

CALL FOR PAPERS

SPECIAL ISSUE ON SYSTEM IDENTIFICATION AND CONTROL IN BIOMEDICAL APPLICATIONS

Contributions are invited for a special issue of the *IEEE Transactions on Control Systems Technology* devoted to the subject of System Identification and Control in Biomedical Applications. The purpose of this special issue is to document the current status of research in this field through an original collection of diverse, high-quality papers. The emphasis is on the role control systems technology plays in advancing the state of the art in the challenges of applying feedback control in living organisms, with emphasis on biomedicine. Specifically, we aim at (i) pointing out theoretical and practical issues specific to bio-medical systems, (ii) bringing together solutions developed under different settings with specific attention to the validation of these tools in bio-medical settings using real-life datasets and experiments, and (iii) introducing significant case studies. Topics of common interests include (but are not limited to) the following:

- theoretical and implementation challenges which arise in medical systems,
- control engineering tools for solving specific system design problems in medical technology,
- novel data-driven modeling techniques capturing the dynamics of biomedical systems, and accounting for intra- and inter-individual variability,
- evidence of successful projects in biomedicine enabled by system identification and control, such as the artificial pancreas and closed-loop anesthesia.
- application areas in healthcare and medical systems, such as assistive devices and therapeutics in medical rehabilitation, and mathematical models of infectious disease spread.
- prevention and treatment of chronic, relapsing disorders and illnesses such as cancer, diabetes, obesity, and HIV.

Only contributions that include significant results based on analysis of real data or experimental validation will be included. Papers must contain high-quality original contributions and be prepared in accordance with the *IEEE Transactions on Control Systems Technology* standards. Prospective authors are

advised to consult the “Information for Authors” prior to submitting a paper via <http://www.ieeecss.org/publications/tcst/information-authors>. Contributions should be submitted via <https://mc.manuscriptcentral.com/tcst> by *November 1, 2017*. Prospective authors should state in their cover letter and in the notes section of the submission site that their manuscript is intended for the special issue on “system identification and control in biomedical applications.” Submitted manuscripts must not have been previously published or be under review for possible publication elsewhere.

All papers will be rigorously reviewed according to the standards of the *IEEE Transactions on Control Systems Technology*.

Guest Editors:

Guillaume Mercère (Lead)

Université de Poitiers

86073 Poitiers cedex 9, France

Email address: guillaume.mercere@univ-poitiers.fr

Bayu Jayawardhana

University of Groningen

Engineering and Technology Institute Groningen

Email address: b.jayawardhana@rug.nl

Alexander Medvedev

Uppsala University

SE- 752 37 Uppsala, Sweden

Email address: alexander.medvedev@it.uu.se

Daniel E. Rivera

School for the Eng. of Matter, Transport, and Energy

Arizona State University

Tempe, Arizona USA

Email address: daniel.rivera@asu.edu

Caterina Scoglio

Kansas State University

Department of Electrical and Computer Engineering,

College of Engineering

Kansas State University, Manhattan, KS, USA

Email address: caterina@ksu.edu