Workshop on Management, Search and Mining of Massive Repositories of Solar & Stellar Astronomy Data

http://www.cs.gsu.edu/rangryk/workshops/SABID16/

Call for Papers
Organizers of SABID 2016 workshop solicit high-quality original research papers in the closely related areas of solar and stellar astronomy big data. Innovative data mining techniques in these fields are poised to address open research questions ranging from solar weather predictability to our place in the Universe. The topics include **but are not limited** to the following:

1) **Managing the Flood of Solar & Stellar Astronomy Big Data**
   a) New Computational Models for Storage, Distribution, Processing and Mining of Astronomy Data
   b) Evaluation of Information Quality for Astronomy Data from Telescopes, as well as Derived Data Products (Meta-Data)
   c) New Scientific Standards for Information Processing and Mining, and their Quality Evaluation
   d) System Architectures, Design and Deployment of Solar and Stellar Astronomy Data Archives, Portals and Analytical Services
   e) Data Management and Stream Mining for Astronomy Data in Cloud and Distributed Environments
   f) Integration of Heterogeneous Information from Multiple Data Repositories for the purpose of Knowledge Discovery

2) **Solar & Stellar Astroinformatics and Astrostatistics**
   a) New Computational Models for Search, Retrieval, and Mining of Astronomy Data
   b) Scalable Algorithms and Systems for Solar Activity Recognition (e.g. Computer Vision) from Solar Data Repositories
   c) Efficient Data Selection, Machine-Learning and Triage Techniques
   d) Solar & Stellar Astronomy Data Search Architectures, their Scalability, Efficiency, and Real-life Usefulness
   e) Visualization and Interaction Tools for Large Astronomy Data Bases
   f) Computational Astrostatistics (e.g. irregularly sampled data, multivariate and survival analysis, nonlinear regression, etc.)
   g) Hyperspectral Imaging: Technologies and Techniques
   h) Image Processing for Unbiased Image, Spatial and Time Series Analysis
   i) Cloud-, Distributed-, and Stream-Data Mining for High Velocity Astronomy Data
   j) Semantic-based Solar Data Mining from Heterogeneous Solar and Stellar Data Repositories
   k) Multimedia, Multi-structured, and Spatiotemporal Astronomy Data Mining
   l) Novel Data Mining Models, including new algorithms available through Hadoop, MapReduce, No-SQL, etc.

3) **Computer Applications related to Solar Astronomy Big Data Mining**
   b) New Real-life Case Studies of Big Solar Data Mining (e.g. Space Weather)
   c) Experiences with Big Data Mining Project Deployments in Solar Physics
   d) Solar and Stellar Astronomy Data and Knowledge Distribution in the Social Web

4) **Seeing the Sun as a Star Using Astronomical Big Data**
   a) Surveys of Millions of Suns – Is the Sun a Typical Sun-like Star?
   b) Helioseismology versus Asteroseismology
   c) Flares, Planets and Supernovae – Identifying Transient/Periodic Events in Time Series Data

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Paper Submission
Please submit a full-length paper (up to 10 page IEEE 2-column format) through the online submission system (for more info see SABID 2016 website). All papers after being carefully reviewed by at least 3 PC members and accepted for our workshop will be included in the IEEE Int. Conf. Big Data Workshops 2016 Proceedings published by the IEEE Computer Society Press (also included in the IEEE Digital Library), and made available at the conference. Selected papers (after their significant expansion and second round of independent revisions) will be invited into a special journal issue. We contacted the editorial board of Elsevier’s journal on “Astronomy and Computing” and received encouraging response about the possibility of offering the special issue.

Important Dates

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<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>09.30.2016</td>
<td>Due date for workshop papers submission</td>
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<tr>
<td>10.14.2016</td>
<td>Notification of paper acceptance to authors</td>
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<tr>
<td>11.10.2016</td>
<td>Camera-ready of accepted papers</td>
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<tr>
<td>12.05-08.2016</td>
<td>Workshop during IEEE Int. Conf. on Big Data 2016</td>
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