Editorial

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Formats for reporting primary research

We describe the different formats for reporting primary research for which we currently provide support.

At *Nature Computational Science*, we offer different formats for publishing primary research, each covering different scopes and serving slightly different purposes. As our authors and readers may not yet be familiar with all of these formats, we discuss them in detail below in order to provide more clarity on how the various formats can be best used to report research findings.

Articles represent our most standard primary research format. An Article reports a comprehensive research study that involves substantial computational developments and extensive benchmarking and validations, including experimental validations[1] when applicable and feasible. Most importantly, the computational developments must be conceptually novel — either new methods or techniques are developed from scratch, or existing methods are used in a novel way — and allow for novel insights into the corresponding field of study.

Brief Communications, on the other hand, are shorter manuscripts for reporting more concise studies — but still of broad interest to the computational science community. More specifically, this format is most often used to report a relevant improvement or adaptation to an existing research or computational method, as well as to outline a novel, ongoing work that, while not having all the elements of a comprehensive study (such as experimental validations or substantial computational developments), still holds great promise for the field. This format is also reserved for studies in which the focus is on advancements on computing devices rather than on computational methods.

The Resource format is dedicated to the introduction of a computational resource — such as a tool or a full-fledged framework — of great interest and relevance to the computational science community. The main goal of the reported study is not to primarily answer a specific research question, but rather to present a resource that can greatly assist scientists within their research. Therefore, the manuscript should demonstrate with a range of real-world examples how the proposed resource can be practically useful to the research community, and how broadly applicable the resource is.

Finally, we have recently added a new format to *Nature Computational Science* called Analysis. The main purpose of this format is to report systematic comparisons of computational methods and tools of high importance for a field of research, leading to important practical and arresting conclusions about their performances. An Analysis should provide a quantitative performance evaluation of methods or tools at their best, and generally should not describe the development of a new method or tool.

It goes without saying that our assessment guidelines[2] are the same irrespective of the chosen format. In addition, our standards and requirements regarding code sharing[3] and code peer review[4] are applied to all of our primary research formats, in order to ensure the reproducibility and reusability of the reported results.

It is worth mentioning that, although authors choose the format for their research paper at the time of submission, we editors can also assist them with this selection. For instance, before sending a paper out for peer review, we may suggest a different manuscript type if we think that there is a more suitable format for the paper. In some cases, the manuscript type may not be crystal-clear, and we may discuss this more broadly with the authors or wait for the return of the peer-review reports in order to make an informed decision. We should stress that the format chosen by the authors does not affect our assessment of the research in any way: if we deem the paper suitable for our journal, we will work with the authors on determining the best format to report their research.

We hope this better clarifies the different formats for reporting primary research at *Nature Computational Science*, and we are keen to explore other formats in the future to support the needs of our authorship.

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References

1. *Nat. Comput. Sci.* **3**, 361 (2023).
2. *Nat. Comput. Sci.* **1**, 241 (2021).
3. *Nat. Comput. Sci.* **3**, 907 (2023).
4. *Nat. Comput. Sci.* **2**, 277 (2022).