Special Session for IDEAL 2018 Conference, 21-23 November, Madrid

https://aida.ii.uam.es/ideal2018/

Session Title:

Feature Learning and Transformation in Deep Neural Networks

Organisers:

Richard Hankins, University of Manchester, UK (richard.hankins@manchester.ac.uk)

Yao Peng, University of Manchester, UK (yao.peng@manchester.ac.uk)

Qing Tian, Nanjing University of Information Science and Technology, China (tianqing@nuaa.edu.cn)

Hujun Yin, University of Manchester, UK (hujun.yin@manchester.ac.uk)

Description:

Deep neural networks (DNNs) are revolutionising machine learning and computational intelligence and have been yielding impressive and game-changing impacts in increasing number of applications, from image/signal recognition, synthesis, data analytics, textual mining and linguistic processing, to gaming and virtual reality. DNNs (e.g. ConvNets) use multiple hidden layers of localised processing units (e.g. filters) to extract hierarchical representations of the input data and hence lead to much enhanced classification or processing performance. Feature learning has been an active topic in the DNNs community and machine learning in general. While supervised way via back-propagation has been the driving force in learning features for DNNs, it requires huge amount of labelled data and takes long time to train. Other means of learning features, including unsupervised, semi-supervised or generated, have recently become popular due to many advantages such as less reliant on labelled data, fast training time and better generalisation or transferrable ability. More importantly they offer insights to how basis elements/representations contribute to classification. This special session is to explore recent advances and hence invites contributions in this regard.

The topics of interest for this session include, but are not limited to:

- Visualisation, understanding and interpretation of DNN features
- Feature generation, pre-generated features and fast learning
- Spatial and temporal features in DNNs
- Feature transfer learning and feature transformation
- Manifold and representation learning
- Cross-modal feature transformation and fusion

Paper submission and publication:

Via Easychair System (link can be found on IDEAL 2018 website). Paper format and requirements including page limit are the same as the IDEAL 2018 main track, which can be found at IDEAL 2018 website. All submissions will be peer-reviewed and accepted papers will be included in the IDEAL 2018 Proceedings, to be published in Springers' LNCS series.

IDEAL conference proceedings are indexed in Web of Science Proceedings, Scopus, Google Scholar, DBLP, and EI.