Introduction to Volume 13 Issue 1

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FOREWORD

This issue combines two regular submissions to the journal with refereed articles from several conference workshops in 2021. Our thanks to the guest editor Nitin Sukhija from Slippery Rock University of Pennsylvania, for managing the submission and review of the conference papers from HETET'21 at ISC 21, SEHET21 at PEARC21 and BPHTE21 at SC21.

Alm and Bailey provide a summary of a summer research experience for a diverse cross-section of students aimed at developing scientific research skills. Students completed a pre-workshop tutorial and then participated in a ten-week research project. The results show that overall students showed both improved skills and positive scientific career aspirations.

The student paper by Toth et al. summarizes a project where students created a heat map application aimed at visualizing bioinformatic data. Students learned a number of programming techniques and gained in project management and collaboration skills.

The first of the workshop papers by Fortin and O'Cais describe the Magic Castle project to create virtual HPC infrastructure environments for education and training. The article describes the underlying architecture and its application to several training programs.

In their article, He and Hartman-Baker provide an overview of the best practices used at the National Energy Research Supercomputing Center for virtual training through the COVID-19 pandemic. They utilized ten strategies in an effort to provide continued, high quality training opportunities for their users.

Cahill et al. describe a collaborative project Computational and Data Science Curriculum Exchange (C2Exchange) to address the challenges associated with sustained access to computational and data science courses in institutions with high percentage enrollment of students from populations currently under-represented in STEM disciplines. Seven institutions are piloting a program where basic courses in computational and data science are shared across institutions, expanding the opportunities for both students and faculty to integrate those topics into their curricula.

A computing course tailored to the needs of economics majors at Texas A&M University is the subject of the article by Lawrence et al. The course uses a web interface to introduce a number of programming concepts using Python. Exercises are oriented to topics in economics broadening the knowledge of those students in cyberinfrastructure topics.

Sherman et al. describe the work of the Northeast Cyberteam program that addresses the cyberinfrastructure needs for researchers at medium- and small-sized institutions in four northeastern states. Researchers propose projects where their computational and data needs have surpassed the capabilities of their laptops. A team using student facilitators and volunteer mentors work with the project for up to six months to help achieve the research objectives.

He et al. have created four "tech-labs" that introduce researchers to interactive computing environments applied to artificial intelligence and machine learning. Two labs introduce the tools and environment. This is followed by hands-on labs on data exploration and machine learning.

Finally, Lawrence et al. describe the use of a graphical user interface to facilitate adoption and use of HPC resources at Texas A&M University. Using Open OnDemand they have created a system which allows the use of Jupyter notebooks and interactive, containerized environments for instruction and research.