Seunghoon Hwang

PhD

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Education

HANYANG UNIVERSITY *South Korea*

PhD MECHATRONICS ENGINEERING *2017 - 2020*

- Advisor: Dr. Changsoo Han

HANYANG UNIVERSITY *South Korea*

MS Interdisciplinary Engineering Systems *2015 - 2017*

- Advisor: Dr. Changsoo Han

HANYANG UNIVERSITY *South Korea*

BS MECHANICAL ENGINEERING *2009 - 2014*

Publications

Published

[J8]D Sun, **Hwang, S. H.**, J Han. 2021. Lever Control for Position Control of a Typical Excavator in Joint Space Using a Time Delay Control Method. Journal of Intelligent and Robotic Systems 102 (3), 1-16

[J7]D Shin, S Lee,**Hwang, S. H.***. 2021. Locomotion Mode Recognition Algorithm Based on Gaussian Mixture Model Using IMU Sensors. MDPI Sensors 21 (8), 2785

[J6]**Hwang, S. H.**, et al. 2021. Gait pattern generation algorithm for lower-extremity rehabilitation–exoskeleton robot considering wearer's condition. Intelligent Service Robotics (2021): 1-11.

[J5]D Sun, I Baek, **Hwang, S. H.**, et al. 2020. Sensor-based straight-line control of the end-point of a typical retrofitted hydraulic excavator. Automation in Construction 120, 103385

[J4]**Hwang, S. H.**, et al. 2019. Intuitive gait pattern generation for an exoskeleton robot. International Journal of Precision Engineering and Manufacturing 20.11 (2019): 1905-1913.

[J3]**Hwang, S. H.**, et al. 2019. "Determination of the Gait Stability of the Lower-Limb Exoskeleton Robot Through the Stability Circle. Journal of the Korean Society for Precision Engineering 36.6 (2019): 537-542.

[J2]Sung, J., Choi, S., Kim, H., Lee, G., Han, **Hwang, S. H.**, et al. 2017. Feasibility of rehabilitation training with a newly developed, portable, gait assistive robot for balance function in hemiplegic patients. Annals of rehabilitation medicine, 41(2), 178.

[J1] Moon, S. B., Ji, Y. H., Jang, H. Y., **Hwang, S. H.**, et al. 2017. Gait analysis of hemiplegic patients in ambulatory rehabilitation training using a wearable lower-limb robot: A pilot study. International Journal of Precision Engineering and Manufacturing, 18(12), 1773-1781.

Patents

[P5]Crain Type of Mobile Robot System for Gait Assist of Lower Paralytic(P20170781OP)

[P4]Development of Assist Mechanism of Passive Upper Limb Exoskeleton for Lifting a Particular Weight(P20170262OP)

[P3]Exoskeleton Passive Mechanism for Support of Ankle Strength(P20170865OP)

[P2]Linkage Type of Mobile Robot System for Gait Assist of Lower Paralytic(P20170783OP)

[P1]SEA Module Type of Mobile Robot System for Gait Assist of Lower Paralytic(P20170782OP)

Teaching Experience

Fall 2018	**Course**, Research Assistant
Spring 2018	**Course**, Research Assistant
Fall 2017	**Course**, Teaching Assistant
Spring 2017	**Course**, Teaching Assistant
Fall 2016	**Course**, Teaching Assistant
Spring 2016	**Course**, Teaching Assistant

Research Project Experiences and Contributed Funding

[R10]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Changsoo Han *2021 - Present*

- Projects: Development of healthcare services and medical robot devices using artificial intelligence technology.

[R9]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Wansoo Kim *2021*

- Projects: A study on the framework for improving the mutual stability of humans and wearable robots.

[R8]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Jeakweon Han *2019 - 2020*

- Projects: Development of artificial intelligence-based stability and active walking judgment technology.

[R7]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Changsoo Han *2017 - 2018*

- Projects: Development of Single-Leg-type exoskeleton robots for gait rehabilitation/assistance of hemiplegic patients.

[R6]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Changsoo Han *2017*

- Projects: Development of ICT-based cognitive and motor rehabilitation treatment devices tailored to patients with brain diseases.

[R5]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Changsoo Han *2017 - 2018*

- Projects: A planning study on the development of an integrated solution for precision rehabilitation treatment for a healthy life.

[R4]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Changsoo Han *2016 - 2017*

- Projects: Development of CPG-based wearable walking assist robot for patients with paraplegia reflecting the wearer's condition.

[R3]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Changsoo Han *2016-2017*

- Projects: Development of exoskeletal robots capable of gait rehabilitation/assistance for paralyzed patients.

[R2]Hanyang University *KOREA SOUTH*

Supervisor: Dr. Changsoo Han *2016-2017*

- Projects: Development of Exoskeleton Robot Under-actuated mechanisms and gait assistants control algorithm for independent walking of non-disabled people.

Development of Under-actuated mechanisms and walking control technology of assistants modified exoskeleton robots for independent walking of non-disabled people.

[R1]Hanyang University *KOREA SOUTH*

Supervisors: Dr. Mijeong Kim, Dr. Changsoo Han *2015-2016*

- Projects: Development of rehabilitation ankle module robots to prevent hemipleic patients foot drop.