

AI 대학원 연구성과 Computer Vision

포항공과대학교 인공지능대학원
조민수

Computer Vision: 인공지능의 핵심요소

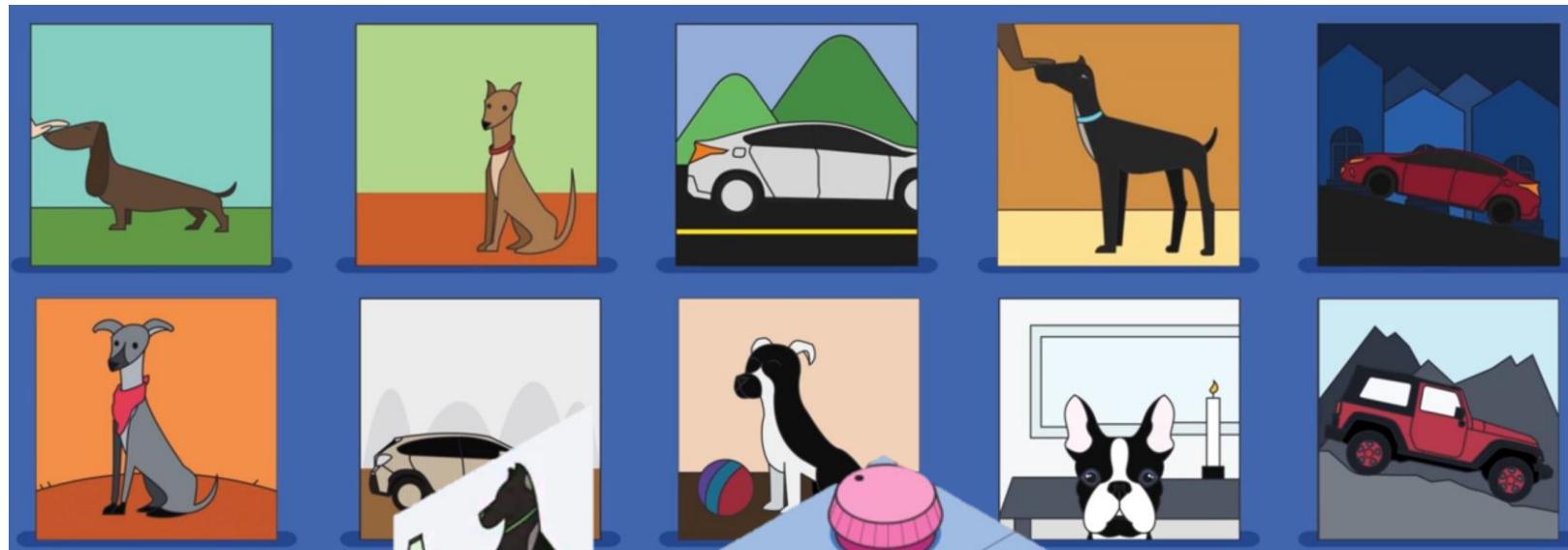


Terminator 2: The Judgement day 1991

보고 이해하는 것!

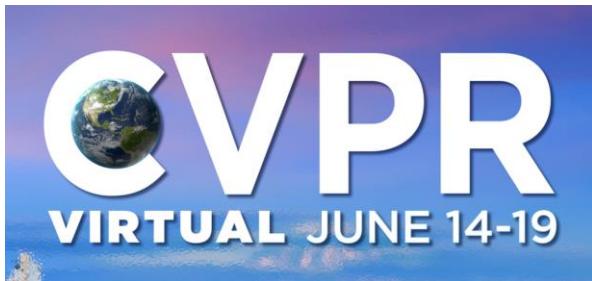


시각지능 구현과 학습에 대한 연구



[Images adopted from Facebook AI Research]

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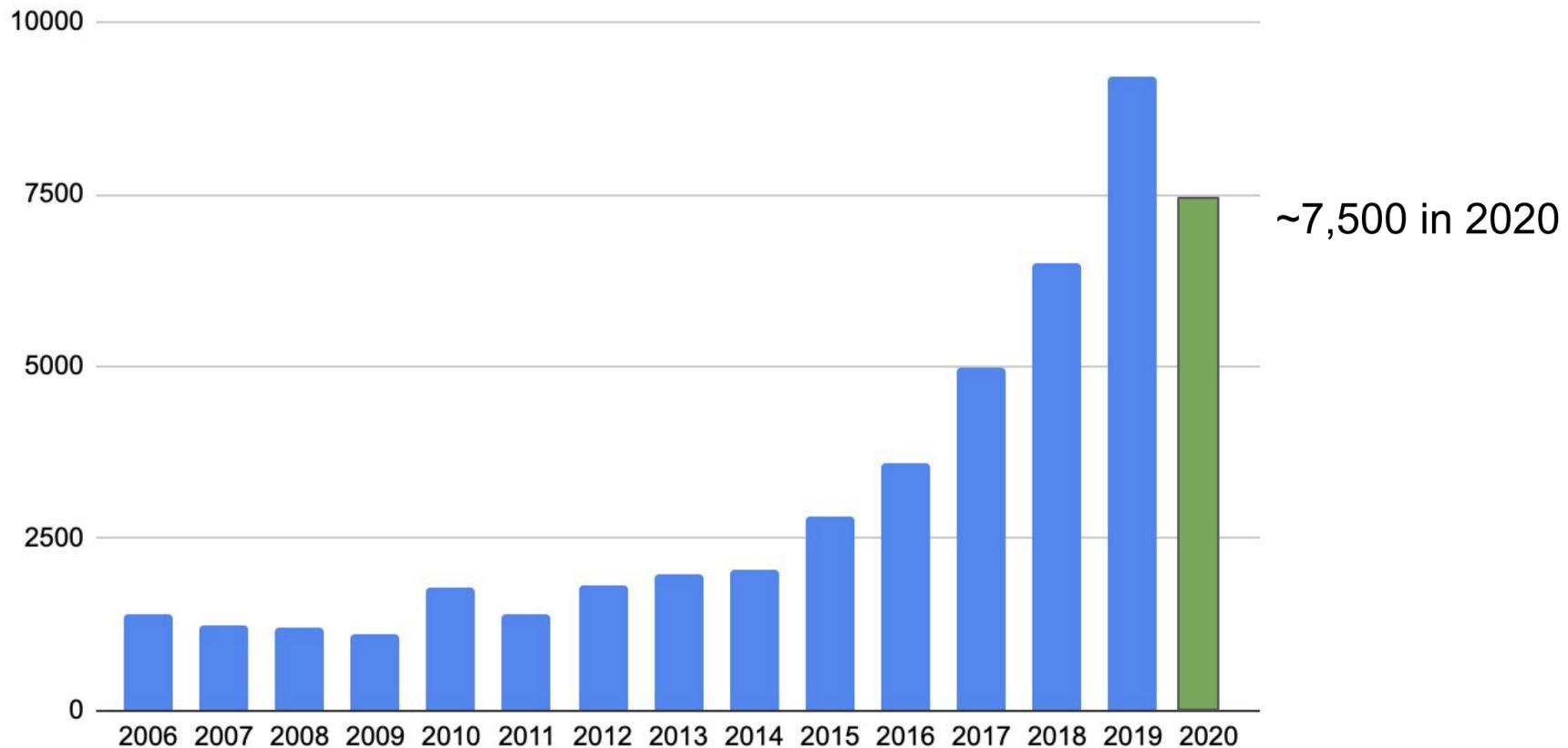
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- Google Scholar metrics 2020

Publication	<u>h5-index</u>	<u>h5-median</u>
1. Nature	<u>376</u>	552
2. The New England Journal of Medicine	<u>365</u>	639
3. Science	<u>356</u>	526
4. The Lancet	<u>301</u>	493
5. IEEE/CVF Conference on Computer Vision and Pattern Recognition	<u>299</u>	509
6. Advanced Materials	<u>273</u>	369
7. Nature Communications	<u>273</u>	366
8. Cell	<u>269</u>	417
9. Chemical Reviews	<u>267</u>	438
10. Chemical Society reviews	<u>240</u>	368
11. Journal of the American Chemical Society	<u>236</u>	324
12. Angewandte Chemie	<u>229</u>	316
13. Proceedings of the National Academy of Sciences	<u>228</u>	299

