TABLE OF CONTENTS

- Description p.1
- Abstracting and Indexing p.2
- Editorial Board p.2
- Guide for Authors p.4

DESCRIPTION

Array is an international open access multidisciplinary journal encompassing a broad spectrum of topics in computer science, including Artificial Intelligence, Machine Learning and Robotics, Computer Systems and Architecture, Computer Vision, Speech and Pattern Recognition, Control & Signal Processing, Cyber Security, Data, Knowledge and Intelligent Systems, Industrial Engineering, Interdisciplinary Applications, Medical Informatics and Biomedical Engineering, Microelectronics and Hardware, Multimedia and HCI, Networks and Communications, Operational Research and Decision Systems, Scientific Computing, Software Engineering, Theoretical Computer Science.

Submissions must be novel, technically sound, and clearly presented. Array accepts both technical notes (technical notes are limited to a maximum of 10 pages in the standard Elsevier format) and regular papers. In addition to research papers presenting new results, review articles as well as discussion and opinion papers are also welcome.

Papers meeting journal criteria will undergo a single-blind review process, utilizing a minimum of two (2) external referees. Our dedicated expert editorial team, together with an editorial board of hundreds of active researchers from all areas of computer science, ensure that papers move through to publication as fast as possible without compromising on the quality of the process.

The journal audience comprises academia, industry, and practitioners. Authors are strongly encouraged to make their datasets publicly accessible via a repository of their choosing.

Software publication

We invite you to convert your open source software into an additional journal publication in Software Impacts, a multi-disciplinary open access journal. Software Impacts provides a scholarly reference to software that has been used to address a research challenge. The journal disseminates impactful and re-usable scientific software through Original Software Publications which describe the application of the software to research and the published outputs.

For more information contact us at: software.impacts@elsevier.com
ABSTRACTING AND INDEXING

Directory of Open Access Journals (DOAJ)

EDITORIAL BOARD

Editor-in-Chief
Jianxin Li, Deakin University, Australia

Area Editors
Abdelmadjid Bouabdallah, University of Applied Sciences for Technology Compiègne, Compiègne, France
Davide Ciucci, University of Milan-Bicocca Department of Informatics Systems and Communication, Milano, Italy
Thierry Denoeux, University of Applied Sciences for Technology Compiègne, Compiègne, France
Hamido Fujita, Iwate Prefectural University Faculty of Software and Information Science, Iwate, Japan
Van-Nam Huynh, Japan Advanced Institute of Science and Technology, Nomi, Japan
Binshan Lin, Louisiana State University in Shreveport, Shreveport, Louisiana, United States of America
Xiao Liu, Deakin University School of Information Technology - Burwood Campus, Burwood, Australia
Zhunga Liu, Northwestern Polytechnical University, Xi’an, China
Ioannis Mavridis, University of Macedonia Department of Applied Informatics, Thessaloniki, Greece
Gabriele Oliveri, Hamad Bin Khalifa University College of Science and Engineering, Doha, Qatar
Usman Qamar, National University of Sciences and Technology, Islamabad, Pakistan
Su Ruan, Rouen University, Mont-Saint-Aignan, France
Luciano Sanchez, University of Oviedo, Oviedo, Spain
Franck Vidal, Bangor University, Bangor, United Kingdom
Yiyu Yao, University of Regina Department of Computer Science, Regina, Saskatchewan, Canada
Xiaodong Yue, Shanghai University, Shanghai, China

