

WebVision 2019

Visual Understanding by Learning from Web Data

webvision

Workshop Organizers

General Chairs



J. Berent



A. Gupta



R. Sukthankar



L. Van Gool

Program Chairs



Wen Li









E. Agustsson

Thanks to Workshop Sponsors & Collaborators



Dataset Collection & Challenge Hosting



Sponsor for Challenge and Award Collaborator in Challenge Organization



Collaborator in Challenge Organization

Program Schedule

8:30	Opening Remarks
8:40	Invited Talk, Dr. Laurens van der Maaten (Facebook Al Research)
9:20	Dataset/Challenge Overview
10:00	Coffee Break
10:30	Participant Presentation (AlibabaGroup)
10:50	Participant Presentation (SenseTime)
11:10	Poster Session (Poster Room)

14:00	Invited Talk, Prof. Kristen Grauman (University of Texas at Austin)
14:40	Invited Talk, Prof. Ivor W.H. Tsang (University of Technology Sydney)
15:20	Participant Presentation (Futurewei, UESTC, Huawei Cloud, Xidian Uni.)
15:40	Award Session Closing Remarks



Deep Learning Revolution

Revolutionizing almost all fields of computer vision







The man at bat readies to swing at the pitch while the umpire looks on.

Deep Learning Revolution

Powered by *human annotated* big data





Deep Learning Revolution -- Our Hope





Deep Learning Revolution -- Previous Years



Deep Learning Revolution -- Previous Years

WebVision 2018 w/o human annotation

A Bigger Dataset



Deep Learning Revolution -- Previous Years

WebVision 2019 w/o human annotation

The Same Big Dataset



Supervision using noisy & weak web signals



No human annotation is used

webvision

Learning from Web Data

Advantages

- > No human annotation is needed for images
- > Coarse semantic annotation generated from search engine or social signals
- Large number of images and classes
- High diversity (multiple sources)

Challenges

- > Noisy Labels
- ➤ Use of meta-information
- Domain adaptation issue

Learning from Web Data

Recent Advances

- 1. D. Mahajan et al. Exploring the Limits of Weakly Supervised Pretraining. In arxiv, 2018.
- 2. C. Sun et al. Revisiting Unreasonable Effectiveness of Data in Deep Learning Era. In ICCV 2017.
- 3. Y. Li et al. Learning from noisy labels with distillation. In ICCV 2017.
- 4. A. Veit et al. Learning From Noisy Large-Scale Datasets With Minimal Supervision. In CVPR 2017.
- 5. A. Joulin et al. Learning Visual Features from Large Weakly Supervised Data. In ECCV 2016.
- 6. S. Azadi et al. Auxiliary image regularization for deep cnns with noisy labels. In ICLR 2016.
- 7. X. Chen and A. Gupta. Webly supervised learning of convolutional networks. In ICCV 2015.
- 8. T. Xiao et al. Learning from Massive Noisy Labeled Data for Image Classification. In CVPR 2015.
- 9. S. Sukhbaatar et al. Training convolutional networks with noisy labels. In ICLR 2015. (and many more...)

Lots of work but hard to compare methods & quantify progress in the field. Need for a common dataset and challenge.

Workshop Contributions

WebVision 2.0 dataset

- 5,000 categories
- 16M internet images
- 290K validation images
- 290K test images

WebVision Challenge

- WebVision Image Classification Track

Our Vision for WebVision

- Understand deep learning from web data by enabling direct comparisons to methods that trained on ImageNet data.
- Facilitate research on handling the challenges of learning from web data, e.g., label noise, class imbalance, meta-information
- Unite the research community to solve those challenges