

WebVision 2018

Visual Understanding by Learning from Web Data

webvision
webvision

Workshop Organizers

General Chairs



J. Berent



A. Gupta

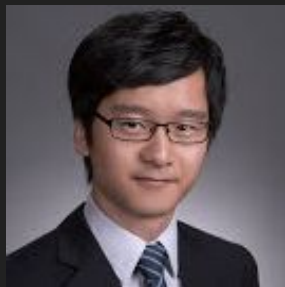


R. Sukthankar



L. Van Gool

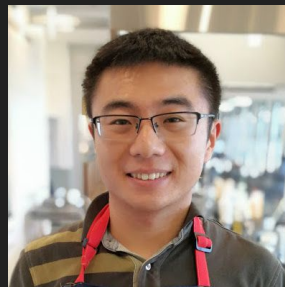
Program Chairs



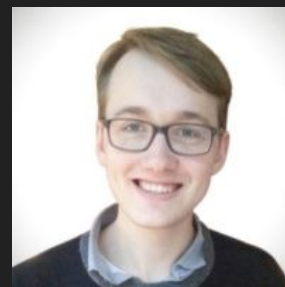
Wen Li



Limin Wang



Wei 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, Prof. Vittorio Ferrari (Google Research & Univ of Edinburgh)
9:20	Dataset/Challenge Overview
10:00	Coffee Break
10:20	Participant Presentation (Baidu Inc, and Beihang)
10:40	Participant Presentation (UESTC, SenseTime Research)
11:00	Poster Session (Poster Room)

14:00	Invited Talk, Prof. Jia Deng (Univ of Michigan)
14:40	Invited Talk, Prof. Boqing Gong (Tencent AI Lab / ICSI, UC Berkeley)
15:20	Participant Presentation (ACRV_ANU)
15:40	Award Session Closing Remarks