Associate Editors
Rahib Abiyev, Near East University, Nicosia, Turkey
Asma Adnane, Loughborough University, Loughborough, United Kingdom
Rashmi Agrawal, Manav Rachna International Institute of Research and Studies, Faridabad, India
Waleed Alasmary, Umm Al-Qura University, Makkah, Saudi Arabia
Sinem Aslan, Universita Ca’ Foscari European Centre for Living Technology, Venice, Italy
Lerina Aversano, University of Sannio Department of Engineering, Benevento, Italy
Doo-Hwan Bae, Korea Advanced Institute of Science and Technology School of Computing, Daejeon, South Korea
Jagdish Chand Bansal, South Asian University, New Delhi, India
Simone Bianco, University of Milan-Bicocca Department of Informatics Systems and Communication, Milano, Italy
Amiangshu Bosu, Wayne State University, Detroit, Michigan, United States of America
Guillermo Botella, Complutense University of Madrid, Madrid, Spain
Korhan Cengiz, Trakya University, Edirne, Turkey
Jyotismita Chaki, VIT University, Vellore, India
Wing-Kwong Chan, City University of Hong Kong Department of Computer Science, Kowloon, Hong Kong
Wei Chen, China University of Mining and Technology - Beijing Campus, Beijing, China
Gianluigi Ciocca, University of Milan-Bicocca Department of Informatics Systems and Communication, Milano, Italy
Nathan Clarke, University of Plymouth, Plymouth, United Kingdom
Renato Cordeiro de Amorim, University of Essex, Colchester, United Kingdom
Oscar Cordón, University of Granada Department of Computer Science and Artificial Intelligence, Granada, Spain
Erik Cuevas, University of Guadalajara University Center of Exact Sciences and Engineering, Guadalajara, Mexico
Arianna D’Ulitza, Institute for Research on Population and Social Policies National Research Council, Roma, Italy
Swagatam Das, Indian Statistical Institute Computer and Communication Sciences Division, Kolkata, India
Manuel Dominguez Morales, University of Seville, Sevilla, Spain
Anna Rita Fasolino, University of Naples Federico II Department of Electrical Engineering and Information Technology, Napoli, Italy
Mahmood Faziali, Shahid Beheshti University, Tehran, Iran
Philippe Fournier-Viger, Harbin Institute of Technology Shenzhen, School of Humanities and Social Sciences, Shenzhen, China
Angelo Genovese, University of Milan, Department of Computer Science, Milan, Italy
Dimitris Gritzalis, Athens University of Economics and Business, Athens, Greece
Zonghua Gu, Umeå University Department of Applied Physics and Electronics, Umeå, Sweden
Francisco Herrera, University of Granada Department of Computer Science and Artificial Intelligence, Granada, Spain
Anthony TS Ho, University of Surrey Faculty of Engineering and Physical Sciences, Guildford, United Kingdom
SK Hafizul Islam, Indian Institute of Information Technology Kalyani, Kalyani, West Bengal, India
Waldemar Karwowski, University of Central Florida, Orlando, Florida, United States of America
Kyriakos Kritikos, Foundation of Research and Technology Hellas, Heraklion, Crete, Greece
Saru Kumari, Chaudhary Charan Singh University, Meerut, India
Shahar Kvatinsky, Technion Israel Institute of Technology Faculty of Electrical Engineering, Haifa, Israel
Yingguang Li, Nanjing University of Aeronautics and Astronautics College of Mechanical and Electrical Engineering, Nanjing, Jiangsu, China
Marco Lippi, University of Modena and Reggio Emilia, Modena, Italy
Giovanni Livraga, University of Milano Department of Informatics, Crema, Italy
Leandros Maglaras, De Montfort University School of Computer Science and Informatics, Leicester, United Kingdom
Pablo Mesejo Santiago, University of Granada Department of Computer Science and Artificial Intelligence, Granada, Spain
Maleknaz Nayebi, York University, Toronto, Ontario, Canada
Thomas Dyhre Nielsen, Aalborg University Department of Computer Science, Aalborg, Denmark
Sara Paiva, Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal
P Prakasam, VIT University School of Electronics Engineering, Vellore, India
Abdul Salam, Purdue University, West Lafayette, Indiana, United States of America
Muzaffer Saracevic, International University of Novi Pazar, Department of Computer Science, Novi Pazar, Serbia
Michele Scarpiniti, University of Rome La Sapienza Department of Information Engineering Electronics and Telecommunications, Rome, Italy
Muhammad Shaheen Khan, Foundation University Islamabad, Islamabad, Pakistan
Shamus Smith, The University of Newcastle School of Electrical Engineering and Computing, Callaghan, New South Wales, Australia
Eugene H. Spafford, Purdue University Center for Education and Research in Information Assurance and Security, West Lafayette, Indiana, United States of America
Kathiravan Srinivasan, VIT University, Vellore, India
Zhigang Su, Southeast University School of Energy and Environment, Nanjing, China
Luigi Troiano, University of Salerno, Fisciano, Italy
Lihui Wang, KTH Royal Institute of Technology Department of Production Engineering, Stockholm, Sweden
Xi Vincent Wang, KTH Royal Institute of Technology Department of Production Engineering, Stockholm, Sweden
Zhihua Wei, Tongji University, Shanghai, China
Edgar R. Weippl, SBA Research gGmbH, Vienna, Austria
Yihong Wu, Institute of Automation Chinese Academy of Sciences, Beijing, China
Haoran Xie, Lingnan University, New Territories, Hong Kong
Hongyu Zhang, The University of Newcastle School of Electrical Engineering and Computing, Callaghan, New South Wales, Australia
Jun Zheng, New Mexico Institute of Mining and Technology, Socorro, New Mexico, United States of America
GUIDE FOR AUTHORS

Your Paper Your Way

We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be requested to put your paper in to a 'correct format' for acceptance and provide the items required for the publication of your article.

