

2020 IEEE/SICE International Symposium on System Integration (SII2020)

Hawaii Convention Center, Honolulu, Hawaii, USA January 12-15, 2020

Special Session on

“Assistive Devices for the Physically Challenged”

organized by

Principal Organizer: Koichi Koganezawa

(kogane@keyaki.cc.u-tokai.ac.jp)

Affiliation: Dep.of Mechanical Engineering, Tokai University, Japan

Organizer 1 : Yoshihiro Kai (kai@keyaki.cc.u-tokai.ac.jp)

Affiliation: Dep. of Mechanical Engineering, Tokai University, Japan

Organizer 2 : Eiichiro Tanaka(tanakae@waseda.jp)

Affiliation: Graduate School of Information, Production, and Systems, Waseda University,
Japan

Organizer 3 : Naoyuki Takesue(ntakesue@tmu.ac.jp)

Affiliation: Dep. of Mechanical Systems Engineering, Tokyo Metropolitan University, Japan

Organizer 4 : Tetsuya Tanioka (tanioka.tetsuya@tokushima-u.ac.jp)

Affiliation: Institute of Biomedical Sciences, Tokushima University, Japan

Organizer 5 : Satoshi Muramatsu (muramatsu@tokai.ac.jp)

Affiliation: Dep. of Applied Computer Engineering, Tokai University, Japan

Abstract of proposed special session:

Physically challenged people (PCP) are now monotonically increasing along with the recent rapid population growth of older adults, which requires the engineering field to sustain their mobility by providing assistive devices that substitute their lost extremity or assist their impaired extremity. This special session mainly focuses on how to achieve this with proposing dexterous devices, which should be feasible or expected to be feasible in practice in some points of view such as safety, portability, and controllability, because PCP wear the devices in their daily life. This special session welcomes to propose training devices that aim to recover functionalities of PCP's weakened extremities.

Brief description of the area of interest with special focus on why we should believe this is an interesting and significant topic?

Due to the currently progressing shortage of caregivers, “Future Investment Strategy 2018” published by the Japanese government stresses the importance of supporting the independence of physically challenged people on their own and recommends scientific approaches featuring artificial intelligence and robotics. This kind of social policy is seen in some OECD countries suffering similar social problems as well. We have a long history to develop assistive devices for PCP. Increase of prospective users will require some novel

approaches in developing them by highly advanced technologies in the fields of robotics, material science, and information and communication technology.

Topics of interest include, but are not limited to:

- Prosthesis of lower and upper limb.
- Orthosis / assistive device of lower and upper limb
- Training device
- Human / machine interface especially for wearable devices
- The other assistive devices for people
- Application of assistive devices

Submissions Procedure: All the instructions for paper submission are included in the conference website <https://sice-si.org/conf/SII2020/papersubmission.html>.