Deep Learning Revolution

Revolutionizing almost all fields of computer vision

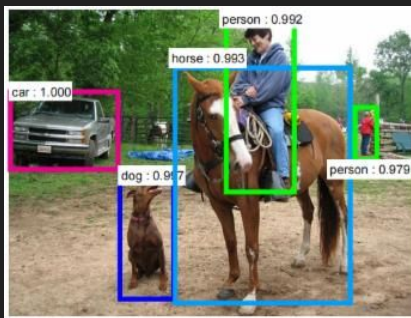
LeNet

AlexNet

GoogLeNet

ResNet

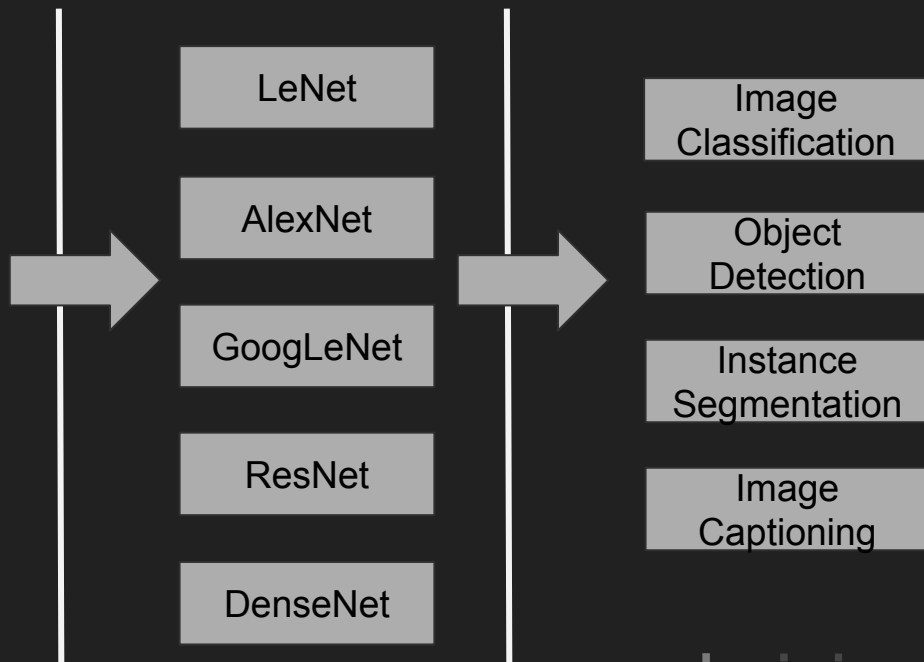
DenseNet



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

Deep Learning Revolution

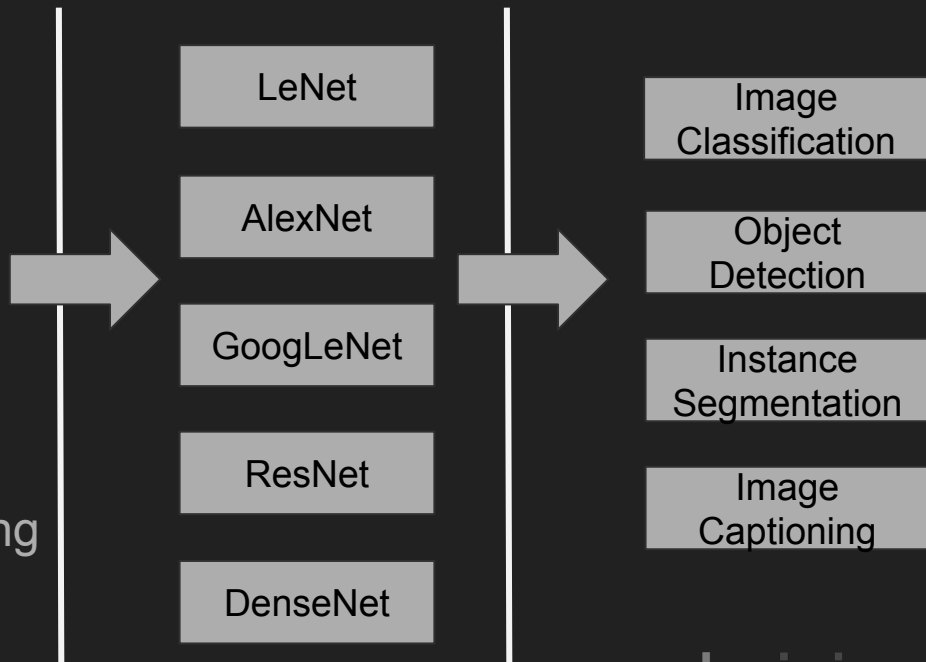
Powered by *human annotated* big data



Deep Learning Revolution -- Our Hope

Big Data
w/o human
annotation

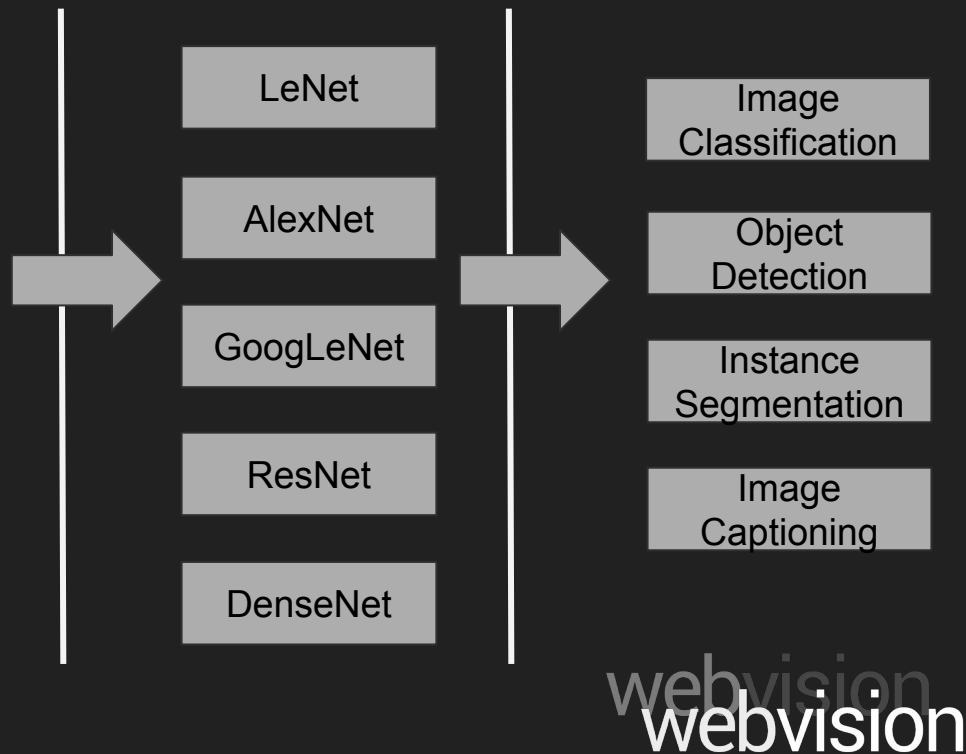
Can we get equivalent performance using
{self, weakly, un}supervised methods?