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- CVPR attendees per year



Computer Vision Research



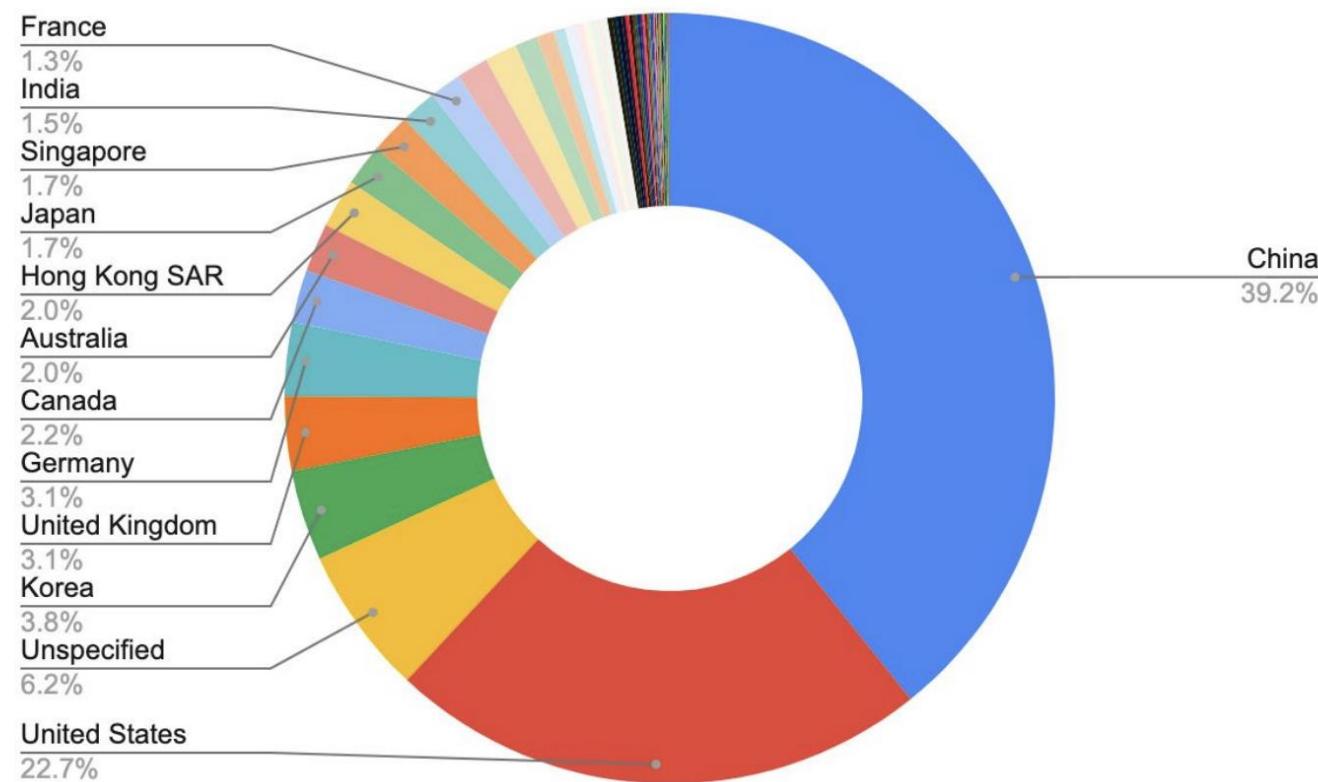
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- Korea's growing position: 3rd place for now

Authors by country/region



2019년 선정 AI 대학원 관련 연구실



고려대학교
KOREA UNIVERSITY



광주과학기술원
Gwangju Institute of Science and Technology

POSTECH
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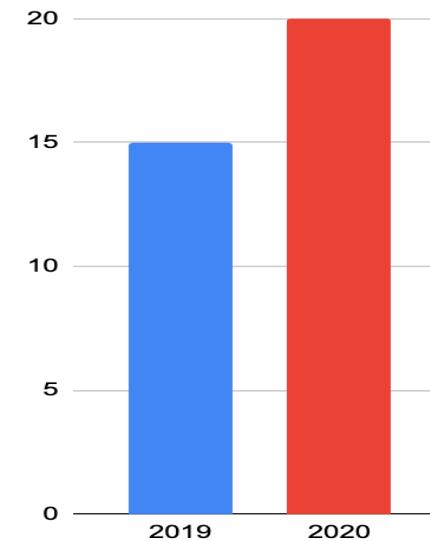
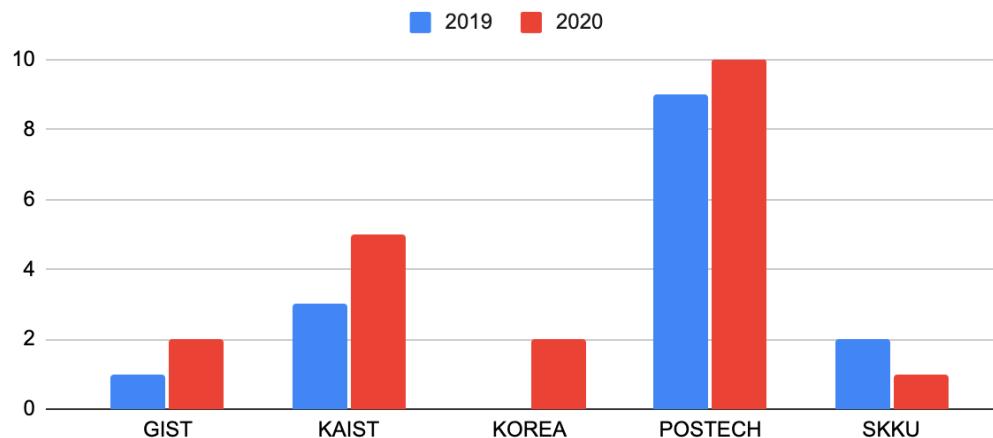
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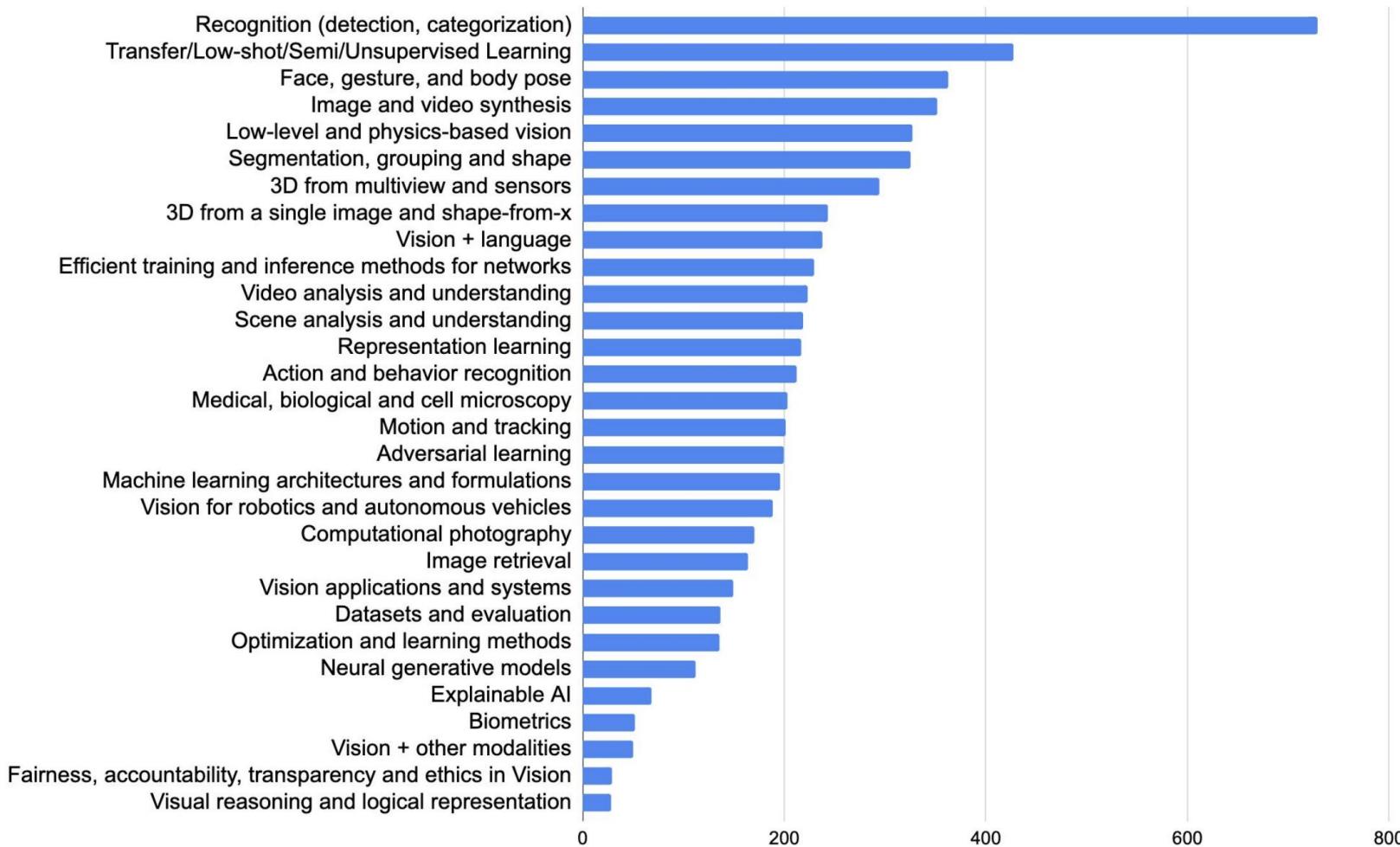
Research Growth in GSAI



