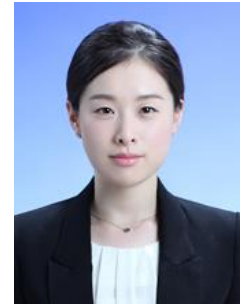


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EDUCATION:

- Ph.D.** Department of Robotics Engineering, February 2021
Daegu Gyeongbuk Institute of Science & Technology (DGIST), Korea
Dissertation topic: Sensor-based spasticity assessment system for objective and quantitative evaluation
Advisor: Prof. Jonghyun Kim, Co-Advisor: Prof. Sukho Park
- M.S.** Department of Robotics Engineering, August 2015
Daegu Gyeongbuk Institute of Science & Technology (DGIST), Korea
Dissertation topic: IMU-based Assessment of Knee Spasticity to Improve Reliability of Modified Tardieu Scale in Cerebral Palsy
Advisor: Prof. Jonghyun Kim, Co-Advisor: Prof. Yong Beom Shin (M.D.)
- B.S.** Physical therapy, February 2013
Sunlin University, Korea

HONORS AND AWARDS:

Outstanding Student Award, DGIST, January 2018

PUBLICATIONS:

International Journal Papers

1. **Seoyoung Choi**, Yong Beom Shin, Soo-Yeon Kim and Jonghyun Kim, "A Novel Sensor-based Assessment of Lower Limb Spasticity in Children with Cerebral Palsy", *Journal of NeuroEngineering and Rehabilitation*, 2018, 15(1), 45 (**Impact factor: 6.5, Top 5% in JCR**)
2. Seoyoon Hwang, **Seoyoung Choi**, Yang-Soo Lee, and Jonghyun Kim, "A Novel Simplified System to Estimate Lower-Limb Joint Moments during Sit-to-Stand", *Sensors*, 2021, 21(2), 521

International Conference Papers

1. **Seoyoung Choi** and Jonghyun Kim, "**Improving Modified Tardieu Scale Assessment using Inertial Measurement Unit with Visual Biofeedback**", Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS, 2016, 2016-October, 4703-4706
2. Seoyoon Hwang, **Seoyoung Choi**, Yang-Soo Lee, Jonghyun Kim, "**Toward clinically-relevant joint moment estimation during sit to stand: A feasibility study**" Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS, 2019, 538-541
3. JooHwan Sung, **Seoyoung Choi**, Junyoung Kim, and Jonghyun Kim, "**A Simplified Estimation of Abnormal Reflex Torque due to Elbow Spasticity Using Neuro-musculoskeletal Model**" Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS, 2019, 5076-5079

PATENTS:

Registered

1. APPARATUS AND METHOD FOR SECONDARY EVALUATING SPASTICITY AND CLONUS USING INERTIAL SENSOR,
관성센서를 이용한 경직 및 간대성 경련 평가 보조 장치 및 방법,
김종현, **최서영**, 신용범, Korea Patent Number, 10-17396470000, May, 2017
2. SYSTEM FOR ASSESSING SPASTICITY,
경직 평가 시스템,
김종현, **최서영**, 김호진, Korea Patent Number, 10-18737810000, Jun., 2018
3. SYSTEM FOR CALCULATING STRETCH REFLEX TORQUE,
신장 반사 토크를 계산하기 위한 시스템,
김종현, 성주환, **최서영**, Korea Patent Number, 10-19935540000, Jun., 2019

Pending

1. METHOD AND APPARATUS FOR ASSISTING SPASTICITY AND CLONUS EVALUATION USING INERTIAL SENSOR,
Jonghyun Kim, **Seoyoung Choi**, Yong Beom Shin, United States Patent, Aug., 2018
2. SYSTEM FOR ASSISTING ASSESSMENT OF SPASTICITY,
경직 평가를 보조하기 위한 시스템, 김종현, **최서영**, Feb., 2018
3. SYSTEM FOR AUTOMATICALLY DETERMINING SCALE OF SPASTICITY BASED ON INERTIA SENSOR,
관성센서 기반의 경직 등급 자동 결정 시스템, 김종현, **최서영**, Aug., 2019

Research Interests

Rehabilitation Engineering, Sensor technology and application (IMU and EMG), Biomechanical model, Neuromuscular model

Skills and Abilities:

Computer skills

MATLAB, LabVIEW, Python, SPSS, OpenSim

Equipment

IMU sensor (shimmer), sEMG sensor (Delsys), Motion capture system (VICON), Force plate (AMTI), Dynamometer (BIODEX)

Rehabilitation area

Physical therapy (license No. 33734), clinical career (5 years)
Neuro-Development Treatment (NDT, issuing entity: Korean Academy of Rehabilitation Medicine),
Clinical trial (Pusan National University Hospital, Pusan National University Yangsan Hospital),
Medical device Regulatory affairs (RA) education