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— Call for Papers —
Annals of Operations Research
Special Issue
Operations Research for Neuroscience II

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After the positive and encouraging response from the scientific and wider community to the special issue *Operations Research for Neuroscience*, the journal **Annals of Operations Research (Springer)** now invites submissions of papers to a second special issue on the same subject, called **Operations Research for Neuroscience II**.

Neuroscience, a multidisciplinary science, is concerned with the study of the structure and functions of the nervous system. It comprises aspects of physiology, cellular and molecular biology, as well as behavioral and cognitive science. Recent technological and theoretical advances offer promising opportunities for better understanding of the nervous system at the quantitative level. New optogenetic, in vitro and in vivo multielectrode recording, neuroimaging, brain imaging, and other modern techniques provide high-quality data that can be used in elucidating the fundamental mechanisms of information processing in the nervous system.

The rapidly growing pool of experimental data has triggered the development of new mathematical models that can provide new insights into the functioning of the nervous system at various scales, ranging from that of molecular biology to that of the organizational principles of behavior and cognition. Sophisticated analyses of intracellular signaling or dynamics in heterogeneous neural networks, conditional behavior, or connections of brain regions in decision-making lead to theoretical problems, addressed by operations research.

Although, operations research is actively used in bottom-up approaches--from experimental observation to consistent theory-- it also widely overlaps modern and rapidly developing formal theories, for example the free-energy principle, integrated information theory, and may others.

The special issue will cover a broad range of topics in the field of neuroscience using operations research approaches, methods, and theories. Potential topics include, but are not limited to, the following areas and methodologies of *neuroscience*:

o intracellular signaling and regulation
o synaptic plasticity
o dynamics in heterogeneous neural networks
o intelligent systems and control
o perceptual, cognitive, and behavioral functions
o learning and memory
o spatio-temporal network analysis
o behavioral economics and finance
o linguistics and cognition
o combinatorial optimization
o signal and information processing
o neuroimaging and functional brain imaging processing
o computational modelling and simulation

- formal theoretical approaches: the free-energy principle, integrated information, Bayesian inference, etc.

The use of methods from modern *operations research in neuroscience* is a prerequisite for any paper submitted to this special issue to enter the reviewing process.

Annals of Operations Research is abstracted and indexed in the following databases: Science Citation Index, Science Citation Index Expanded (SciSearch), Journal Citation Reports/Science Edition, SCOPUS, INSPEC, Zentralblatt Math, Google Scholar, EBSCO, CSA, ProQuest, ABS Academic Journal Quality Guide, Academic OneFile, Academic Search, Computer Abstracts International Database, Computer Science Index, CSA Environmental Sciences, Current Contents/Engineering, Computing and Technology, DBLP, ECONIS, Expanded Academic, International Abstracts in Operations Research, Mathematical Reviews, OCLC, SCImago, STMA-Z, Summon by ProQuest.

The Special Issue is officially endorsed by *EURO Conference 2018,* Valencia.

Guest Editors: Erik Kropat, Ruben A. Tikidji-Hamburyan, Gerhard-Wilhelm Weber

Important Date: Submission deadline of full papers: December 1, 2018.

Submission Details: The format of manuscripts for the *Annals of Operations Research* as well as guidelines can be found on the web page of Springer, the publisher of the journal:
http://www.springer.com/journal/10479/submission.
Authors should submit a cover letter mentioning that the paper is for a special issue and a manuscript via the journal's online submission site:
http://www.editorialmanager.com/anor.
When prompted, please select the article type "**S.I.: OR in Neuroscience II**".

All papers submitted for publication will be carefully refereed. In case of any question please contact by e-mail one of the following guest editors:

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