New EIC Welcome Message

Jeffrey C. Carver , *University of Alabama, Tuscaloosa, AL, 35487, USA*

Welcome to my first issue as the Editor-in-Chief for *Computing in Science & Engineering (CiSE)*. I am very excited to take on this new role and help continue to push *CiSE* forward to have an increasingly important impact on our community. As readers of this magazine are well aware, a large percentage of modern research and practice in the science and engineering domains would not be possible without computational software and hardware, as well as the people who develop and manage such software and systems.

For those who do not know me, I will provide a very brief introduction here. My formal training and background are in software engineering research, specifically focused on human factors in software engineering. Over the last 20 years, I have been studying and understanding the use of appropriate software engineering practices to develop computational science and engineering software. Along the way, I have been one of the primary co-organizers of the Software Engineering for Science workshop series and served as one of the Department Editors for Software Engineering here in *CiSE*. In addition, I am one of the founding members of the United States Research Software Engineer (US-RSE) Association, having served on the Steering Committee since 2019 and currently serving as the Vice-Chair. These experiences and collaborations across the community helped motivate me to initially join the *CiSE* Editorial Board and eventually apply for the Editor-in-Chief position.

CiSE is an interdisciplinary magazine focused on the computational and data-centric problems faced by scientists and engineers across disciplines. Advances in computational techniques can benefit this broad spectrum of researchers and practitioners. Because of the interdisciplinary nature of *CiSE*, it holds a unique position in the scientific and engineering community. While researchers are likely to publish their domain-specific results in appropriate domain-specific venues, those venues typically focus primarily on advancing specific science or engineering domains and less on advancing how computing can support science and engineering. As a result, *CiSE* plays an important role by providing a venue for researchers to publish the important computational and software knowledge they discover while conducting their domain-specific research. This knowledge-sharing allows computational researchers, who may not read the domain-specific literature, to benefit from these lessons learned. Because *CiSE* covers a broad range of disciplines, the departments, theme issues, and regular peer-reviewed content are critical for providing more focused knowledge on important interdisciplinary topics relevant to the scientific and engineering community.

To provide an overall vision for *CiSE* in the coming years, the following sections cover my plans for the different types of content we publish in the magazine. Working with our current Editorial Board, along with new members who will join during my term, we will continually update our content and focus to ensure the magazine remains relevant to the needs of our community.

DEPARTMENTS

One of the key hallmarks of *CiSE* is our departments. Each department has a team of editors who are experts in the topic and provide timely and relevant content. Department content is either authored by the Department Editors or guest columnists. Unlike our theme issue papers and regular peer-reviewed content (described later), department content does not go through a full peer-review process. The lack of a long peer-review process results in less delay from the writing of the content to its publication in the magazine.

CiSE currently has 10 departments. Here, I briefly summarize the focus of each of these departments. A detailed description of each department, along with the department editors, appears on the magazine website (https://bit.ly/Cise-Departments).

Case Studies in Translational Computer Science

This department explores how findings in fundamental research in computer, computational, and data science translate to technologies, solutions, or practice for the benefit of science, engineering, and society.

Computer Simulations

This department publishes short articles that describe case studies in computer simulation of physical, biological, or social systems, focusing on advanced methodologies for modeling and simulation, and their applications.

Diversity and Inclusion

This department publishes short articles about diversifying and creating inclusive computational science and engineering, including best practices, promising new programs, and novel approaches to diversity and inclusion.

Education

This department publishes short articles that describe case studies in computational education, focused on new pedagogical and andragogical approaches to formal and informal education to train individuals on using scientific computing at all levels, from K–12 to professional learners.

Leadership Computing

This department showcases leadership-class high-performance computing resources and their impact on scientific discovery, including how they support complex simulations, data analysis, machine learning, and large-scale experimental efforts.

Novel Architectures

This department keeps readers up to date with the latest developments in computing architectures and their use in computational science and engineering, including novel uses of existing architectures and comparisons of tools, development methodologies, and performance for different architectures.

Scientific Programming

This department publishes short articles on all aspects of writing code for doing research, ranging from the small code of everyday research (scripts, notebooks, workflows) to large high-performance computing applications.

