

Introduction to Volume 16, Issue 2

David Joiner, Editor
Kean University
djoiner@kean.edu

This issue of our journal features six new contributions that showcase current advances in computational science education, data science pedagogy, high-performance computing, and applied machine learning. Together, these papers demonstrate the continued evolution of computational thinking as a cornerstone of modern education and research practice.

This issue's featured articles are as follows:

Sai Annapragada presents *Scaling Instructional Workflows in Data Science Education* using JupyterHub and Otter-Grader, describing the implementation of a scalable instructional workflow at the University of California, Merced. By integrating JupyterHub, Otter-Grader, and GitHub, the approach streamlines notebook distribution and automated grading, reducing administrative overhead and improving reliability for large data science courses.

S. Charlie Dey, Jeaimie H. Powell, Victor Eijkhout, Joshua Freeze, and Susan Lindsey introduce *Coding through Storytelling: Narrative Reasoning and Software Engineering Education*. This paper explores a pedagogical model that encourages students to "tell the story" of their code—using narrative reasoning to enhance debugging, metacognitive awareness, and clarity of expression in software development.

James Quinlan and Michael Todd Edwards share *Classroom Applications of Question Formulation to Support Problem-Solving in Computer Science*, describing the use of the Question Formulation Technique (QFT) to help students learn to ask more effective questions. The authors report improvements in engagement and critical thinking, offering practical prompts and reflections for educators seeking to strengthen inquiry in computing instruction.

Charles Ross Lindsey, Jeffrey Valdez, Aaron Jezghani, Will Powell, and Richard Vuduc present *Enhancing HPC Education through Virtual Cluster Administration and Benchmarking*, detailing the use of a hardware-agnostic "Virtual Cluster" environment to teach system administration and performance benchmarking. Their approach provides students with authentic, hands-on experience in HPC configuration and management while lowering infrastructure barriers.

Jeevesh Choudhury, Thomas Jennewein, and Gil Speyer describe *Facilitating Academic Research with FPGA Support in a University Data Center*. The paper examines strategies employed at Arizona State University to make FPGA-based research more accessible, highlighting efforts to integrate high-level synthesis

tools and lower the expertise threshold for sustainable, energy-efficient high-performance computing.

Vikas Sarvasya, Robert Gotwals, and Liam Butler present *A Novel 3D Recurrent R-CNN for Medical Imaging Feature Detection: A Case Study for Coronary Calcium Detection*. This student-led research project introduces a deep learning model capable of accurately identifying coronary structures and estimating calcium scores in non-gated chest CT scans, demonstrating the growing role of computational methods in medical image analysis.

We encourage you to submit your work to the *Journal of Computational Science Education*. Computational science is an increasingly important interdisciplinary field, offering insights into complex systems, accelerating discovery, and helping to solve diverse problems. We welcome high-quality papers describing instructional materials, successful projects, or research on instructional efficacy. Whether you are faculty or a student, your contributions are valuable to advancing computational science education. Additionally, if you have expertise in computational science, consider volunteering as a reviewer to support our peer review process. Together, we can share successes and inspire others to develop and adopt computational science in education.

Finally, this issue is dedicated to the memory of **Dr. Robert M. Panoff**, whose life and work profoundly shaped our community. I first met Bob in October of 1999, as a nearly-newly-minted Ph.D. applying for a position at Shodor. For me personally, he became both a mentor and a friend, and my years working with him shaped me more than I can say. His unwavering belief that anyone could become a scientist, coupled with his empathy and deep understanding of those around him, were truly legendary. Bob founded the Shodor Education Foundation in 1994 and led it for three decades, building a national community of educators who brought computational science into their classrooms. Through Shodor and the National Computational Science Institute, he trained thousands of teachers and faculty and helped inspire an entire generation of computational thinkers. He was also one of the guiding voices in founding this journal and a member of the editorial board from its creation. For so many of us, the work we continue to do carries forward in his honor and memory.

Sincerely, Dave Joiner