Deep Learning Revolution -- Last Year

WebVision 2017
w/o human annotation

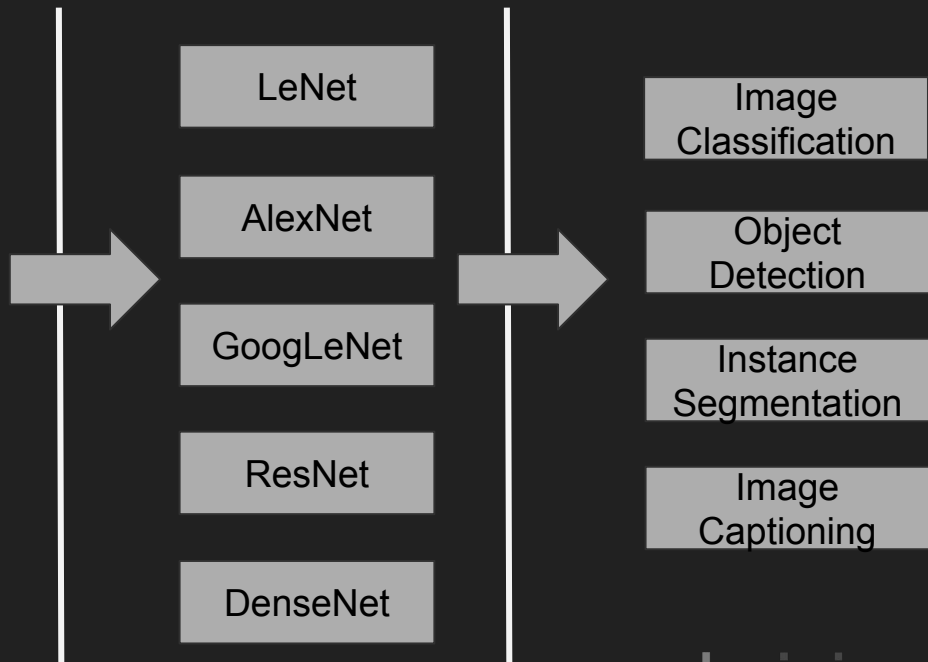
Yes!



Deep Learning Revolution -- This Year

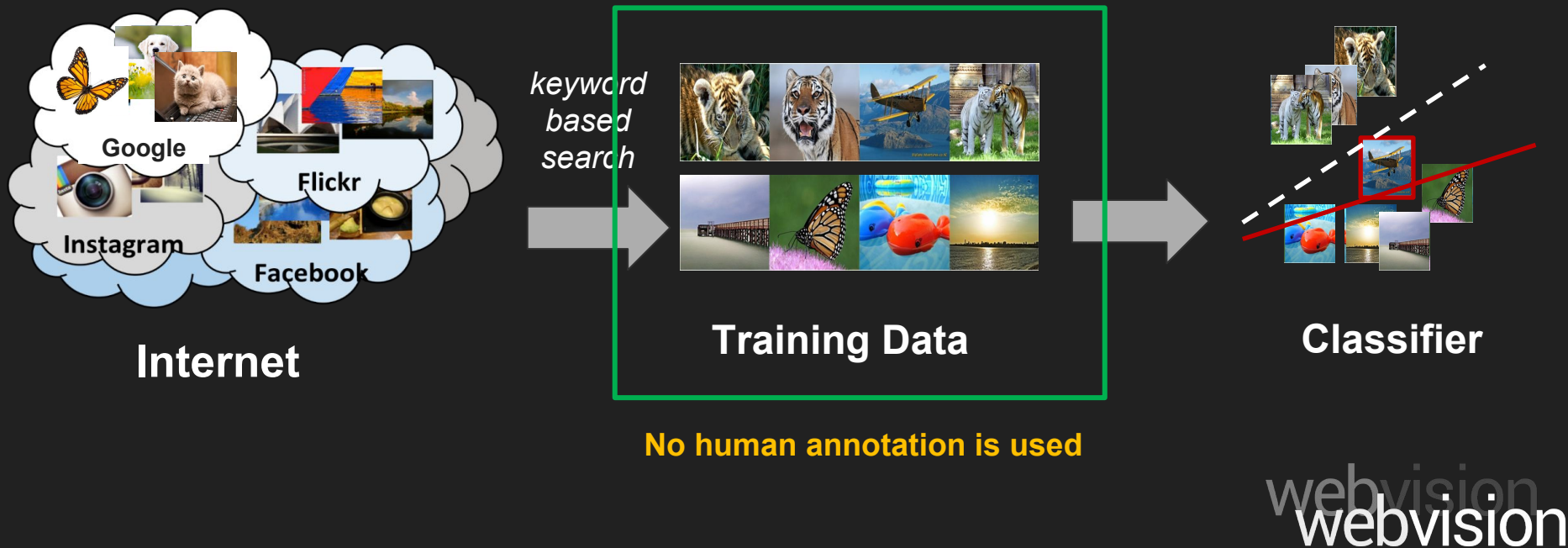
WebVision 2018
w/o human annotation

Bigger than Bigger



webvision
webvision

Supervision using noisy & weak web signals



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
- Domain Adaptation Issue
- How to use meta Information

Learning from Web Data

Recent Advance

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.
10. and more...

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

Workshop Contributions

WebVision 2018 dataset

- 5,000 categories
- Flickr & Google
- 16M images
- 250K validation images
- 250K 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

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