

# IEEE Data Science Workshop

## Call for papers

June 4-6, 2018 - EPFL, Lausanne, Switzerland

The 2018 IEEE Data Science Workshop is a new workshop that aims to bring together researchers in academia and industry to share the most recent and exciting advances in data science theory and applications. In particular, the event will gather researchers and practitioners in various academic disciplines of data science, including signal processing, statistics, machine learning, data mining and computer science, along with experts in academic and industrial domains, such as personalized health and medicine, earth and environmental science, applied physics, finance and economics, intelligent manufacturing.

The scientific program will include invited plenary talks, as well as regular oral and poster sessions with contributed research papers, and data challenge sessions. Papers are solicited in (but not limited to) the following topics:

- **Computational models and representation for data science.** Tensor factorizations. Compressive sampling. Randomized linear algebra. Graph simplifications and multiresolution representations. Transformations and spectral representations. Distributed algorithms.
- **Acquisition, storage, and retrieval for large-scale data science.** Hardware and architectures. Software and Cyberinfrastructure. Protocols for networked storage. Compression for data storage. Sketching and streaming. Scaling up algorithms.
- **Visualization, summarization, and analytics.** Data presentation architectures and dashboards. Data visualization and human perception / cognition. Business intelligence. Data wrangling.
- **Learning, modeling, and inference with data.** Graph signal processing. High-dimensional spatio-temporal modeling. Theoretical limits. Anomaly detection. Graph learning. Statistical modeling of heterogeneous data types. Post-selection inference. Analysis of deep learning algorithms. Crowdsourcing. Stream mining. Statistical uncertainty quantification.
- **Data science education.** Innovative approaches to teaching data science. Data-informed learning theory. Learning analytics.
- **Data science process and principles.** Reproducible research. Open source data science. Workflow. Meta-analysis. Data science ethics. Automation of data science via meta-learning. Algorithmic fairness. Bias in science.
- **Applications.** Social media, recommendation systems and collaborative filtering. Defense, intelligence and security. Biology and medicine. Astronomy and other physical sciences. Audio, image, video analytics and computer vision. Urban informatics. Social sciences. Business analytics, forensics and finance. Applications leveraging domain knowledge for data science.



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### PAPER SUBMISSION

Papers should be at most four pages long in double-column format. Information regarding the submission process is available on the workshop website.

### SPECIAL SESSIONS

Special session proposals can be submitted through the workshop web site. They must include a topical title, session outline, contact information of proposers, and the list of invited papers and authors. Special session authors are referred to the workshop website for additional information regarding the submission process.

### GRAND CHALLENGES

Exciting data challenges with real-world impact will be communicated in time before the workshop. The challenges will be hosted by crowdAI.org and powered by RENGA, the SDSC analytics platform for collaborative open science.

### AWARDS

Three types of awards are being set up: Best Paper Award, Best Student Paper Award and the Grand Challenges Award. The selection criteria for these awards include the scientific quality of the paper and the presentation of the oral contribution or challenge presentation.

### IMPORTANT DATES

Deadline for special session proposals  
January 10, 2018

Submission of full papers  
**New Submission Deadline**  
February 23, 2018

Notification of acceptance  
April 6, 2018

Author advance registration  
May 1, 2018

Camera-ready paper submission  
May 1, 2018

### CONTACT

contact@2018.ieeedatascience.org

[2018.ieeedatascience.org](http://2018.ieeedatascience.org)

### General Chairs

Olivier Verscheure, SDSC,  
Switzerland  
Pascal Frossard, EPFL,  
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### Technical Program Chairs

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University of Fribourg,  
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