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EDUCATION

Ph. D. student in Biomedical engineering

University of Science and Technology, Daejeon, Republic of Korea

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B.S in Electrical Engineering

Chungnam National University, Daejeon, Republic of Korea

RESEARCH INTERESTS

- ◆ Surgical robotics for minimally invasive surgery
- ◆ Mechanical design

PUBLICATIONS

- ◆ **Kwon, S.**, Kim, J., Moon, Y., & Kim, K. (2022). Hyper-Redundant Manipulator Capable of Adjusting Its Non-Uniform Curvature with Discrete Stiffness Distribution. *Applied Sciences*, 12(1), 482.
- ◆ Kim, J., **Kwon, S. I.**, Moon, Y., & Kim, K. (2021). A hand-held non-robotic surgical device to compensate for wire length in unpredicted paths. *IEEE Access*, 9, 60629-60639.
- ◆ Kim, J., **Kwon, S. I.**, Moon, Y., & Kim, K. (2021). Cable-movable rolling joint to expand workspace under high external load in a hyper-redundant manipulator. *IEEE/ASME*

Transactions on Mechatronics.

- ◆ Kim, J., **Kwon, S. I.**, & Kim, K. (2020). Novel block mechanism for rolling joints in minimally invasive surgery. *Mechanism and Machine Theory*, 147, 103774.
- ◆ Park, C. M., **Kwon, S. I.**, Hong, H., Kang, S., Jeon, I. H., Park, S., & Kim, K. (2018). Development and preclinical trials of a wire-driven end effector device for frozen shoulder treatment. *Medical & Biological Engineering & Computing*, 56(7), 1149-1160.

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- ◆ Kim, J., Moon, Y., **Kwon, S. I.**, & Kim, K. (2020). Accurate estimation of the position and shape of the rolling joint in hyper-redundant manipulators. In *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (pp. 3055-3060). IEEE.
- ◆ **Kwon, S. I.**, Van Kalker, S., Choi, S. H., Kim, K., Park, K. S., Kang, S., ... & Ryu, S. C. (2019, May). Design and fabrication of transformable head structures for endoscopic catheters. In *2019 International Conference on Robotics and Automation (ICRA)* (pp. 373-378). IEEE.

PATENT

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- ◆ 김계리, **권성일**, 김정률, “탄성 부재를 구비한 관절 구조체 및 이를 구비하는 튜브 삽입형 장치”, KR Patent, No. 10-2336979, issued Dec 3, 2021
- ◆ 김계리, 김정률, **권성일**, “굽힘 힘이 증가된 관절 구조체 및 이를 구비한 튜브 삽입형 장치”, KR Patent, No. 10-2321453, issued Oct 28, 2021
- ◆ 김계리, **권성일**, 김정률, “구름 조인트와 돌기 부재를 이용한 관절 구조체 및 이를 구비한 튜브 삽입형 장치”, KR Patent, No. 10-2245962, issued Apr 23, 2021
- ◆ 김천우, 류석창, **권성일**, 강성철, “가변 선단부 구조를 갖는 카테터”, KR Patent, No. 10-2235059, issued Mar 26, 2021
- ◆ 김계리, 박철민, **권성일**, 류근웅, 전인호, 곽재만, 송기탁, “ch1th 침습 수술용 장치”, KR Patent, No. 10-2156112, issued Sep 9, 2020
- ◆ 김계리, 김정률, **권성일**, “잠금 기구”, KR Patent, No. 10-2136318, issued Jul 15, 2021

- ◆ 김계리, 김정률, **권성일**, “구름 조인트와 핀 커플링을 이용한 관절 구조체 및 이를 구비한 튜브 삽입형 장치”, KR Patent, No. 10-2128269, issued Jun 24, 2020
- ◆ 최우석, 류근웅, **권성일**, 김계리, 강성철, “수술 기구 가이드 장치”, KR patent, No. 10-1957221, issued Mar 6, 2019
- ◆ 김계리, **권성일**, 김희철, “렌즈를 이용해 레이저를 조향 가능한 레이저 수술 장치”, KR Patent, No. 10-1957219, issued Mar 6, 2019
- ◆ 김천우, 강성철, **권성일**, 이석한, 신인섭, 신동아, “내시경 카테터”, KR Patent, No. 10-2006859, issued Jul 29, 2019
- ◆ 김계리, 박철민, **권성일**, 전인호, 홍한표, 윤필환, “보호 튜브를 구비한 최소 침습 수술 기구”, KR Patent, No. 10-1878466, issued Jul 9, 2018
- ◆ **권성일**, 김계리, 강성철, “조향 가능한 레이저 수술 장치”, KR Patent, No. 10-1724315, Apr 3, 2017