

CALL FOR PAPERS

SE4Science'16: The 2016 International Workshop on Software Engineering for Science

May 16, 2016 – in Conjunction with ICSE 2016 – Austin, TX

<http://SE4Science.org/workshops/SE4Science16/>

This workshop is concerned with identifying and understanding the unique aspects of software engineering (SE) for the development of scientific software. Specifically, we are interested in:

- Scientific software applications that solve complex software- or data-intensive research problems. These applications range from large parallel models/simulations of the physical world using HPC systems to smaller scale simulations developed by a single scientist or engineer on a desktop machine or a small cluster.
- Applications that support scientific research and experiments at scale. Such applications include, but are not limited to, systems for managing and/or manipulating large amounts of data and systems that provide infrastructure for scientific or engineering applications such as libraries or HPC/Cloud software.
- The process for building, reusing, and publishing software and data used in scientific experiments or engineering innovations. Among others, these process include agile approaches, open source/open data issues, testing scientific software, and managing software or data repositories for publishing goals.

The development of scientific software is significantly different than the development of business information systems, from which many of the SE best practices, tools and techniques have been drawn. Moreover, most conference and journal venues focus either on SE or Scientific Software, but rarely on the intersection of the two domains. Specifically, within the scientific community, there are few places to publish research related to the special SE challenges faced by scientists engaged in software- or data-intensive experiments. The goal of this workshop is to provide a venue for researchers to interact and to support the building of a research agenda to deal with the complex software development issues present in science. Furthermore, the discussion among the researchers will be invaluable in identifying those aspects of SE that should be considered for education programs.

This workshop will build upon results from previous Software Engineering for Science workshops (<http://SE4Science.org/workshops>). Similar to the format of the previous workshops, in addition to presentation and discussion of the accepted papers, significant time during the 2016 workshop will be devoted to the continuation of discussions from previous workshops and to general open discussion.

Special foci of this workshop edition

In addition to the traditional goals of this workshop series, the 2016 edition will have two special foci for which we specifically solicit papers.

- **Quality Assurance for scientific software development**, and considerations of any particular techniques to improve the adoption of such process.
- **Experience reports (including positive, negative, and neutral)** of applying software engineering practices to the development of scientific software. It is as important to understand which SE practices do not work in science contexts as those which do

Submission Instructions

We encourage participation from members of the SE and scientific software communities. Papers of at most 7 pages are solicited to address issues including but not limited to: 1) Case studies of software development processes used in scientific applications; 2) Design patterns and software architectures for scientific software; 3) SE metrics and tool support for scientific applications; 4) Issues in publishing or reusing scientific research software and data; 5) The use of empirical studies to better understand the environment, tools, languages, and processes used in research application development and how they might be improved; 6) V&V techniques specifically targeted for the scientific domain; 7) SE education for scientific developers. Additionally, practical experience reports are welcome and encouraged, including negative and neutral experiences. In order to increase participation, we will also accept shorter (~3-4 page) position papers. A position paper should include POSITION PAPER in the title.

Accepted papers will appear in the ICSE Companion Proceedings in the ACM Digital Library. Accepted papers will be published as an ICSE 2016 Workshop Proceedings in the ACM and IEEE Digital Libraries. The official publication date of the workshop proceedings is the date the proceedings are made available in the ACM Digital Library. This date may be up to two weeks prior to the first day of ICSE 2106. The official publication date affects the deadline for any patent filings related to published work.

Selected papers will also be invited to submit to the Software Engineering track of *Computing in Science & Engineering*.

Please observe the following:

1. Full Papers should be at most 7 pages formatted according to the [ICSE 2016 guidelines](#)
2. Submit your paper in PDF: [EasyChair](#)
3. Important Dates: Submission – January 22, 2016;
4. Notification – February 19, 2016

For more information, contact Jeffrey Carver (carver@cs.ua.edu) or Neil Chue Hong (N.ChueHong@software.ac.uk).