Special Issue on Deep Learning for Document Analysis and Recognition

International Journal on Document Analysis and Recognition

Deep learning is a new field of machine learning research, to design models and learning algorithms for deep neural networks. Due to the ability of learning from big data and the superior representation and prediction performance, deep learning has gained great successes in various applications of pattern recognition and artificial intelligence, including character and text recognition, image segmentation, object detection and recognition, face recognition, traffic sign recognition, speech recognition, machine translation, to name a few. Intensive attention has been drawn to the exploration of new deep learning models and algorithms, and the extension to more application areas. The combination of deep learning and traditional methods in pattern recognition and artificial intelligence has also demonstrated benefits.

The technology of document analysis and recognition (DAR) is to analyze the structure and textual contents of document images and handwriting. It faces numerous application needs such as digitization of books and forms, pen-based text input, information extraction from Web document images. It has been under study as a field of pattern recognition since 1960s. In recent years, the introduction of deep learning to DAR has led to significant improvement of performance in many branches, particularly in the cases when large sets of labeled data are available for supervised learning, such as handwritten character and text recognition. Among the most successful deep learning models are the convolutional neural network (CNN) and the recurrent neural network with long short-term memory (LSTM). The application of deep learning is now extended to scene text detection and recognition, document image segmentation and layout analysis, writer identification, document retrieval, and so on.

This special issue is aimed to report the new advances in DAR using deep learning methods. Articles presenting reviews, perspectives, new methods and applications in DAR are cordially invited. The topics of interest include, but are not limited to

- Deep learning for document image processing and segmentation
- Deep learning for layout analysis
- Deep learning for character and text recognition
- Deep learning for scene text detection and recognition
- Deep learning for writer identification and signature analysis
- Deep learning for document retrieval
- Deep learning for context modeling
- Deep learning for graphics and symbol recognition
- Deep learning for other DAR tasks

Schedule

Paper Submission due: August 31, 2017
First review notification: November 30, 2017
Revision submission: January 31, 2018
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Venu Govindaraju, SUNY Distinguished Professor of Computer Science and Engineering with the University at Buffalo. He is the founding director of the Center for Unified Biometrics and Sensors. He has co-authored about 400 refereed scientific papers and has supervised the dissertations of 36 doctoral students. He has served on the editorial boards of premier journals such as the IEEE Transactions on Pattern Analysis and Machine Intelligence and IEEE Transactions on Information Forensics and Security. Govindaraju is a Fellow of the ACM (Association for Computing Machinery),[the IEEE (Institute of Electrical and Electronics Engineers), the AAAS (American Association for the Advancement of Science), the IAPR (International Association of Pattern Recognition),[and the SPIE (International Society of Optics and Photonics). He is the recipient of the 2001 International Conference on Document Analysis and Recognition Young Investigator award, the 2004 MIT Global Indus Technovator Award, the 2010 IEEE Technical Achievement Award, and the Indian Institute of Technology (IIT) Distinguished Alumnus Award (2014). Dr. Govindaraju is the 2015 IAPR/ICDAR Outstanding Achievements Award Winner and was named a Fellow of the National Academy of Inventors in 2015

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