CABRR SEMINAR SERIES
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Rehabilitation of Patients Post Stroke Using Robotic Systems

Abstract - Spasticity (reflex hyperexcitability and hypertonus) and contracture are major sources of disability in patients post stroke. Physical therapy has been regarded as the cornerstone of the rehabilitation process. Recently, robotic devices have shown their effectiveness in rehabilitation. We have developed a low cost and portable robotic system capable of intelligent passive stretching, voluntary movement training, and quantitative outcome measurement. The portable robotic system has the potential to allow for home-based therapy. In addition to the remote treatment, patients at a distance need routine access to experienced clinicians for physical assessment. For this, a tele-rehabilitation system was developed enabling remote assessment with haptic feedback through the internet so that clinicians can feel the patients remotely. Finally, a pilot study on the IntelliArm (multi-DOF exoskeleton system) developed for comprehensive whole arm rehabilitation will be presented.

Bio -
Hyung-Soon Park was born in Seoul, South Korea. He received the B.S. degrees in precision engineering and mechatronics and the M.S. and Ph.D. degree in mechanical engineering, all from the Korea Advanced Institute of Science and Technology, Dajeon, Korea in 2004.
Since 2004, he has been with the Rehabilitation Institute of Chicago and Northwestern University where he worked as a research scientist and research assistant professor. In the meantime, he has developed and commercialized a portable rehabilitation device named IntelliStretch at Rehabtek LLC. He recently started new position in the Rehabilitation Medicine Department at NIH. He has been published 15 peer reviewed journal papers, one book chapter, over 30 conference papers/abstracts, and six patents. He received five grant awards from National Science Foundation and National Institute of Disability Rehabilitation Research. His research focuses on exoskeleton robots for rehabilitation, tele-rehabilitation system with haptic feedback, and orthopedic biomechanics in ACL injury.