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# Computing

in **SCIENCE & ENGINEERING**


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## SCIENCE AS A SERVICE



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# Computing

in SCIENCE & ENGINEERING

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Ravi Madduri and Ian Foster

### 10 A Case for Data Commons: Toward Data Science as a Service

Robert L. Grossman, Allison Heath, Mark Murphy, Maria Patterson, and Walt Wells

Data commons collocate data, storage, and computing infrastructure with core services and commonly used tools and applications for managing, analyzing, and sharing data to create an interoperable resource for the research community. An architecture for data commons is described, as well as some lessons learned from operating several large-scale data commons.

### 21 MRICloud: Delivering High-Throughput MRI Neuroinformatics as Cloud-Based Software as a Service

Susumu Mori, Dan Wu, Can Ceritoglu, Yue Li, Anthony Kolasny, Marc A. Vaillant, Andreia V. Faria, Kenichi Oishi, and Michael I. Miller

MRICloud provides a high-throughput neuroinformatics platform for automated brain MRI segmentation and analytical tools for quantification via distributed client-server remote computation and Web-based user interfaces. This cloud-based service approach improves the efficiency of software implementation, upgrades, and maintenance. The client-server model is also ideal for high-performance computing, allowing distribution of computational servers and client interactions across the world.

### 36 WaveformECG: A Platform for Visualizing, Annotating, and Analyzing ECG Data

Raimond L. Winslow, Stephen Granite, Christian Jurado

The electrocardiogram (ECG) is the most commonly collected data in cardiovascular research because of the ease with which it can be measured and because changes in ECG waveforms reflect underlying aspects of heart disease. Accessed through a browser, WaveformECG is an open source platform supporting interactive analysis, visualization, and annotation of ECGs.

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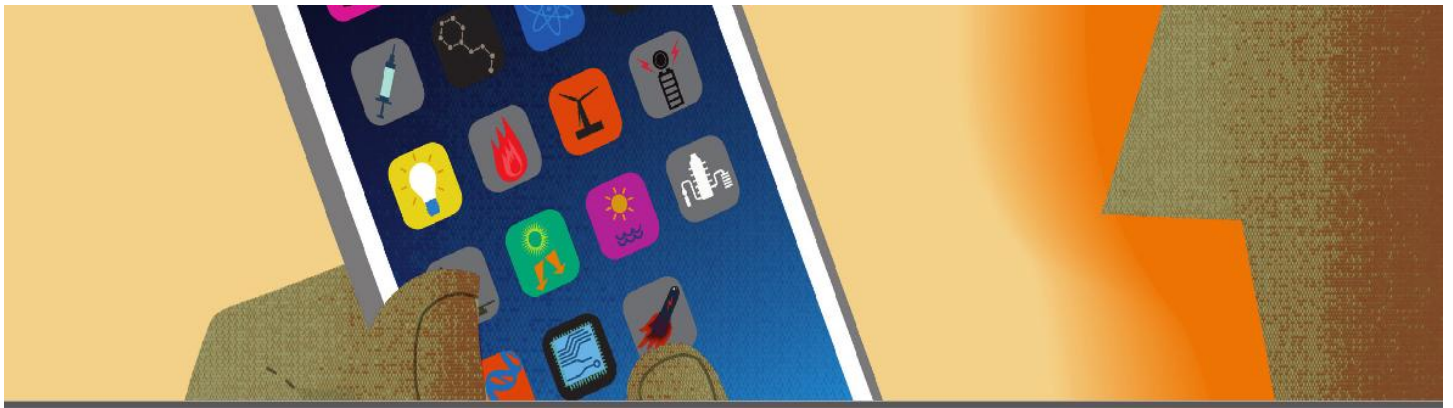
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