

Topological Image Analysis and Recognition

Computational topology provide consistent and efficient sequential and parallel algorithmic results for trying to solve actual connectivity problems in Digital Imagery and Computer Vision. In this special issue, the focus will be on novel methods for studying topological features or invariants from the computational point of view, and/or that successfully use topological information in representation, compression, analysis, processing, recognition, learning or visualization of nD digital images. Topics of interest of this special issue are the following ones (but not exclusive to):

- Topological features and invariants and their computation for digital images.
- Representations and compression of nD images based on topology
- Hierarchical approaches for images based on topology
- Image segmentation under topological constraints
- Parallel processing based on topology in multi-dimensional volume context
- Topology computation in parallel in multi-dimensional volume context
- Topological optimization for digital images
- Topological algorithms for image processing
- Topological transforms for digital images
- Topological recognition of digital images
- Experimental evaluation of heuristics based on topology in image processing
- Topology methods for visualization of nD digital images.
- Applications of computational topology in biomedical imagery.
- Use of topological information in image engineering applications.
- Machine learning using topological features
- Topology in biomedical imaging

TENTATIVE SCHEDULE

Submission period: **April 1-30, 2019**

SUBMISSION INSTRUCTIONS

Authors are invited to register at <http://ees.elsevier.com/prletters/> and submit their papers electronically during the submission period. When uploading their papers through the online system, authors should select the acronym TIAR as the article type.

Papers should be prepared in a format consistent with the PRLetters submission guidelines. The maximal length of a paper is 10 pages in the PRLetters layout and may become 11 in the revised version if referees explicitly request additions. The submitted papers should not have been published previously, nor being under consideration for publication elsewhere. If one submission is the extended work of one conference paper, the original work should be included and a description of the changes should be provided. The PRLetters submission should include at least 30% new contribution (more experiments, proofs of theorems not included in the conference paper, more comparisons with other methods in the literature and so on). The title of the PRLetters paper should be different, the same figures cannot be used and the common part of the conference paper and of the extended version cannot be verbatim the same.

The review process will follow the standard PRLetters scheme. Each paper will be reviewed by at least two referees and two reviewing rounds will be possible in general, out of which major revision is

possible only for the first round. Submissions will probably being rejected if major revision is still required after the second round of review.

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