To find out more, please visit the Preparation section below.

Types of article

Array accepts both technical notes (technical notes are limited to a maximum of 10 pages in the standard Elsevier format) and regular papers. Regular papers include both research papers reporting new results, and review articles. Technical notes include: short communications, correspondence, discussions, and opinion papers.

This journal encourages and enables you to share software that supports your research publication where appropriate, and enables you to interlink the software and data with your published article. You have the option to convert your open source software into an additional journal publication in Software Impacts, a multi-disciplinary open access journal that provides a scholarly reference to software that has been used to address a research challenge. It ensures that your software is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article to Software Impacts as an additional item. If your research article is accepted. Please note an open access fee of 250 USD is payable for publication in Software Impacts. Full details can be found on the Software Impacts website. Please use this template to write your Software Impacts article.

Submission checklist

You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:
• E-mail address
• Full postal address

All necessary files have been uploaded:

Manuscript:
• Include keywords
• All figures (include relevant captions)
• All tables (including titles, description, footnotes)
• Ensure all figure and table citations in the text match the files provided
• Indicate clearly if color should be used for any figures in print

Graphical Abstracts / Highlights files (where applicable)

Supplemental files (where applicable)

Further considerations
• Manuscript has been 'spell checked' and 'grammar checked'
• All references mentioned in the Reference List are cited in the text, and vice versa
• Permission has been obtained for use of copyrighted material from other sources (including the Internet)
• A competing interests statement is provided, even if the authors have no competing interests to declare
• Journal policies detailed in this guide have been reviewed
• Referee suggestions and contact details provided, based on journal requirements

For further information, visit our Support Center.

BEFORE YOU BEGIN
Array encourages authors of excellent conference papers to submit extended and significantly revised versions of their manuscripts to be considered for publication. Below are the guidelines for such submissions:

1. Submissions to Array should use a different title than the conference paper.
2. The revised version should explicitly cite the conference paper. In particular, the revised introduction / related work section / paper should clearly state the extensions and changes as compared to the conference paper. These changes should also be reflected in the revised abstract and conclusions. Please also include a copy of the original conference paper with the submission.
3. Submissions to Array should contain at least 30% new material (approximately 2-3 pages in case of an 8-page conference paper). New material could include more in-depth discussion of the presented technique (including new figures), additional results, or new extensions or applications to the technology presented in the conference paper. While authors are encouraged to significantly reword their submissions, simply rewording the conference paper does not count as new material.

**Ethics in publishing**

Please see our information pages on [Ethics in publishing](https://www.elsevier.com/locate/array) and [Ethical guidelines for journal publication](https://www.elsevier.com/locate/array).

**Studies in humans and animals**

If the work involves the use of human subjects, the author should ensure that the work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. The manuscript should be in line with the [Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals](https://www.elsevier.com/locate/array) and aim for the inclusion of representative human populations (sex, age and ethnicity) as per those recommendations. The terms *sex* and *gender* should be used correctly.

Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

All animal experiments should comply with the [ARRIVE guidelines](https://www.elsevier.com/locate/array) and should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, [EU Directive 2010/63/EU](https://www.elsevier.com/locate/array) for animal experiments, or the National Institutes of Health guide for the care and use of Laboratory animals (NIH Publications No. 8023, revised 1978) and the authors should clearly indicate in the manuscript that such guidelines have been followed. The sex of animals must be indicated, and where appropriate, the influence (or association) of sex on the results of the study.

**Informed consent and patient details**

Studies on patients or volunteers require ethics committee approval and informed consent, which should be documented in the paper. Appropriate consents, permissions and releases must be obtained where an author wishes to include case details or other personal information or images of patients and any other individuals in an Elsevier publication. Written consents must be retained by the author but copies should not be provided to the journal. Only if specifically requested by the journal in exceptional circumstances (for example if a legal issue arises) the author must provide copies of the consents or evidence that such consents have been obtained. For more information, please review the [Elsevier Policy on the Use of Images or Personal Information of Patients or other Individuals](https://www.elsevier.com/locate/array).

Unless you have written permission from the patient (or, where applicable, the next of kin), the personal details of any patient included in any part of the article and in any supplementary materials (including all illustrations and videos) must be removed before submission.

