ASTRONOMY AND COMPUTING

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ISSN: 2213-1337

DESCRIPTION

Astronomy and Computing is a peer-reviewed journal that focuses on the broad area between astronomy, computer science and information technology. The journal aims to publish the work of scientists and (software) engineers in all aspects of astronomical computing, including the collection, analysis, reduction, visualisation, preservation and dissemination of data, and the development of astronomical software and simulations. The journal covers applications for academic computer science techniques to astronomy, as well as novel applications of information technologies within astronomy.

The journal is open to a broad range of contributions about the use of computing used in astronomy. It accepts regular scientific articles and review articles, but will also consider manuscripts on new software and data releases of astronomical surveys, and "reports on practice" which describe the outcomes (positive and negative) of the practical application of informatics techniques within astronomy research and operations. In general, manuscripts should make a valuable contribution to the field and should display an appropriate familiarity with previous work in the area and alternative approaches to the same problem. Providing a sustainable link to data or source code is strongly encouraged. All manuscripts are subject to peer-review.The journal welcomes contributions on a variety of topics including:

- Scientific software engineering
- Computational infrastructure
- Computational techniques used for astrophysical simulations
- Visualization
- Data management, archives, and virtual observatory
- Data analysis, data mining and statistics
- Data processing pipeline and automated systems
- Semantics, data citation and data preservation

Why publish in Astronomy and Computing

IMPACT FACTOR

2018: 2.760 © Clarivate Analytics Journal Citation Reports 2019

ABSTRACTING AND INDEXING

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Astrophysics Data System
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GUIDE FOR AUTHORS

Types of article

The journal will publish papers covering all aspects of astronomical computing that make a valuable contribution to the field and that display an appropriate familiarity with previous work in the area and alternative approaches to the same problem. A variety of classes of article may satisfy these general requirements, and for some there will be additional criteria to be applied in considering whether an article is suitable for publication in the journal.

The following types of article are currently identified within the submission and refereeing process.

Standard Article
Standard Article: This is the most general category of paper and the one into which most papers published in the journal will fall. Articles are expected to describe an innovative piece of work in astronomical computing. This could relate to either a discrete project - a new algorithm, system or application of technique or technology - or a substantial change to an established system, such as the restructuring of a major pipeline. Examples of types of article within this category are:

(i) Software Release Papers. To be suitable for publication in the journal, these should do more than just describe a new or updated software package. They should emphasize innovative factors like the intellectual contribution represented by a new algorithm or the use of a new technology, and should make clear the ways in which the software is of significant value to the community. The editors anticipate that software releases that merit a journal publication will be professionally packaged and documented, and made available from a stable URL, preferably with the source code available in a public repository: (see section below on "Source code repositories").

(ii) Data Release Papers. These should emphasize the technical aspects of the design, development and delivery of a new dataset, and will be naturally complementary to an astronomy-focused data-release paper in another journal. As with the release of an update to a software package, it will not always be true that papers detailing subsequent data releases from a project will merit publication in the journal even if the first release did. Similarly, authors should describe the releases' value to the community and the ways in which they will adopt community standards (e.g. those of the International Virtual Observatory Alliance) for the description and publication of the data.

Notes on Practice
These articles will focus on the lessons learned in the course of an astronomical computing project, often the first (or an early) application of a particular approach or technology within the field. Their value will not rely on the project having been scientifically or technically successful, but, rather, on the usefulness to the community of the analysis of the project presented in the paper: for example, an unsuccessful project may yield a very valuable paper if it convincingly explains why a seemingly attractive choice of technology proved to inappropriate and if it clearly identifies the characteristics of possible future projects in which the same choice is likely to prove unwise.

Review Paper
In common with review papers in existing journals, these are expected to provide a comprehensive, possibly chronological, overview of a topic in astronomical computing or of a subject from computer science or the commercial IT sector with clear applicability to astronomy. Review papers will be pedagogical in tone, and not required to present new material of their own.

Normally, unsolicited review articles will not be considered for publication in the journal. Authors with the intention to write a review article are encouraged to contact the appropriate Editor directly with a comprehensive review proposal containing the following information: proposed title, (co)-authors, abstract, concise article outline and tentative reference list. Once a review proposal is accepted, completed review articles can be submitted to the Elsevier Electronic Submission system by selecting the Article Type "Review article' on the first submission page.

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The journal may occasionally publish White Papers, which will summarise some aspect of the state of the domain or present ideas for its future. Like all other papers, these must be authoritative and well grounded in relevant expertise, but they may be expressed in a more partial, possibly even polemical, tone than would be appropriate for a Review Paper.

Target Article

Over time, the literature provides a discussion of a topic, through a series of papers with differing views, but sometimes it is desirable to accelerate that debate by seeking contrasting contributions that are then published together and that thereby present a fuller coverage of an issue than would be possible in a single paper. The journal will adopt this practice by occasionally identifying a Target Article (often a paper submitted to the journal as a Standard Article, and only after consultation with the article's author) and soliciting related papers, to be published alongside. These responding papers will be shorter than usual, but must satisfy the same quality criteria as all other articles appearing in the journal.

Special Issues

The journal will publish Special Issues that collect together papers resulting from a specific conference, relating to a particular major project, marking some substantial milestone or event, or which, through some other connection, comprise a coherent whole that is greater than the sum of its parts.

The editors encourage unsolicited submission of Standard Articles and Notes on Practice, but authors wishing to submit a Review Paper, a White Paper or to propose a Special Issue should contact one of the Editors of the journal or its Publisher in the first instance, as these classes of paper will only be accepted in response to an invitation from the Editorial Board. Potential Target Articles will generally be identified by the Editorial Board and related contributions solicited by them, but the board encourages authors to draw their attention to potential Target Articles, during the submission process.

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Examples:

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Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2010. The art of writing a scientific article. J. Sci. Commun. 163, 51–59. https://doi.org/10.1016/j.Sc.2010.00372.

Reference to a journal publication with an article number:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2018. The art of writing a scientific article. Heliyon. 19, e00205. https://doi.org/10.1016/j.heliyon.2018.e00205.

Reference to a book:

Strunk Jr., W., White, E.B., 2000. The Elements of Style, fourth ed. Longman, New York.

Reference to a chapter in an edited book:

Mettam, G.R., Adams, L.B., 2009. How to prepare an electronic version of your article, in: Jones, B.S., Smith , R.Z. (Eds.), Introduction to the Electronic Age. E-Publishing Inc., New York, pp. 281–304.

Reference to a website:

Cancer Research UK, 1975. Cancer statistics reports for the UK. http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/ (accessed 13 March 2003).

Reference to a dataset:

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T., 2015. Mortality data for Japanese oak wilt disease and surrounding forest compositions. Mendeley Data, v1. https://doi.org/10.17632/xwj98nb39r.1.

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