Introduction to the First Issue

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Purpose of the Journal

It is with great pleasure that we release the first issue of the Journal of Computational Science Education. The journal is intended as an outlet for those teaching or learning computational science to share their best practices and experiences with the community. Included are examples of programs and exercises that have been used effectively in the classroom to teach computational science concepts and practices, assessments of the impact of computational science education on learning outcomes in science and engineering fields, and the experiences of students who have completed significant computational science projects. With a peer-reviewed journal, we hope to provide a compendium of the best practices in computational science education along with links to shareable educational materials and assessments.

Inaugural Issue

In this issue, we have a variety of articles that reflect the breadth of practices in the developing interdisciplinary computational science field. The articles by Parker and Shafii-Mousavi and Kochanowski provide two views of mathematics education using computational science. Parker describes the application of Computational Algebraic Geometry algorithms to teach both the mathematics and application of mathematics to problems in science and social science. Shafii-Mousavi and Kochanowski show how using Excel to address a range of service learning projects can be successful in teaching mathematical concepts and engaging students while they apply mathematics to practical problems.

The article by Smith et.al. provides an application of computational science to the high school curriculum to help chemistry students visualize the chemical structure of the ingredients in energy drinks and compare them to fluorescent chemicals.

The article by Sendlinger and Metz describes an overview of a series of workshops on computational chemistry and the materials assembled to assist faculty with introducing computational methods in their classrooms.

Shiflet and Shiflet present two modules that involve high performance computing and their application to two biological modeling questions across three different classes. The module concepts, as well as impacts of the materials on student understanding of both the scientific applications, mathematics, and algorithms applied to the models are discussed.

Finally, the two student articles provide their perspectives on the application of computational science to two very different problems. They describe the results of their projects along with reflections of its impacts on their learning and advice for future students and their mentors.

Acknowledgements

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