**Declaration of interest**

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors should complete the declaration of interest statement using [this template](https://www.elsevier.com/locate/array) and upload to the submission system at the Attach/Upload Files step. If there are no interests to declare, please choose: 'Declarations of interest: none' in the template. This statement will be published within the article if accepted. [More information](https://www.elsevier.com/locate/array).

**Submission declaration and verification**

Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where
the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service Crossref Similarity Check.

Preprints
Please note that preprints can be shared anywhere at any time, in line with Elsevier's sharing policy. Sharing your preprints e.g. on a preprint server will not count as prior publication (see 'Multiple, redundant or concurrent publication' for more information).

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Content should make no assumptions about the beliefs or commitments of any reader; contain nothing which might imply that one individual is superior to another on the grounds of age, gender, race, ethnicity, culture, sexual orientation, disability or health condition; and use inclusive language throughout. Authors should ensure that writing is free from bias, stereotypes, slang, reference to dominant culture and/or cultural assumptions. We advise to seek gender neutrality by using plural nouns ("clinicians, patients/clients") as default/wherever possible to avoid using "he, she," or "he/she." We recommend avoiding the use of descriptors that refer to personal attributes such as age, gender, race, ethnicity, culture, sexual orientation, disability or health condition unless they are relevant and valid. These guidelines are meant as a point of reference to help identify appropriate language but are by no means exhaustive or definitive.

Author contributions
For transparency, we encourage authors to submit an author statement file outlining their individual contributions to the paper using the relevant CRediT roles: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing - original draft; Writing - review & editing. Authorship statements should be formatted with the names of authors first and CRediT role(s) following. More details and an example

Changes to authorship
Authors are expected to consider carefully the list and order of authors before submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only before the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the corresponding author: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.

Article transfer service
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. More information.

Copyright
Upon acceptance of an article, authors will be asked to complete a 'License Agreement' (see more information on this). Permitted third party reuse of open access articles is determined by the author's choice of user license.

Author rights
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

Elsevier supports responsible sharing
Find out how you can share your research published in Elsevier journals.
Role of the funding source
You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

Open access
Please visit our Open Access page for more information.

Elsevier Researcher Academy
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The “Learn” environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

Language (usage and editing services)
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier’s Author Services.

Submission
Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor’s decision and requests for revision, is sent by e-mail.

PREPARATION
Figures and tables embedded in text
Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.

Peer review
This journal operates a single anonymized review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor’s decision is final. Editors are not involved in decisions about papers which they have written themselves or have been written by family members or colleagues or which relate to products or services in which the editor has an interest. Any such submission is subject to all of the journal's usual procedures, with peer review handled independently of the relevant editor and their research groups. More information on types of peer review.

Use of word processing software
It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor’s options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.
LaTeX
You are recommended to use the Elsevier article class elsarticle.cls to prepare your manuscript and BibTeX to generate your bibliography.
Our LaTeX site has detailed submission instructions, templates and other information.

Article structure
Subdivision - numbered sections
Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to 'the text'. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

Introduction
State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Material and methods
Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

Theory/calculation
A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

Results
Results should be clear and concise.

Discussion
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Essential title page information
• Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
• Author names and affiliations. Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
• Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.
• Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.
Highlights
Highlights are optional yet highly encouraged for this journal, as they increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any). Please have a look at the examples here: example Highlights.

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

Abstract
A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

Graphical abstract
Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site.

Authors can make use of Elsevier's Illustration Services to ensure the best presentation of their images and in accordance with all technical requirements.

Keywords
Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations
Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Formatting of funding sources
List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
**Nomenclature and units**
Follow internationally accepted rules and conventions: use the international system of units (SI). If other quantities are mentioned, give their equivalent in SI. You are urged to consult **IUPAC: Nomenclature of Organic Chemistry** for further information.

**Math formulae**
Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

**Footnotes**
Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

**Artwork**

**Image manipulation**
Whilst it is accepted that authors sometimes need to manipulate images for clarity, manipulation for purposes of deception or fraud will be seen as scientific ethical abuse and will be dealt with accordingly. For graphical images, this journal is applying the following policy: no specific feature within an image may be enhanced, obscured, moved, removed, or introduced. Adjustments of brightness, contrast, or color balance are acceptable if and as long as they do not obscure or eliminate any information present in the original. Nonlinear adjustments (e.g. changes to gamma settings) must be disclosed in the figure legend.

