Lastly updated on Jan 24, 2024

Junhyun Park

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Education

Daegu Gyeongbuk Institute of Science and Technology (DGIST) Feb 2024 – Present

Master course, Supervisor: Prof. Minho Hwang

GPA: 4.3/4.3

Daegu Gyeongbuk Institute of Science and Technology (DGIST) Feb 2020 – Present

B.E., Computer Science and Electric Engineering (Double-Major)

GPA: 4.07/4.3, Summa Cum Laude, Valedictorian

Honors & Awards

- **IPESK Next Generation Engineering Researcher** Jan 2025
- **Department of Robotics and Mechatronics Engineering Poster Competition** Jan 2025
- **Outstanding Paper Award** ***[top 2.2%]*** Feb 2023

  "Hysteresis Compensation of Endoscopic Flexible Continuum Manipulator using Deep Learning"

  The 18th Korea Robotics Society Annual Conference
- **Korea Presidential Science Scholarship** Jun 2022- Feb 2024
- **DGIST Presidential Fellowship** ***[top 1%]*** Apr 2021 – Feb 2024

  (Awarded to only 2 students from the same school year at DGIST - top 1%)
- **Korean College Mathematics Competition – Silver medal** Dec 2020
- **Dean's list** spring, fall 2020, spring 2021, fall 2022, spring, fall 2023

Research Experience

DGIST, Surgical Robotics and Robot Manipulation Lab

- Undergraduate Researcher, Supervisor: Prof. Minho Hwang Dec 2021 – Present

Harvard Medical School, Lab of Medical Imaging and Computation

- Intern, Supervisor: Prof. Synho Do and Dr. Kyungsu Kim Jul 2023 – Aug 2023

DGIST, Image Processing Lab

- Undergraduate Researcher, Supervisor: Prof. Kyong Hwan Jin Apr 2021 – Dec 2021

Journal Publications

1. SAM: Semi-Active Mechanism for Extensible Continuum Manipulator and Real-time Hysteresis Compensation Control Algorithm

J. Park*, S. Jang*, M. Park, H. Park, J. Yoon, M. Hwang **(IF = 2.3, JCI = 63/292)**

International Journal of Medical Robotics and Computer Assisted Surgery, 2024 (under revision)

2. Hysteresis Compensation of Flexible Continuum Manipulator using RGBD Sensing and Temporal Convolutional Network

J. Park*, S. Jang*, H. Park, S. Bae, M. Hwang **(IF = 4.6, JCI = 8/46)**

IEEE Robotics and Automation Letters (RA-L), volume 9, issue 7, 2024.

Conference Publications

● International Conference

1. Optimizing Base Placement of Surgical Robot: Kinematics Data-Driven Approach by Analyzing Working Pattern
J Yoon*, **J Park***, H Park, H Lee, S Lee, M Hwang
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024

2. Hysteresis Compensation of Flexible Endoscopic Continuum Manipulator using Temporal Convolutional Network
J. Park*, S. Jang*, J. Kang, M. Hwang
The 20th Asian Conference on Computer-Aided Surgery (ACCAS), 2024

3. Semi-active Mechanism
J. Park*, S. Jang*, M. Park, M. Hwang
The 20th Asian Conference on Computer-Aided Surgery (ACCAS), 2024

4. Integrating ChatGPT into Secure Hospital Networks: A Case Study on Improving Radiology Report Analysis
K. Kim*, **J. Park***, S. Langarica, A. Alkhadrawi, S. Do
Conference on Health, Inference, and Learning (CHIL), Jun.27-28, New York, 2024

5. Design and Kinematics Modeling of Flexible Continuum Manipulator for Endoscopic Surgery
S. H. Jang*, **J. Park***, and M. Hwang
The 22nd International Conf. on Control, Automation and Systems (ICCAS), Nov. 27-Dec. 01, 2022.

● Domestic Conference

1. Torque Estimation through sEMG signal and Control of Upper Limb Exoskeleton Robot
J. Park*, C. Moon*, T. Lee*, M. Kim*, H. Shin*, S. Bae*, J. Choi, M. Hwang
The 18th Korea Robotics Society Annual Conference, Feb.15-Feb.18, 2023.

2. Design of Elbow Exoskeleton Robot using FRP and High Torque Motor
M. Kim*, S. Bae*, H. Shin*, C. Moon*, J. Park*, T. Lee*, J. Choi, M. Hwang
The 18th Korea Robotics Society Annual Conference, Feb.15-Feb.18, 2023

3. Hysteresis Compensation of Endoscopic Flexible Continuum Manipulator Using Deep Learning Model
S. Jang*, J. Park*, and M. Hwang
The 18th Korea Robotics Society Annual Conference, Feb.15-Feb.18, 2023.

4. Development of Flexible Endoscopic Surgery Manipulator
S. H. Jang, J.Park, and M. Hwang
The 13th Annual Conference of Korean Society of Medical Robotics, Nov.25-Nov.26, 2022.

Project

● **Development of a Control Algorithm for a Flexible Surgical Robot Capable of Performing Operations in a Retroflexed Posture** Dec 2021 – Current

(Collaborative Research Projects with ROEN Surgical Inc.)

Supervisor: Prof. Minho Hwang

● **Development of an Intelligent Guidance System for Sleeve Gastrectomy (Bariatric Surgery) Using a Pressure-Sensing Balloon Catheter** May 2024 – Current

Group Leader, Supervisor: Prof. Minho Hwang

- **Development and Control of an Exoskeleton Robot Using EMG Signals** Dec 2021 – Dec 2022

  (DGIST Undergraduate Group Research Project)

  Group Leader, Supervisor: Prof. Minho Hwang and Prof. Ji-Woong Choi

- **Development of High Autonomous Vehicle (Level 4)** Mar 2022 – Oct 2022

  Computer Vision Developer, Supervisor: Prof. Gyengho Choi

- **Startup Project with Personalized Nutrition Salad** Jun 2021 – Dec 2021

  CTO, supported by Ministry of SMEs and Startups

- **Design and Creating of Compact Electric Vehicle** May 2020 – Nov 2020

  Team Member, Supervisor: Prof. Sehoon Oh

Professional Services

Review service: 2024: IEEE Robotics and Automation Letters, IEEE/RSJ IROS

TA: Artificial Intelligence Basics (2024)

Technical Skills

Language and Frameworks: Python, C++, C, Pytorch, TensorFlow

Technologies: Deep Learning, Machine Learning, Computer Vision, Sequence Processing, ROS, Coppeliasim, SolidWorks, Continuum Manipulator, Tendon-Driven Control, Linux