Soft Robotics**, In preparation
- 2018 **Hee Doo Yang**, Alan T. Asbeck, “*A Four-DOF Modular Soft Robotic Manipulator: Modeling and Characterization*,” **The international Journal of Robotics Research**, In preparation
- 2018 **Hee Doo Yang**, Alan T. Asbeck, “*A New Manufacturing Process for soft Robots and Soft/Rigid Hybrid Robots, and its applications*,” **Soft Robotics**, Under Review
- 2018 **Hee Doo Yang**, Brandyn T. Greczek, Alan T. Asbeck, “*The design, fabrication, and evaluation of a novel pneumatic artificial muscle actuator*,” **Frontiers in Robotics and AI**, Under Review
- 2016 Hyeonwook Im, Hyelynn Song, Jongho Choi, Jae Sung Park, Raquel Ovalle-Robles, **Hee Doo Yang**, Kenneth D. Kihm, Ray H. Baughman, Tae June Kang, and Yong Hyup Kim, “*High Efficiency electrochemical thermal energy harvester using CNT aerogel sheet electrodes*,” **Nature communications**, 7, 10600, 2016
- 2015 **Hee Doo Yang**, Lemma Teshome Tufa, Kyoung-min Bae, and Tae June Kang, “*A tubing shaped, flexible thermal energy harvester based on a carbon nanotube sheet electrode*,” **Carbon**, 86, 118-123, 2015
- 2015 Kyoung-min Bae, **Hee Doo Yang**, Lemma Teshome Tufa, and Tae June Kang “*Thermobattery based on CNT Coated Carbon Textile and Thermoelectric Electrolyte*,” **International Journal of Precision Engineering and Manufacturing**, 16, 1245-1250, 2015

B. Conference Publications

- 2018 **Hee Doo Yang**, Alan T Asbeck, “*A New Manufacturing Process for soft Robots and Soft/Rigid Hybrid Robots*,” **Intelligent Robots and Systems (IROS), 2018 IEEE/RSJ International Conference on. IEEE, 2018**
- 2014 Kyoung-min Bae, **Hee Doo Yang**, Lemma Teshome Tufa, and Tae June Kang, “*Thermobattery based on CNT coated carbon textile and thermoelectric*,” **The Korean Society of Mechanical Engineers Conference 2014**, Anshan, Republic of Korea, May 22-23, 2014