

Advanced Bio-Signal Processing and Machine Learning for Medical Cyber-Physical Systems

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Society aging is a concerning phenomena in many modern countries. It increases the incidence rate of age-related neuromuscular movement and will result in excessive economic pressures on health-care systems worldwide. One potential solution is to develop smart Medical Cyber-physical Systems (CPSs) that are capable of: (i) Providing safe, optimal, effective and affordable means of neuro-rehabilitation, and; (ii) Assisting patients in performing activities of daily living. Bio-signal processing and machine learning solutions are in the heart of the above-mentioned Medical CPSs, and are essential to guarantee compatible, intelligent, compliant, appropriate, safe, and adaptive interaction between the human-in-need (i.e., patient) and the CPS (e.g., a rehabilitative robotic arm, a powered prosthetic device, or an active exoskeleton). The spirit and wide scope of the bio-signal processing and machine learning applications in Medical CPSs and in particular rehabilitation and assistive systems calls for a focused investigation of state-of-the-art techniques to further advance this field. Motivated by the note above, the following topics are of high interest to this symposium:

- Medical Cyber Physical Systems (MCPS)
- Bio-signal Processing & Machine Learning for MCPS
- Signal Processing for Rehabilitation & Assistive System
- Brain Computer Interfacing
- Signal Processing for Wearable Health Technologies
- Multi-modal Sensing for Mobile Health
- Biomedical Image Processing
- Augmented Rehabilitation Systems
- Bio-Robotic Rehabilitation Systems
- Signal/Video Processing in MCPS
- Wireless Wearable Sensors: Active Learning
- Deep Learning: Biomedical Signals/Images
- Distributed Signal Processing in Medical Data
- Explainable Deep Learning for MCPS

Paper Submission: Prospective authors are invited to submit full-length papers (up to 4 pages for technical content including figures and possible references, and with one additional optional 5th page containing only references) and extended abstracts (up to 2 pages, for paper-less industry presentations and Ongoing Work presentations) via the GlobalSIP 2018 conference website. Manuscripts should be original (not submitted/published anywhere else) and written in accordance with the standard IEEE double-column paper template. The accepted abstracts will not be indexed in IEEE Xplore, however the abstracts and/or the presentations will be included in the IEEE SPS SigPort. Accepted papers and abstracts will be scheduled in lecture and poster sessions.

Important Dates:

- **June 17, 2018:** Paper submission due
- **Aug. 7, 2018:** Notification of Acceptance
- **Aug. 22, 2018:** Camera-ready paper due.

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