IEEE Transactions on Computational Social Systems

Special issue on Advanced Machine Learning on Cognitive Computing for Human Behavior Analysis

Recently, many advanced machine learning technologies have appeared, such as deep learning, transfer learning, and so on. Deep learning method has achieved great success in image and video analysis, natural language processing, speech recognition, etc., and recently has been starting to find applications in cognitive computing for human behavior analysis. Transfer learning makes use of data or knowledge gained in solving one problem to help solve a different, albeit related problem. Transfer learning can be particularly useful in cognitive computing to cope with the variability across individuals or tasks, accelerating learning and improving performance. Deep learning and transfer learning can also be integrated to take advantage of both domains.

Although the studies of human behavior analysis using the advanced machine learning methods become more and more popular, there are many fundamental problems unsolved so far. For example, how does deep learning represent human appearance and behaviors from multiple modalities? How do we map data from one modality to another to achieve cross-modality human behavior analysis? How do we identify and utilize relations between elements from two or more different modalities for comprehensive behavior analysis? How do we fuse information from two or more modalities to perform a more accurate prediction? How do we transfer knowledge between modalities and their representations? And how do we recover missing modality data given the observed ones? How to extend the lifetime of and enhance the usability of human behavior analysis devices and networks?

In the past decade, several machine learning models have been developed and shown promising results in some real-world examples, such as multimedia description and retrieval, which facilitates us to exploit and develop advanced machine learning algorithms on cognitive computing for addressing fundamental issues of human behavior analysis.

This special issue aims to provide a forum for researchers from the perspective of cognitive computing to present recent progress on state-of-the-art methods and applications to human behavior analysis. The list of possible topics includes, but not limited to:

- Convolutional/recurrent neural networks for human behavior analysis
- Deep feedforward/belief/residual networks for human behavior analysis
- Extreme learning machines for human behavior analysis
- Generative adversarial networks for human behavior analysis
- Long short-term memory for human behavior analysis
- Transfer learning for human behavior analysis
- Domain adaptation for human behavior analysis
- Covariate shift for human behavior analysis
- Deep-transfer learning for human behavior analysis
- Cognitive wireless charger networks for human behavior analysis

Schedule:

Paper submission due: May 31, 2020

First notification: July 31, 2020

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Publication date: in 2020

Submission Guidance

Preparation of manuscripts should refer to the guidelines in the "Author Information" on the IEEE Transactions on Computational Social Systems website: http://www.ieeesmc.org/publications/transactions-on-computational-social-systems/call-for-papersand-special-issues. Papers should be submitted through https://mc.manuscriptcentral.com/tcss. Please be sure to select the manuscript type "Advanced Machine Learning on Cognitive Computing for Human Behavior Analysis". All submissions will undergo an initial screening by the guest editors for its fitness to the theme of the special issue and prospects for successfully negotiating the review process.

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