SORS/WomenInBSC: Advancing Software Sustainability and Research Software Engineering in Scientific Computing

Objectives

Abstract: Software plays a vital role in the field of computational science and engineering, serving as a fundamental tool across various scientific disciplines. The increasing complexity of large-scale computing systems, particularly at U.S. Department of Energy computing facilities, places a greater reliance on scientific computing software for their effective utilization. As these systems and software become more intricate, the demand for sustainable software practices and long-term viability of projects becomes crucial. Additionally, the development teams behind such software have also grown in complexity, necessitating individuals, such as Research Software Engineers (RSE), with specialized skills in software development.

This presentation aims to underscore the significance of software sustainability in scientific projects. It will shed light on the initiatives undertaken by Argonne National Laboratory, along with other U.S. national laboratories, to address this critical issue. Specifically, it will focus on the IDEAS Productivity initiative by the Exascale Computing Project in the USA. The talk will emphasize the pivotal role played by Research Software Engineers (RSEs) and the importance of the USRSE organization in fostering an RSE community in the United States. These skilled professionals are indispensable in scientific computing, contributing to the success of research projects. The presentation concludes with an update on the current state of the RSE movement in the USA, providing insights into its progress and future directions.

Short

biography: [Rinku Gupta](#) is a well-known Research Software Specialist with over two decades of experience in scientific research software used on high-performance computing platforms. Currently based at Argonne National Laboratory in the United States, she has led several large teams and managed multi-institutional exascale computing projects. She leads and serves as the Editor-in-Chief of the Better Scientific Software website (BSSw.io), a central portal for the scientific community to address pressing challenges in software productivity, quality, and sustainability.

Ms. Gupta is widely recognized for her expertise in research software engineering and her advocacy for the Research Software Engineers (RSE) movement. She serves as a steering committee board member of the USRSE organization. Her recent work has chiefly focused on researching scientific software sustainability and productivity, through the ECP IDEAS initiative, within the US Department of Energy's Exascale Computing Project; as well as aspects of fault tolerance and resiliency, with the goal of improving the extreme-scale software. With over two decades of experience, she is a well-known in the scientific computing and continues to play a leading role in advancing sustainable and efficient research software.

Speakers

Speaker: Rinku Gupta, Senior Software Developer, Mathematics and Computer Science Division, Argonne National Laboratory
Host:

Toni Peña, Accelerators for High Performance Computing Group Manager, CS, BSC

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