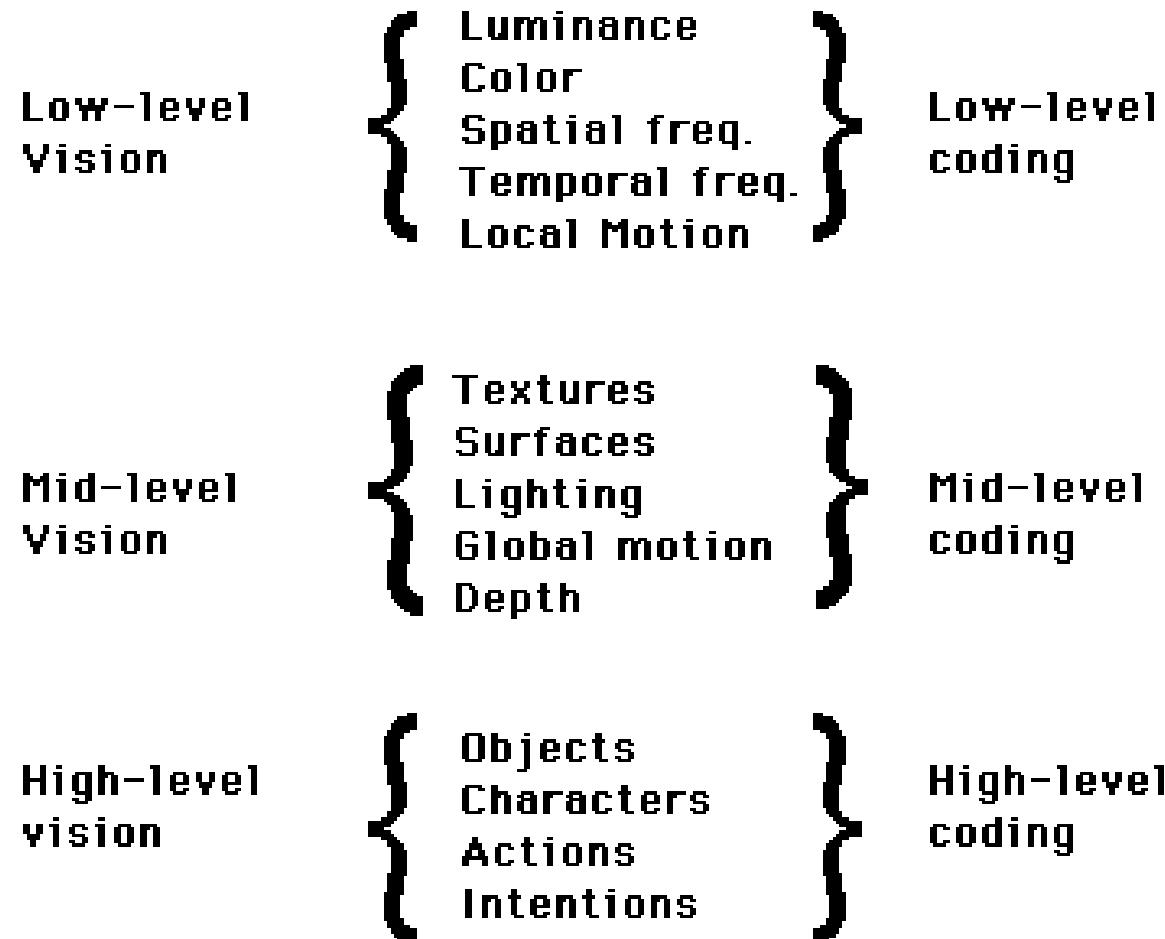
- 33% growth with graduate school of AI!

