Special Issue on Deep Neural Networks for Digital Media Algorithms

Due to recent computer technology advancements the artificial neural networks (ANN), essentially with the same architecture as 20 years ago, have changed their status within digital media area. Then, for instance LDA based face recognition systems outperformed their ANN counterparts. In general ANN classifiers were comparable in efficiency with specialized to the particular problem solutions only if good features were "manually" designed as input of ANN. Now, the convolutional neural networks (CNN) automatically design the features on the basis of raw digital media objects delivered as tensors and processed further in the consecutive layers as tensors, as well. A deep cascade of convolutional layers (DNN) creates an application oriented feature extractor, operating only with small kernels, and followed by primitive nonlinearities such as rectified linear units (ReLU), or pooling filters. In digital media research, the current power of DNN "floods new islands" of applications which were reserved for specialized approaches. In this call we are interested on the current frontier between the "DNN ocean" and the "special islands" which are still superior.

We are focused on digital media research issues represented together by the acronym CREAMS:

- Compression of digital image, video, and audio (efficient generative modeling).
- Recognition of semantic objects in media objects (including object detection, segmentation, classification, and verification).
- Embedding of one media object into another one (stego-analysis aspects, watermarking, etc.).
- Annotation, aka media indexing, captioning, and summarization.
- 3D Modeling for human computer interfacing including gaze and pose identification.
- Security schemes and algorithms to preserve intellectual property rights for digital arts.

We accept papers relevant to DNN which can be assigned to one of the three broad categories:

- theory (for instance new, modified or optimized routing schemes, layers, stochastic optimization schemes, proofs of convergence, stochastic complexity analysis, etc.),
- applications (from the above CREAMS list),
- tutorials (which present novel, mathematically robust, but intuitive views for DNN architectures and algorithms used in digital media research).

Paper Submission
Authors are encouraged to submit high-quality, original work that has neither appeared in, nor is under consideration by, other journals.

Please follow the FI formatting guidelines at:
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Submit using the FI online paper submission system
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When submitting your work, please:

- select as a Journal Section "Special Issues"
- type in Comments for the FI Editor: "Special Issue on Deep Neural Networks for Digital Media Algorithms" (Vwadek Skarbek)

Important dates

- **18th June 2018**: Deadline of call for papers
- 17th September 2018: First round of reviewing ends
- 15th October 2018: Authors of minor corrections reviews send in their corrected version
- December 2018: Camera ready version is ready

Editor
Vwadek Skarbek, Warsaw University of Technology