

Special Issue on  
**Advances in Processing, Mining, and  
 Learning Complex Data: From  
 Foundations to Real-World Applications**

# CALL FOR PAPERS

Processing, mining, and learning complex data refers to an advanced study area of data mining and knowledge discovery concerning the development and analysis of approaches for discovering patterns and learning models from data with a complex structure (e.g., multirelational data, XML data, text data, image data, time series, sequences, graphs, streaming data, and trees). These kinds of data are commonly encountered in many social, economic, scientific, and engineering applications. Complex data pose new challenges for current research in data mining and knowledge discovery as they require new methods for processing, mining, and learning them.

For processing, mining, and learning purposes, traditional data analysis methods often require the data to be represented as vectors. However, many data objects in real-world applications, such as chemical compounds in biopharmacy, brain regions in brain health data, users in business networks, and time series information in medical data, contain rich structure information (e.g., relationships between data and temporal structures). Such a simple feature-vector representation inherently loses the structure information of the objects. In reality, objects may have complicated characteristics, depending on how the objects are assessed and characterized. Meanwhile, the data may come from heterogeneous domains, such as traditional tabular-based data, sequential patterns, graphs, time series information, and semistructured data. Novel data analytics methods are desired to discover meaningful knowledge in advanced applications from data objects with complex characteristics.

In this special issue, we are seeking solicit contributions to the fundamental research in processing, mining, and learning complex data, focusing on the analysis of complex data sources such as blogs, event or log data, medical data, temporal data, text data, information networks, mobility data, sensor data, and streams. Submissions discussing and introducing new algorithmic foundations and representation formalisms in pattern mining are also welcome. Processing, mining, and learning complex data is considered to be a multidiscipline, highly intersecting researched hot field, which aims to foster and develop sustainable collaborations between data mining and informatics, sociology, biology, health, social sciences, and business. Accordingly, we also seek for business, health, and other industrial applications of complex data analysis that help to solve real-world problems.

Potential topics include but are not limited to the following:

- ▶ Mining semistructured and unstructured data
- ▶ Graph/network analysis
- ▶ Streaming data processing
- ▶ Workflow and process mining
- ▶ Sequence pattern mining
- ▶ Time series learning
- ▶ Dynamic and evolving data analysis
- ▶ Heterogeneous transfer learning
- ▶ Environmental and scientific data mining
- ▶ Web/text/image data mining
- ▶ Natural language processing
- ▶ Healthcare data analytics
- ▶ Medical data analytics
- ▶ Fraudulent pattern analysis in business
- ▶ Mobile telecommunication services
- ▶ Privacy preserving mining
- ▶ Information security data mining
- ▶ Data analytics for social media

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/complexity/mdce/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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