Computer Vision Research

- Distribution of subject areas

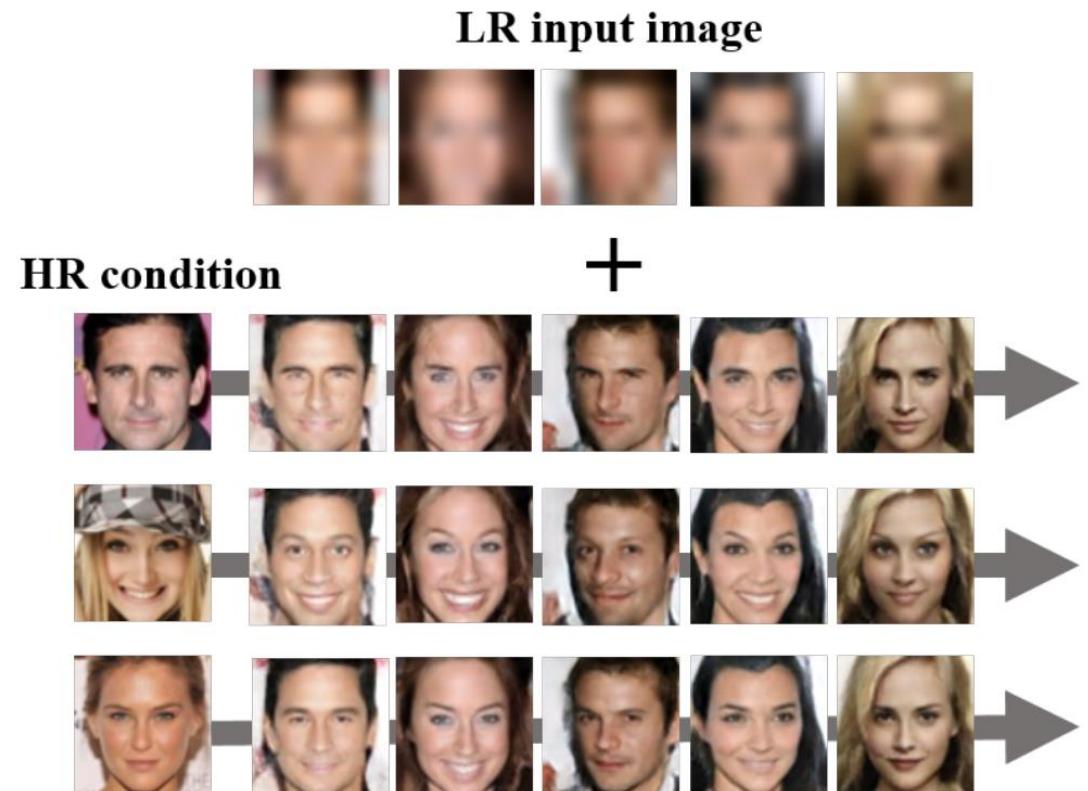
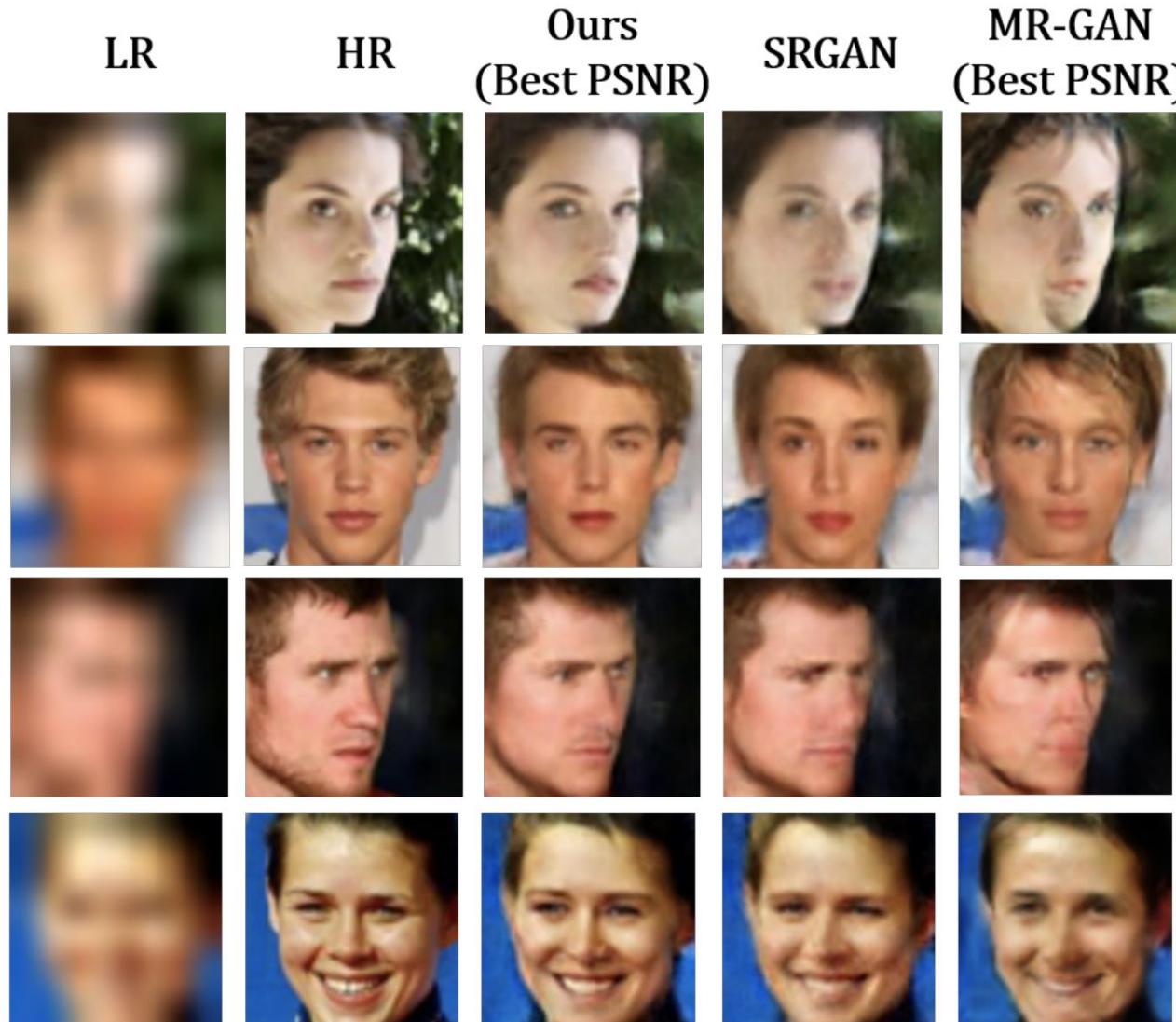


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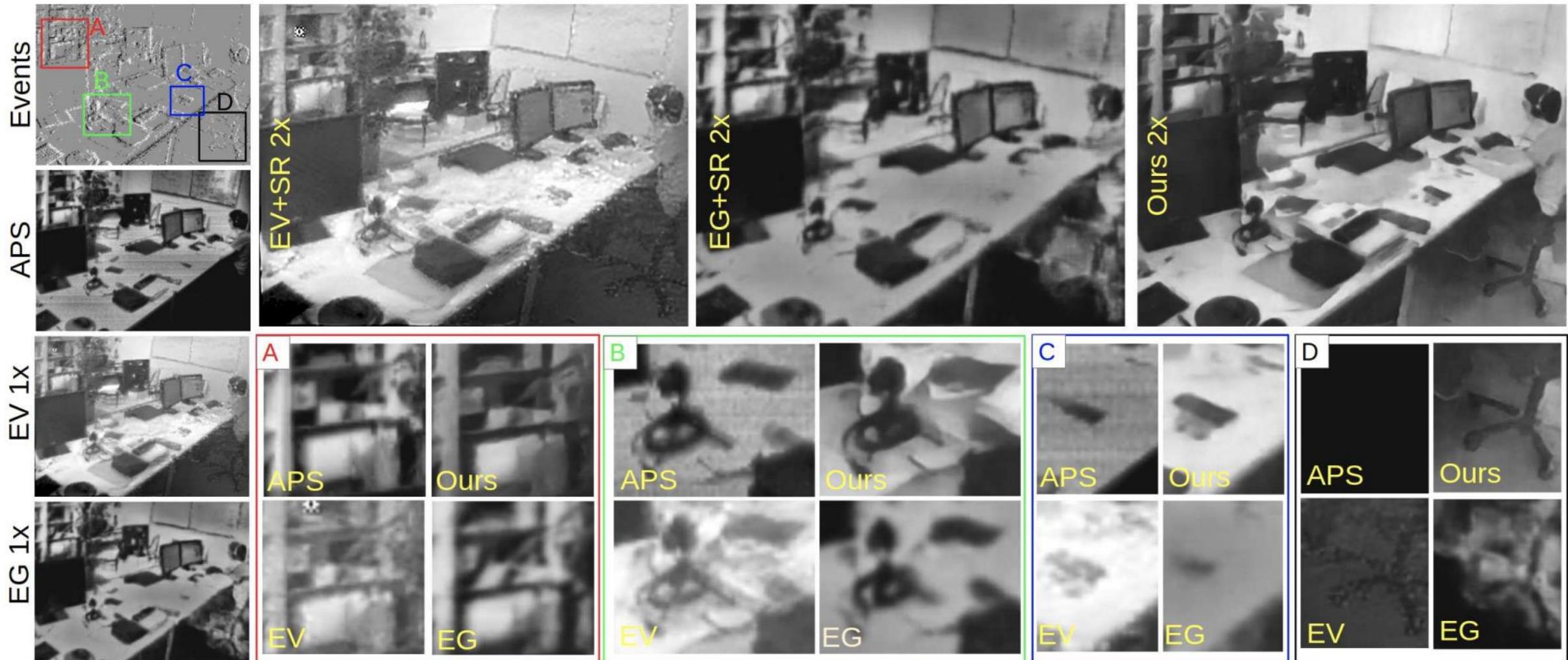
Edward Adelson, 1994

Super-Resolution



VarSR: Variational Super-Resolution Network for Very Low Resolution Images
SKKU AI S. Hyun and J. Heo, ECCV 2020

Super-Resolution



Learning to Super Resolve Intensity Images from Events
GIST AI S. Mostafavi, J. Choi, K.J. Yoon, CVPR 2020

