



WG3 - IMIA Working Group on Data Mining and Big Data Analytics Informatics

**2018 Report - July 2017 to June 2018
presented in Colombo, Sri Lanka for:**

- **IMIA Board Meeting, October 8, 2018,**
- **IMIA General Assembly Meeting, October 9, 2018**

Chair (2018-2021)

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Website for the WG: <http://imia-medinfo.org/wp/data-mining-and-big-data-analytics/>

Brief Background

The IMIA WG on Data Mining and Big Data Analytics has the following main objectives:

- To increase the awareness and acceptance of data mining and big data analytics methods in the biomedical community.
- To exchange knowledge and experience with respect to methods for data collection, data sharing, and data mining in biomedicine.
- To foster scientific discussion and disseminate new knowledge on AI-based methods for data analysis and data mining techniques applied to biomedicine. To promote the development of standardized platforms and solutions.
- To provide a forum for presentation of successful data science implementations in biomedicine, and for discussion of best practices in introduction of these techniques in medical and health-care information and decision support systems.

- Focus on specific topics of interest for the scientific community, in particular:
 - the exploitation of predictive analytics in clinical medicine,
 - knowledge-based functional genomics,
 - analysis of molecular phenotypes,
 - data mining models for the assessment of clinical risk,
 - temporal data mining in medicine and bioinformatics, and
 - evolutionary computation in biomedical knowledge discovery.

Achievement - Events and projects conducted and publications completed

- The WG endorsed the Summer School on "Big Data, Neuroscience, and Law", which was held in Pavia, Italy, in September 2017 (<http://cht.unipv.it/index.php/events/big-data-school>). The school was organized by Lucia Sacchi (WG chair), Amedeo Santosuosso, Gabriella Bottini, and Barbara Bottalico, all members of the Centre for Health Technologies of the University of Pavia, Italy. The aim of the school was to provide information about the increasingly advanced neuroscientific findings and Big Data techniques, and their impact on each other and on different legal systems. The interaction of the three main topics and the debate about the role of science in shaping ethics and law has been influenced by their recent advancements.
- Funding has been secured for a new seminar series at Brunel University London which begins in October on "Opening the Black Box" including high profile speakers from healthcare (Moorfields Eye Hospital) and AI (Google Deepmind), chaired by Dr Allan Tucker (WG vice chair): <https://ida-research.net/>
- The WG presented the panel "Data Analytics Challenges in Precision Medicine", at the MEDINFO 2017 conference, which was held in Hangzhou, China. The panel has been proposed by Fernando Martin-Sanchez (former WG chair), Lucia Sacchi (WG chair), Riccardo Bellazzi, and John H. Holmes.
- Dr. Lucia Sacchi (WG chair) gave an invited talk titled "How to exploit the power of data variety for research and clinical practice", during the X Foresight Training Course organized by the Gianni Benzi Foundation. During this talk, she made several references to the IMIA Working Group.

Participation - Engagement and participation in IMIA and health informatics events and activities.

- The WG has endorsed the 16th Conference on Artificial Intelligence in Medicine, held in Vienna on June 21-24 2017.
- The WG is planning to contribute to the 2019 edition of the IMIA Yearbook of Medical Informatics

Outreach - Recruitment and engagement of new members and target communities, publicity and representation at major events and/or on social media.

- The Working Group maintains a LinkedIn group (<https://www.linkedin.com/grps/Data-Mining-Big-Data-Analytics-8121667/about?>) which currently has 77 members). This represents a 17% increase with respect to last year's membership. The working group

also maintains a freely accessible online Scoop-It channel on Big Data, Health and Biomedicine (<http://www.scoop.it/t/big-data-health-and-biomedicine>) where important news and research developments in this field are curated, filtered, posted and regularly circulated through social media channels (Facebook, Twitter and LinkedIn WG page).

Collaboration - Working with other IMIA WG/SIGs or external organizations or institutions.

- The working group will closely collaborate with the newly established IMIA WG on Exposome Informatics
- The working group will continue its linkage with the American Medical Informatics Association through the Knowledge Discovery and Data Mining Working Group.
- We will pursue closer collaboration with the EFMI WG on Translational Health Informatics.