Contribution Details

Towards landmarks prediction with Deep Network

Full Paper

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Submitted by: Van Linh Le

Topics: **"PR: Artificial Intelligence Techniques in Pattern Recognition""PR: Computer Vision""CD/PR: Image Processing and Analysis""PR: Deep Learning Neural Networks for Pattern Recognition""CD/PR: Object Detection, Tracking and Recognition"**
Keywords: Landmarks, convolutional neural networks, finetuning, recogntion, image analysis

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Review Result of the Program Committee

This contribution has been accepted.

Overview of Reviews

Questions		Review 1	Review 2	Review 3
Quality of Content	10%	**6**	**4**	**0**
Significance	10%	**6**	**6**	**2**
Originality	10%	**6**	**6**	**2**
Thematic Relevance	10%	**8**	**8**	**8**
Presentation	10%	**6**	**6**	**2**
Overall Recommendation	50%	**8**	**6**	**0**
Total points (out of 100)		**72**	**60**	**14**

Review 1

Evaluation of the contribution

Quality of Content (10%)	*Significance* (10%)	*Originality* (10%)	*Thematic Relevance* (10%)	*Presentation* (10%)	*Overall Recommendation* (50%)	*Total points (out of 100)*
6	**6**	**6**	**8**	**6**	**8**	**72**

Reviewer's comments on the contribution

Comments for the authors:
The paper is interesting as deals with some practical issues that arise in many real world applications of deep learning. The approach of the paper is to discuss how to apply CNNs to detect landmarks on beetle's images, working on a specific part of the beetle's body, named pronotum. The difficulties arised during the process relies on dataset scale, as the number of images is small conducting to overfitting, a widely known limitation of deep learning-based techniques. A simple approach is conducted to increase the dataset size in terms of number of data instances, randomly mutating bits in specific image channels. Affine transformation mutations are discarded as CNNs are unsensitive to this kind of transformations.

How to apply transfer learning, in specific fine tuning, it is a key part of the proposal, as the results are improved using fine tuning for the landmark detection task on pronotum images. Regarding the experiment's section, please clarify the difference between round evaluation and the well known n-folds cross validation technique. At first sight it seems to be the same. Please clarify the difference if it exists.

Please revise the paper as it has some typos and grammar errors. In general the argument of the paper is easy to follow but some sections need a revision to improve the quality of the English.

Review 2

Evaluation of the contribution

Quality of Content (10%)	*Significance* (10%)	*Originality* (10%)	*Thematic Relevance* (10%)	*Presentation* (10%)	*Overall Recommendation* (50%)	*Total points (out of 100)*
4	**6**	**6**	**8**	**6**	**6**	**60**

Reviewer's comments on the contribution

Comments for the authors:
Overall the paper is good. There are several typos and grammatical errors. I wouls suggest writing concepts like Deep Learning, and Convolutional Neural Networks in capital letters.
Some errors:
3 line abstract "...by applying image processing techniques"
6th line abstract "classification, recognition, AND face detection"
1st line introduciton "...of interest) ARE important..."
End of first column in first page " help of a lot..." Write in a more formal way...
"In a previous studying...." it should say "In a previous study..." (This error is in several parts of the paper).
"The paper produces too many noises".... "produces to many false positives"???

I would suggest a change in the title using explicitly Convolutional Neural Networks. Also section 3.2 I would suggest instead of Expanding the dataset, something like "Data Augmentation process". Also in the section first results you refer to the process called "round". This is classicaly known as "cross validation". Please use the correct name for all of this well-known concepts.

Technically it doesn't have many problems, but I please suggest that the paper is proofread by a native speaker and the concept names correctly used.

Review 3

Evaluation of the contribution

Quality of Content (10%)	*Significance* (10%)	*Originality* (10%)	*Thematic Relevance* (10%)	*Presentation* (10%)	*Overall Recommendation* (50%)	*Total points (out of 100)*
0	**2**	**2**	**8**	**2**	**0**	**14**

Reviewer's comments on the contribution

Comments for the authors:
The paper used a CNN for a simple regression problem. There is hard to find a innovation in the paper.