Deburring



Image Enhancement

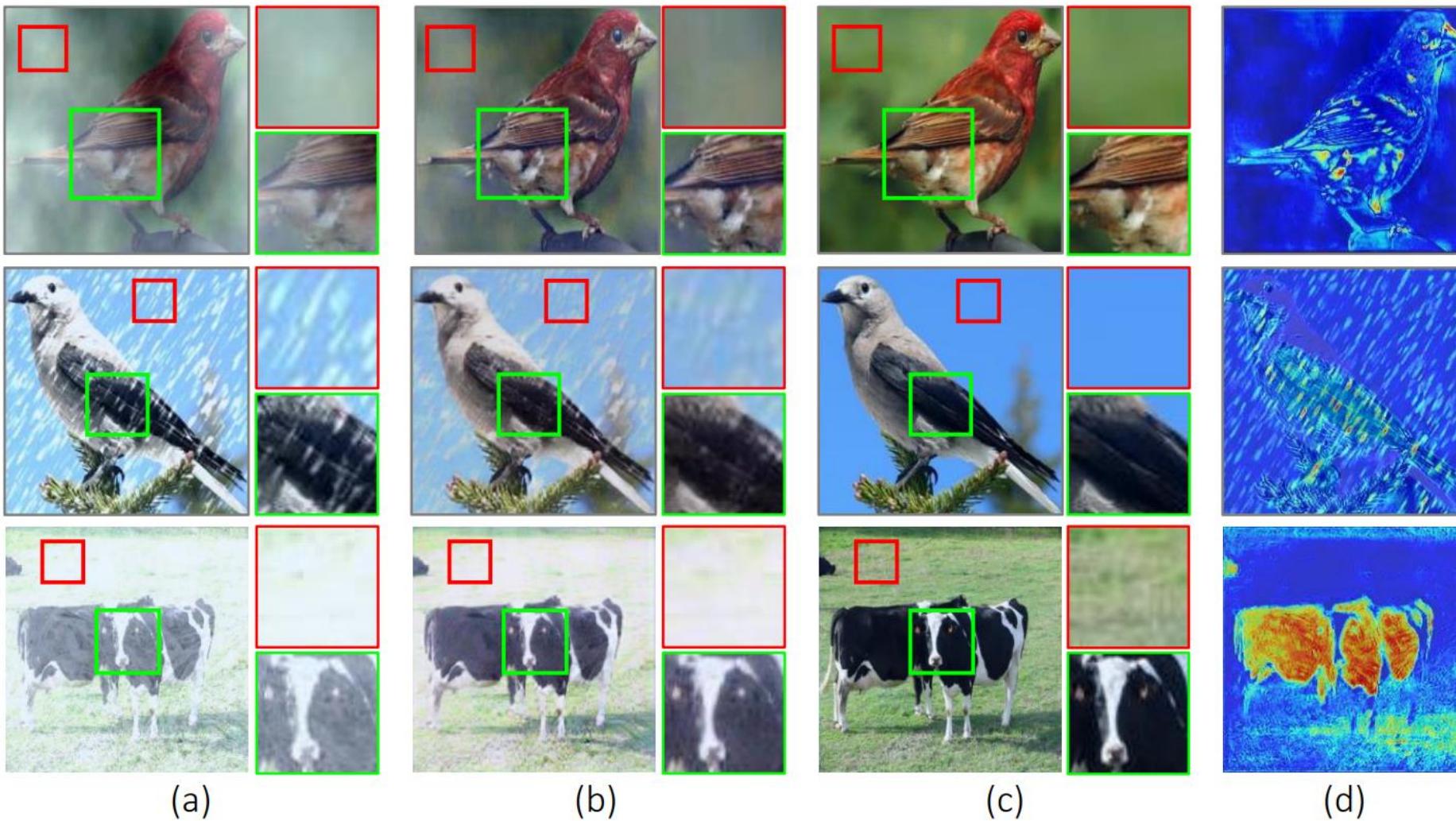
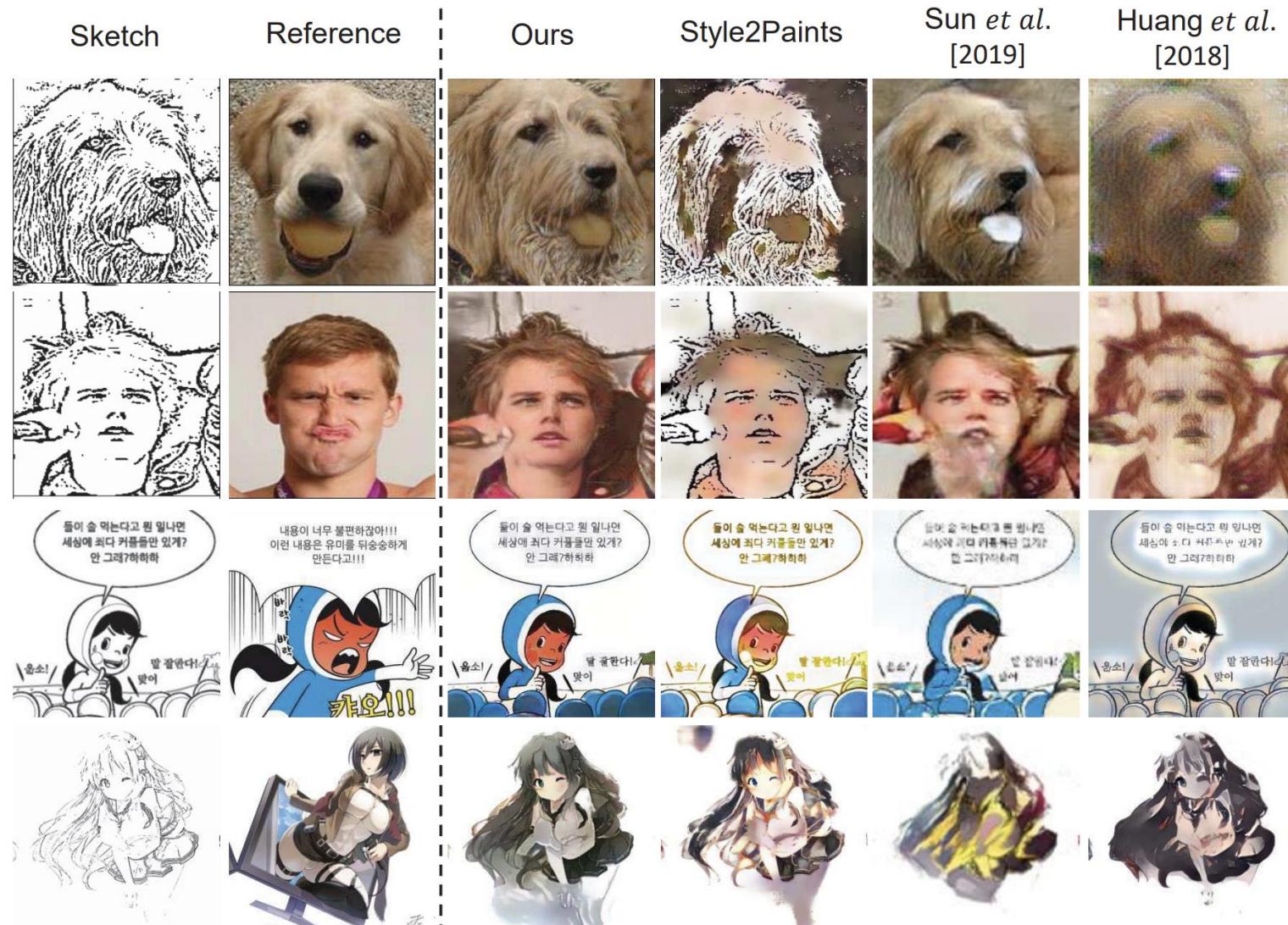
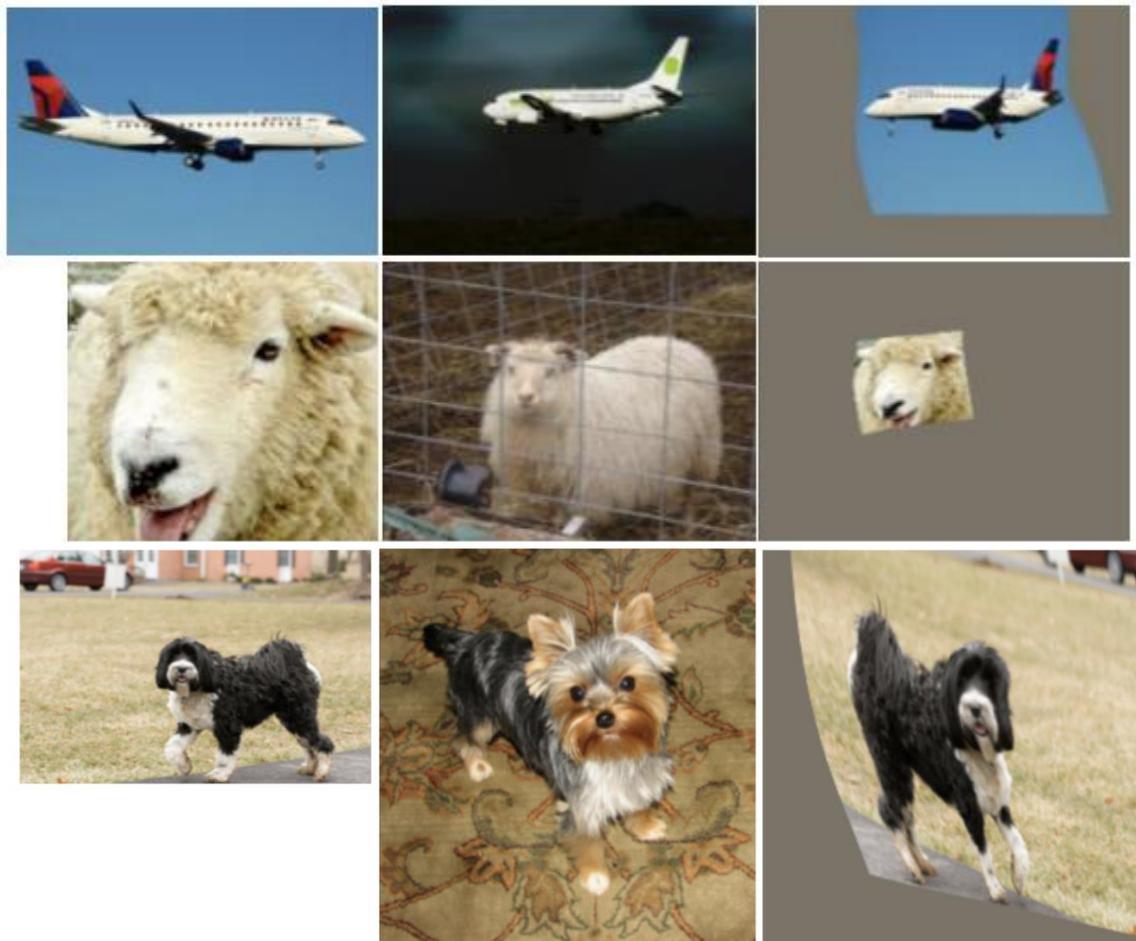