Software Engineering

This department addresses the understanding that the development of computational science and engineering software differs significantly from the development of other software by providing a venue to describe examples of the use of software engineering practices in the development of science and engineering software.

Visualization Corner

This department reflects the long-term and fruitful overlap between computer-based visualization and computational science and engineering.

Your Homework Assignment

This department aims to bridge a knowledge gap on the applicability of various computational algorithms, methods, and tools to address computational challenges by featuring case studies with applications in different domains in science and engineering.

New Departments

Over the next year, the Editorial Board will be reviewing the focus of our current departments to identify gaps where *CiSE* should be visible. During this process, we will likely shift the focus of some departments, merge existing departments that have grown close together, and create new departments. Some of the candidates currently under discussion for new departments include: 1) The Use of AI in Computational Science and Engineering, 2) Research Software Engineers and Engineering, and 3) Usability of Computational Science and Engineering Software.

THEME ISSUES

In addition to the departments, the other aspect of *CiSE* that helps us address timely topics is our theme issues. Each theme issue has a set of guest editors who are experts in the theme. These editors recruit submissions and manage the peer-review process for these manuscripts.

In addition to the theme for this current issue, Transforming Energy Through Computational Excellence: A View from NREL, we have the following themes scheduled for upcoming issues:

› *2025 Quarter 2*: Research Software Engineering: Discovering and Bridging Knowledge Gaps
› *2025 Quarter 3*: ESCO: Select Papers presented at the 9th European Seminar on Computing
› *2025 Quarter 4*: Celebrating the Life and Work of J. Tinsley Oden: A Pioneer and a Mentor in Computational Mechanics
› *2026 Quarter 1*: In Honor of Barry Schneider

REGULAR PEER-REVIEWED CONTENT

The last key type of content *CiSE* publishes is regular peer-reviewed content. These unsolicited manuscripts focus on topics relevant to the magazine and complement our department and theme issue content. One of

the challenges for an interdisciplinary magazine like *CiSE* is clarifying the scope of what we publish. To help potential authors better understand the scope of *CiSE* and be able to submit more relevant content, we will clarify and streamline the process for managing unsolicited content. We will create peer-reviewed tracks that mirror our editorial departments. This change will have the effect of clarifying the topics that are within scope for the magazine and helping potential authors better understand whether their manuscript is a good fit. As this process is formalized, we will communicate more details.

CALL FOR INPUT

Because the success of *CiSE* largely depends upon input from the community, I want to end this Editor's Message with a call to action. We seek your input and contributions in multiple ways:

› I am always open to hearing ideas and suggestions from readers. Please do not hesitate to contact me with your thoughts.
› Department editors are often looking for content to include in their department. They welcome ideas and contributions from community members. If you have an idea that you think would fit one of our Departments, please contact the Department Editors directly.
› If you have ideas about departments or topics we are not addressing, please let us know so we can consider those for future departments.
› We are looking for ideas for themes for upcoming issues. If you have ideas and/or would be willing to be the Guest Editor, please let us know.

› We need high-quality regular paper submissions. If you have ideas for papers related to the theme of the magazine, please consider submitting your manuscript for peer review.

EDITORIAL BOARD

I want to close by thanking the current and previous members of the *CiSE* Editorial Board. Without the work of this group of people, the theme issues, department content, and regular peer-reviewed papers would not happen. I specifically want to thank our current Associate Editors-in-Chief, Steve Gottlieb and Michela Taufer. Their input and discussion have been invaluable as I have moved into this role.

As we move into this year, we seek to fill some open spots on the Editorial Board. We need people interested in managing the peer-review process for regular articles. These editors provide an initial review of manuscripts in their area of expertise, invite reviewers, and make a final recommendation about the article. We also need people interested in serving as department editors for existing or new departments. Department editors have the opportunity to write a quarterly column in their area of expertise and/or recruit others to provide contributions.

If you are interested in volunteering or want to know more about any of these positions, please contact me directly at carver@cs.ua.edu.

JEFFREY C. CARVER is the James R. Cudworth Professor of Computer Science at the University of Alabama, Tuscaloosa, AL, 35487, USA. Contact him at carver@cs.ua.edu.