PhD Vacancy in Bio-robotics Control for Rehabilitation

Biomedical Signal Processing and Cyber-Physical System Research Group

Supervisor and Co-supervisor:
Prof. Dr. Rendy Munadi
Assoc. Prof. Dr Achmad Rizal
Assoc. Prof. Dr. Bayu Erfianto

Year intake: August 2022
We welcome international prospective student.

Various robotic exoskeletons have been proposed for hand function assistance during activities of daily living (ADL) of stroke survivors or major hand injuries. However, traditional exoskeletons involve the use of rigid systems that restrict natural movement of joints, reduce wearability, and thus difficult to control. We address this shortcoming by developing an AI-based hand glove soft robotic for hand rehabilitation device, which supports physiological full flexion and extension of the fingers that is able to provide hand function assistance and rehabilitation. We offer a full time PhD research in the field of Bio-robotics control with Intelligent capability, with the expected following contributions: (1) The kinematic design of bio-robotics hand glove covers large range of motion of the fingers (full extension to 180° flexion. (2) The fingertip joints movement path is optimized by fusing somatosensory with vision-based hand pose recognition. Thus, the adaptive soft robotics control algorithm will use fusion of somato-vison feedback to guarantee physiologically correct of finger guided-movements for rehabilitation purposes.

Duration: Full Time in Campus, Min 3 years and Max 5 Years

Proposed Research Fund: Tel U (via Internal Research Grant) and Kemendikbud Ristek (PhD Research grant or Fundamental Research Grant)

Requirement: Magister in Biomedical Engineering, Control System, or Computer Science

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