Image Colorization



Reference-based Sketch Image Colorization using Augmented-Self Reference and Dense Semantic Correspondence
KAIST AI J. Lee, E. Kim, Y. Lee, D. Kim, J. Chang, and J. Choo, CVPR 2020

Semantic Visual Correspondence



(a) Source

(b) Target

(c) Ours



(a) Source

(b) Target

(c) DHPF (ours)

Image Retrieval

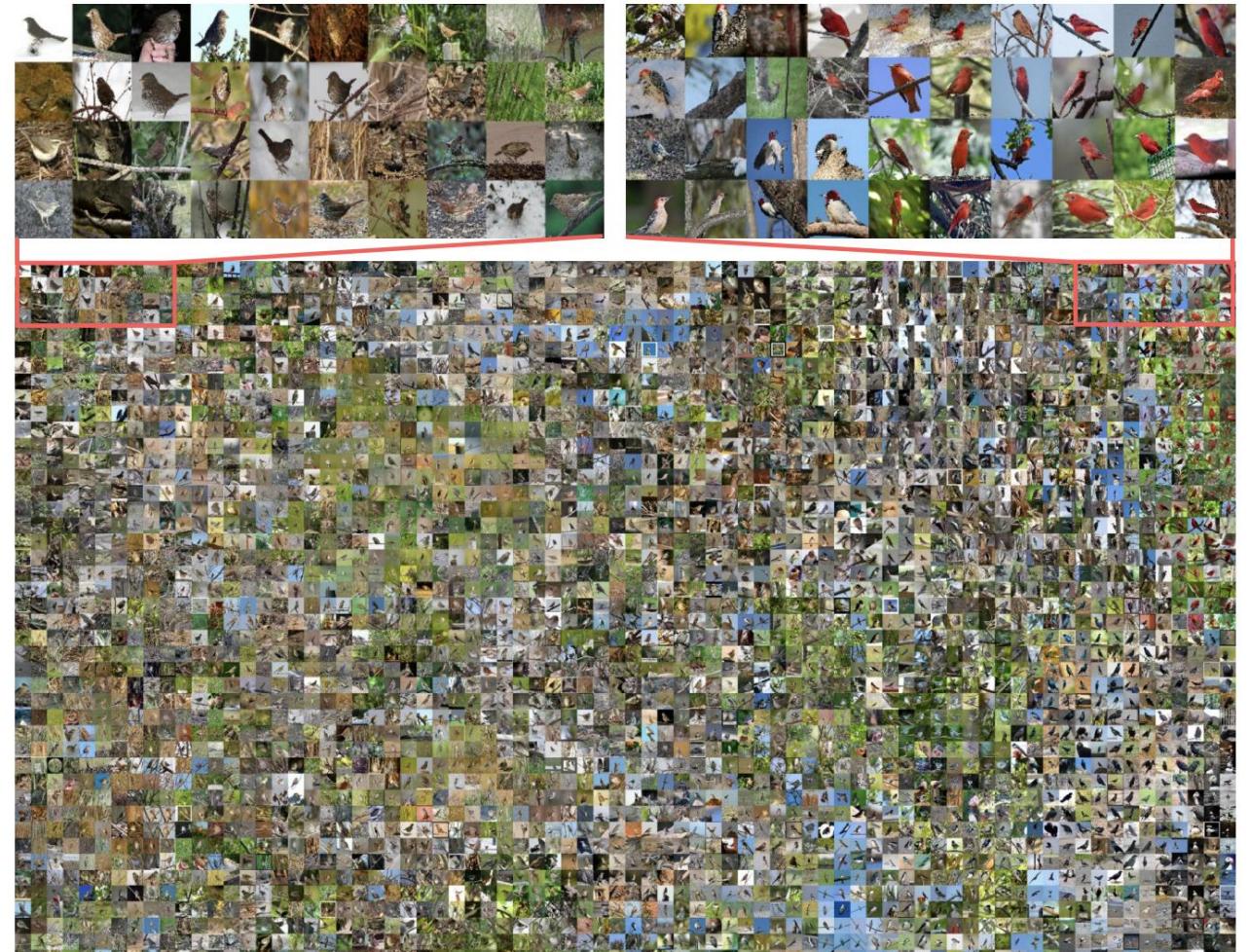
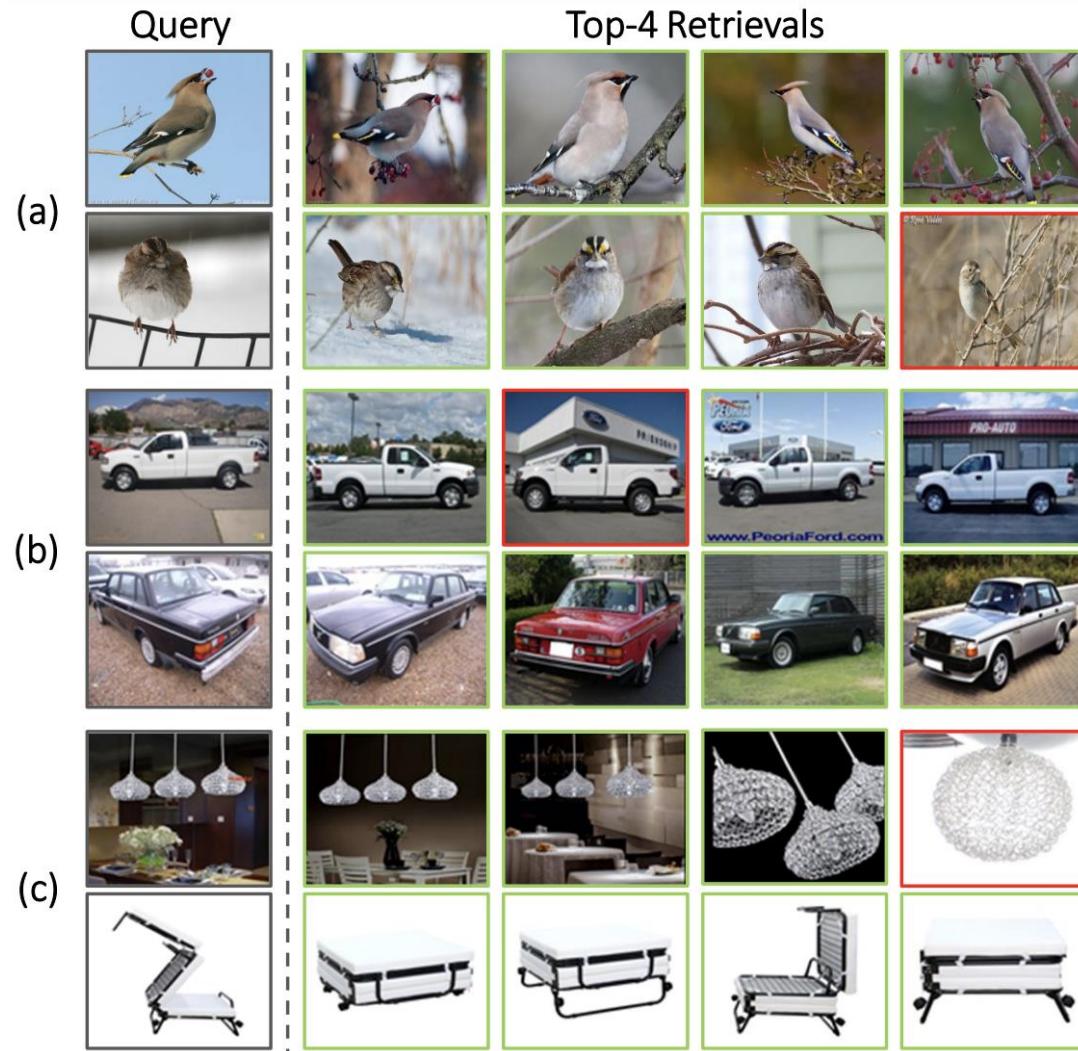
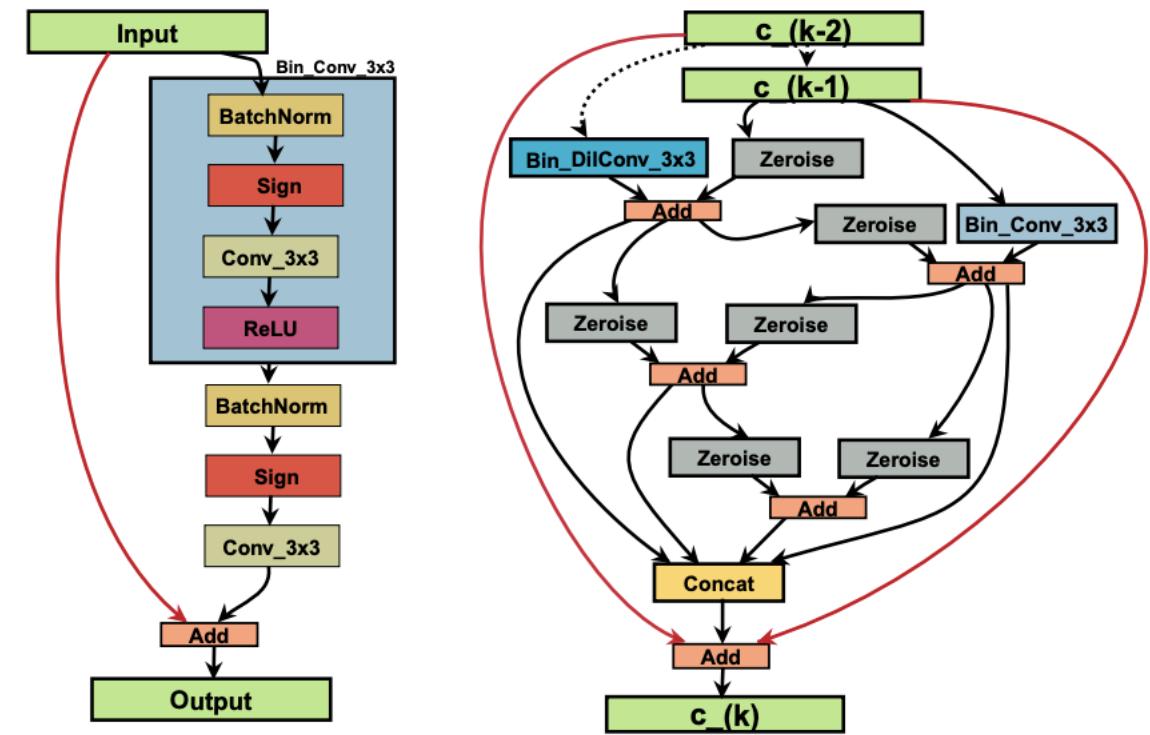
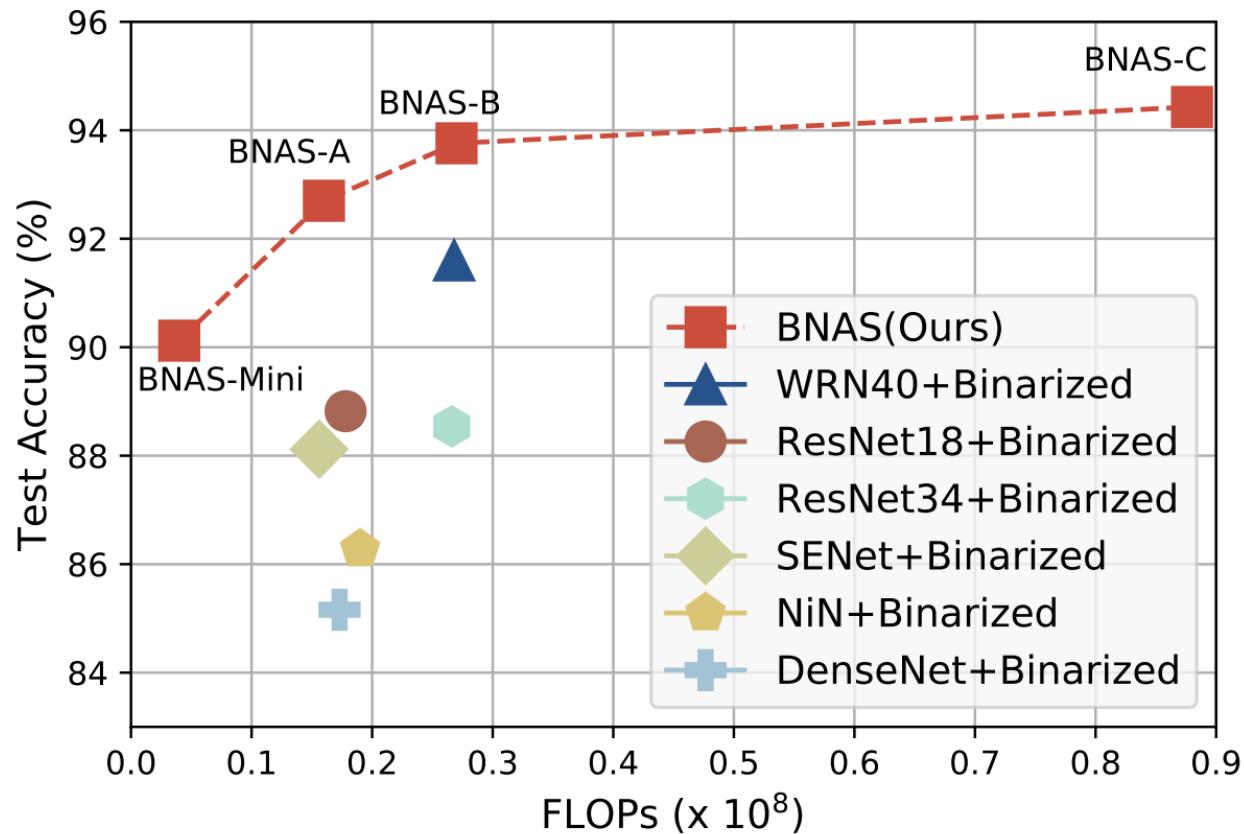
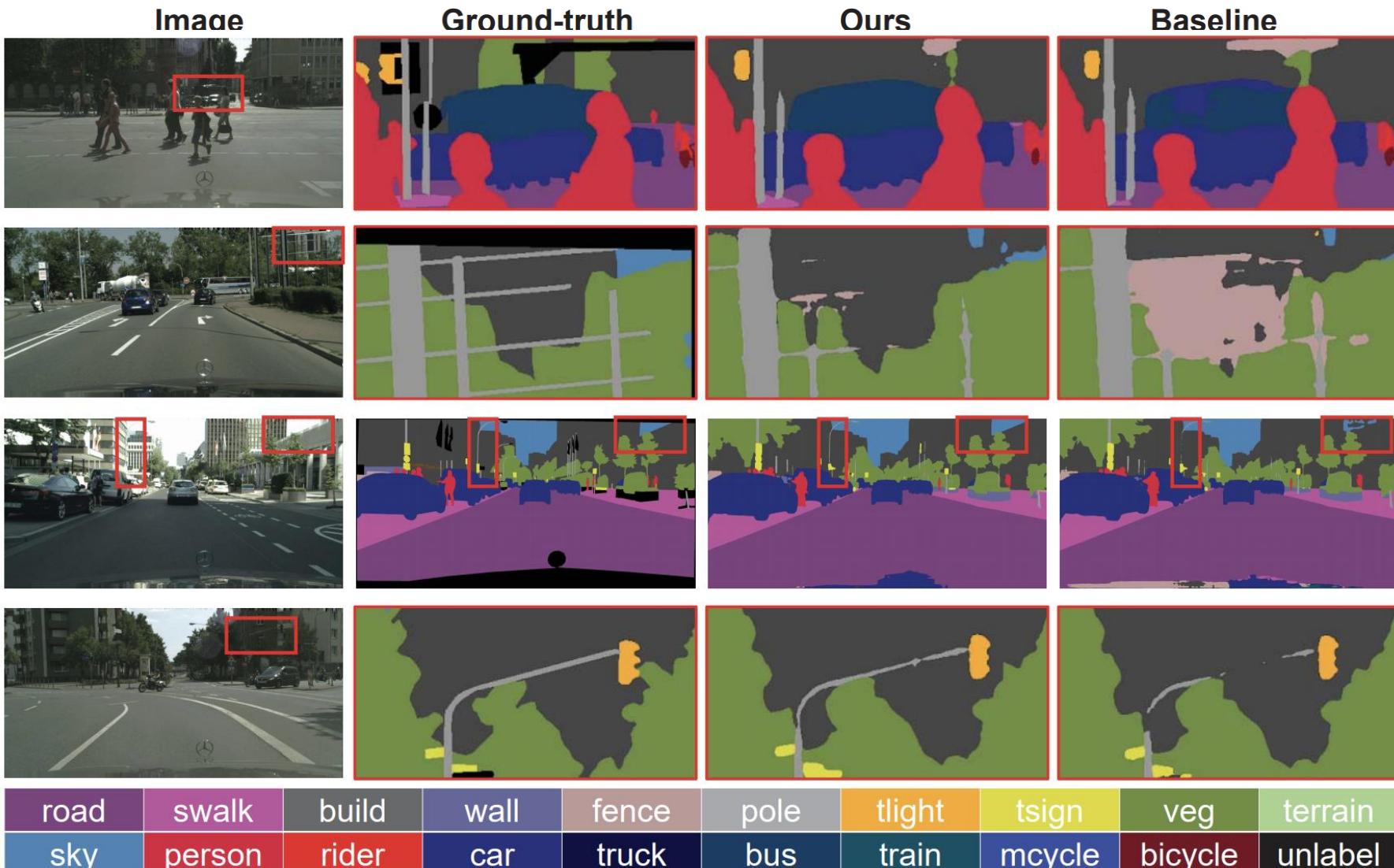