**Electronic artwork**

**General points**
- Make sure you use uniform lettering and sizing of your original artwork.
- Embed the used fonts if the application provides that option.
- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Size the illustrations close to the desired dimensions of the published version.
- Submit each illustration as a separate file.
- Ensure that color images are accessible to all, including those with impaired color vision.

A detailed guide on electronic artwork is available. **You are urged to visit this site; some excerpts from the detailed information are given here.**

**Formats**
If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format. Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

- EPS (or PDF): Vector drawings, embed all used fonts.
- TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
- TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.
- TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

**Please do not:**
- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.
Color artwork
Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF) or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites). Further information on the preparation of electronic artwork.

Illustration services
Elsevier's Author Services offers Illustration Services to authors preparing to submit a manuscript but concerned about the quality of the images accompanying their article. Elsevier's expert illustrators can produce scientific, technical and medical-style images, as well as a full range of charts, tables and graphs. Image 'polishing' is also available, where our illustrators take your image(s) and improve them to a professional standard. Please visit the website to find out more.

Figure captions
Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

Text graphics
Text graphics may be embedded in the text at the appropriate position. If you are working with LaTeX and have such features embedded in the text, these can be left. See further under Electronic artwork.

Tables
Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

References
Citation in text
Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Reference links
Increased discoverability of research and high quality peer review are ensured by online links to the sources cited. In order to allow us to create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, please ensure that data provided in the references are correct. Please note that incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, please be careful as they may already contain errors. Use of the DOI is highly encouraged.

A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. Journal of Geophysical Research, https://doi.org/10.1029/2001JB000884. Please note the format of such citations should be in the same style as all other references in the paper.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.
Data references
This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

References in a special issue
Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

Reference style
Text: Indicate references by number(s) in square brackets in line with the text. The actual authors can be referred to, but the reference number(s) must always be given.
Example: '..... as demonstrated [3,6]. Barnaby and Jones [8] obtained a different result ....'
List: Number the references (numbers in square brackets) in the list in the order in which they appear in the text.
Examples:
Reference to a journal publication:
Reference to a journal publication with an article number:
Reference to a book:
Reference to a chapter in an edited book:
Reference to a website:
Reference to a dataset:

Journal abbreviations source
Journal names should be abbreviated according to the List of Title Word Abbreviations.

Video
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

Data visualization
Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.
**Supplementary material**

Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

**Data in Brief**

You have the option of converting any or all parts of your supplementary or additional raw data into a data article published in *Data in Brief*. A data article is a new kind of article that ensures that your data are actively reviewed, curated, formatted, indexed, given a DOI and made publicly available to all upon publication (watch this video describing the benefits of publishing your data in *Data in Brief*). You are encouraged to submit your data article for *Data in Brief* as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to *Data in Brief* where it will be editorially reviewed, published open access and linked to your research article on ScienceDirect. Please note an open access fee is payable for publication in *Data in Brief*. Full details can be found on the *Data in Brief* website. Please use this template to write your *Data in Brief* data article.

**Additional information**

The article structure detailed above is a suggestion, however articles which deviate from this structure will still be considered for review by Array

**AFTER ACCEPTANCE**

**Proofs**

One set of page proofs (as PDF files) will be sent by e-mail to the corresponding author (if we do not have an e-mail address then paper proofs will be sent by post) or a link will be provided in the e-mail so that authors can download the files themselves. To ensure a fast publication process of the article, we kindly ask authors to provide us with their proof corrections within two days. Elsevier now provides authors with PDF proofs which can be annotated; for this you will need to download the free Adobe Reader, version 9 (or higher). Instructions on how to annotate PDF files will accompany the proofs (also given online). The exact system requirements are given at the Adobe site.

If you do not wish to use the PDF annotations function, you may list the corrections (including replies to the Query Form) and return them to Elsevier in an e-mail. Please list your corrections quoting line number. If, for any reason, this is not possible, then mark the corrections and any other comments (including replies to the Query Form) on a printout of your proof and scan the pages and return via e-mail. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. We will do everything possible to get your article published quickly and accurately. It is important to ensure that all corrections are sent back to us in one communication: please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

**Offprints**

The corresponding author, at no cost, will be provided with a PDF file of the article via e-mail (the PDF file is a watermarked version of the published article and includes a cover sheet with the journal cover image and a disclaimer outlining the terms and conditions of use). For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's Author Services.

**AUTHOR INQUIRIES**

Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch. You can also check the status of your submitted article or find out when your accepted article will be published.

© Copyright 2018 Elsevier | https://www.elsevier.com