Citizen Science

Guest Editor’s Introduction
Citizen Science
Nargess Memarsadeghi

Citizen Science with Hubble Space Telescope Data
Carol Christian
There are many flavors of citizen science today; those involving Hubble Space Telescope data are of the visual classification variety and aimed specifically at producing unique scientific results that would be difficult, if not impossible, to accomplish without large numbers of volunteers.

Citizen-Based Litter and Marine Debris Data Collection and Mapping
Jenna R. Jambeck and Kyle Johnsen
The monitoring of litter and debris is challenging at the global scale because of disconnected local organizations and the use of paper and pen for documentation. The Marine Debris Tracker mobile app and citizen science program allows for the collection of global standardized data at a scale, speed, and efficiency that wasn’t previously possible.

Defining and Measuring Success in Online Citizen Science: A Case Study of Zooniverse Projects
Joe Cox, Eun Young Oh, Brooke Simmons, Chris Lintott, Karen Masters, Anita Greenhill, Gary Graham, and Kate Holmes
Current literature highlights a wide variety of potential citizen science project outcomes, but no prior studies have systematically assessed performance against a comprehensive set of criteria. A novel framework applied to the Zooniverse platform illustrates how a success matrix can measure both contribution to science and public engagement levels relative to other projects.

Visualization of Citizen Science Volunteers’ Behaviors with Data from Usage Logs
Alessandra Marli M. Morais, Rafael D.C. Santos, and M. Jordan Raddick
Web-based citizen science projects collect logs of interactions between volunteers and project websites. Visualization techniques can help infer volunteer behavior in such projects, perhaps shedding light on why people join or leave them. Better understanding of these factors could help citizen science project developers recruit and retain their volunteers.

For more information on these and other computing topics, please visit the IEEE Computer Society Digital Library at www.computer.org/csdl.
HIGH-PERFORMANCE COMPUTING

52 Open XDMoD: A Tool for the Comprehensive Management of High-Performance Computing Resources

The Open XDMoD portal provides a rich set of analysis and charting tools that let users quickly display a wide variety of job accounting metrics over any desired timeframe. Two additional tools, which provide quality-of-service metrics and job-level performance data, have been developed and integrated with Open XDMoD to extend its functionality.

72 Scientific Programming
The Approximation Tower in Computational Science: Why Testing Scientific Software Is Difficult
Konrad Hinsen

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