

Call for Papers Software Engineering Track

Submission and Publication: Ongoing

As the importance and prevalence of scientific software grows, there's a corresponding need for appropriate software engineering practices to help ensure long-term sustainability. A growing body of literature demonstrates the interest of scientific developers in advancing the software engineering practices of scientific disciplines. Recognizing that the development of scientific software differs significantly from the development of other software, the goal of this track is to provide a venue for the publication of work at the intersection of science and software engineering. Scientific software includes software that falls into these categories:

- *Applications*, where the focus is on solving scientific or engineering problems. These applications range from large, parallel models and simulations of the physical world—typically utilizing high-performance computing systems—to smaller-scale simulations developed by a single scientist or engineer on a single desktop or laptop computer.
- *Libraries*, where the goal is to provide software to support other scientific software.
- *Frameworks that guide scientific application development*. Such frameworks include, but are not limited to, systems for building, analyzing, tuning, testing, and documenting scientific software, and systems for managing and/or manipulating large amounts of data produced by or for the scientific software domain.

We encourage submissions from both the software engineering and science communities. Examples of the issues of interest to this track include the following:

- Experiences in adapting programming paradigms to the requirements of scientific applications.
- Descriptions of major design and development decisions and the associated tradeoffs that shaped newly released or refactored software relevant to scientific applications.
- Case studies of development methodologies used in scientific software.
- Measures of software development productivity appropriate to scientific software.
- Lessons learned from the development of scientific software.
- Software engineering metrics and tool support for scientific software.
- The use of empirical studies to better understand the environment, tools, languages, and processes used in the development of scientific software and how they might be improved.
- Verification and validation techniques specifically targeted at scientific software.

Note that this track is fully peer-reviewed. Papers are expected to make a significant contribution to the literature. Claims should be supported by appropriately rigorous validation. For work in earlier stages or with lighter validation, authors may want to consider the Software Engineering for Science workshops series (<http://se4science.org/workshops>).

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Questions?

Contact the track editors, Jeff Carver and Damian Rouson at cise-software@computer.org.

Submission Guidelines

Authors are asked to submit high-quality original work that has neither appeared in nor is under consideration by other journals. All submissions will be peer-reviewed following standard journal practices. Manuscripts based on previously published conference papers must be extended substantially to include at least 50 percent new material. Manuscripts should be written in the active voice, should be

no longer than 6,000 words (counting each standard figure and table as 250 words), and should follow the style and presentation guidelines of CiSE (see www.computer.org/cise/author for details).

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