Call For Papers
International Journal of Computer Vision
Special Issue on Deep Learning

Goal

Deep Learning methods aim at learning feature hierarchies. Applications of deep learning to vision tasks dates back to convolutional networks in the early 90s.

These methods are the subject of a recent surge of interest for two main reasons: when labeled data is scarce, unsupervised learning algorithms can learn useful feature hierarchies. When labeled data is abundant, supervised methods can be used to train very large networks on very large datasets through the use of high-performance computers. Such large networks have been shown to outperform previous state-of-the-art methods on several vision tasks, including category-level object recognition, object detection and semantic segmentation.

Deep learning is a rich family of methods, encompassing neural networks, hierarchical probabilistic models, and a variety of unsupervised and supervised feature learning algorithms.

There has been some debate as to the reasons for the success of these methods, and about their limitations. There is a number of open questions surrounding how they can be tailored to certain applications and, how they can be scaled up and how they can take advantage of massively parallel hardware.

In this special issue, authors are invited to submit manuscripts on any topic of computer vision which is related to deep learning. We welcome work showing new applications of deep learning methods, new learning algorithms, and work providing insights into the power and limitations of the methods.

Topics

The list of topics that are relevant includes, but it is not limited to, the following:

- Novel deep learning algorithms for vision

- Improvement over the state of the art in vision applications using deep learning methods

- Novel applications of deep learning methods.

- Models for learning features from videos, LIDAR, RGB-D images and other modalities beyond still images.

- Unsupervised algorithms and other methods for learning hierarchical visual representations

- Deep learning algorithms in regimes of very large/small labeled data

- Deep learning methods for very large numbers of categories

- Methods to make deep learning algorithms more scalable and methods for efficient inference and optimization

- Studies of the properties of deep learning algorithms

- Studies about the challenges faced when using deep learning algorithms

- Comparative studies of deep learning methods

- Description of *deployed commercial systems* with discussion about the trade-offs between computational efficiency and accuracy (we particularly encourage the submission of short papers on this topic).

Submission

Authors are encouraged to submit original work that has not appeared in, nor is in consideration by, other journals. Previously published conference papers can be submitted in extended form (with additional supporting experiments and a more detailed technical description of the method). There is no page limit and we welcome short papers as well as extended papers. Manuscripts will be subject to a peer reviewing process and must conform to the authors guidelines available on the IJCV website at:

http://www.springer.com/computer/image+processing/journal/11263

(link "Instructions for Authors" on the right panel). Note that submission is free and authors will be able to post their accepted papers on their own personal website, in addition to have their papers published by Springer. Manuscripts can be submitted to:

http://visi.edmgr.com

by selecting "S.I.: Deep Learning" in the section "Choose Article Type".

The paper submission deadline is: February 9, 2013.

Guest Editors

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