Call For Papers

The 19th IEEE International Conference on Ubiquitous Intelligence and Computing

Special Session: Deep Learning for Spatio–Temporal Data Mining: Methods and Applications

With the fast development of various positioning techniques such as Global Position System (GPS) and mobile devices, spatio-temporal data has become increasingly available nowadays. Mining valuable knowledge from spatio-temporal data is critically important to promote many real-world applications including smart transportation, remote sensing, urban planning, public safety and health care. As the number, volume and resolution of the spatio-temporal data increase rapidly, traditional statistics-based data mining approaches for dealing with such data are becoming overwhelmed.

Recently, with the advances of deep learning techniques, deep leaning models such as convolutional neural network (CNN), recurrent neural network (RNN), and graph convolutional neural network (GCN) have achieved great success in various machine learning tasks. Deep learning models have been broadly applied in many areas including computer vision, natural language processing and graph data mining. This inspires many recent works to adopt deep learning models for various spatio-temporal data mining tasks including traffic prediction, crime prediction, weather forecasting, neuroscience and various location-based social network services.

This special session aims to provide a forum for researchers and practitioners in academia and industry to present their latest research findings and engineering experiences in developing deep learning techniques for various spatio-temporal data mining tasks and applications.

This is a special session of the 19th IEEE International Conference on Ubiquitous Intelligence and Computing (http://www.ieee-smart-world.org/2022/uic/). Please submit your paper via the submission site (https://edas.info/N29956) and select the special session of "Special Session 3: Deep Learning for Spatio-Temporal Data Mining" marked with "UIC-STD".

Papers are invited in methods, algorithms, and applications of applying deep learning for various spatio-temporal data mining tasks to establish the latest efforts of the research in this area. Topics of interest include but not limited to:
· Spatio-temporal data representation learning with deep learning
· Anomaly detection in spatio-temporal data with deep learning
· Deep learning based urban traffic prediction models
· Heterogeneous spatio-temporal data fusion with deep learning
· Trajectory data mining with deep learning
· Spatio-temporpal data driven environment prediction with deep learning
· Spatio-temporal data reduction and pre-processing with deep learning
· Spatio-temporal crowdsourcing with deep learning
· Interpretable deep learning models for spatio-temporal data mining
· Novel deep learning models for mining noisy and sparse spatio-temporal data

- Deep learning models for novel applications based on spatio-temporal data
- Spatio-temporal sound signal processing with deep learning
- Deep learning based spatio-temporal data mining for smart city
- GIS systems using deep learning (e.g., mapping, routing, or Smart city)
- Deep reinforcement learning for decision making with spatio-temporal data

Session Chairs

Senzhang Wang, Professor with Central South University

Xiaoyong Li, Associate Professor with National University of Defense Technology

Important Dates

Paper Submission Due: Sep 01, 2022

Acceptance Notification Due: Oct 01, 2022

Final Manuscript Due: Oct 31, 2022