Image Classification



Semantic Segmentation



Can't Fly Up in the Sky: Improving Urban-Scene Segmentation via Height-driven Attention Networks

KAIST AI S. Choi, J. Kim, and J. Choo, CVPR 2020

Human Body Analysis



Multiview capture system



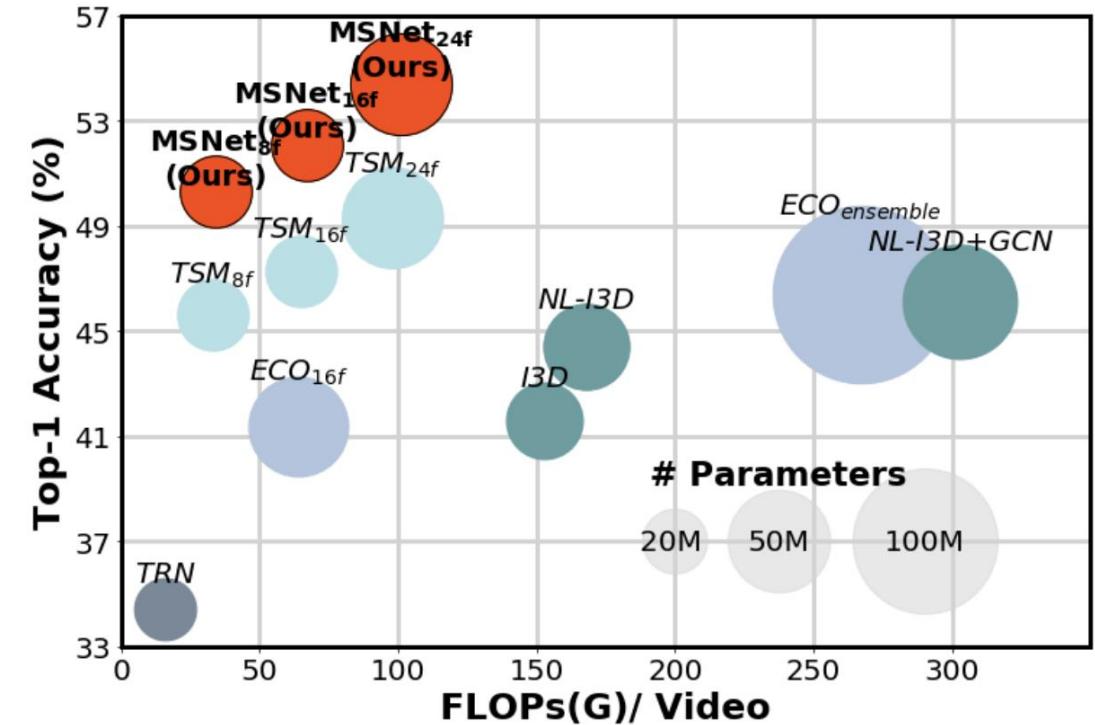
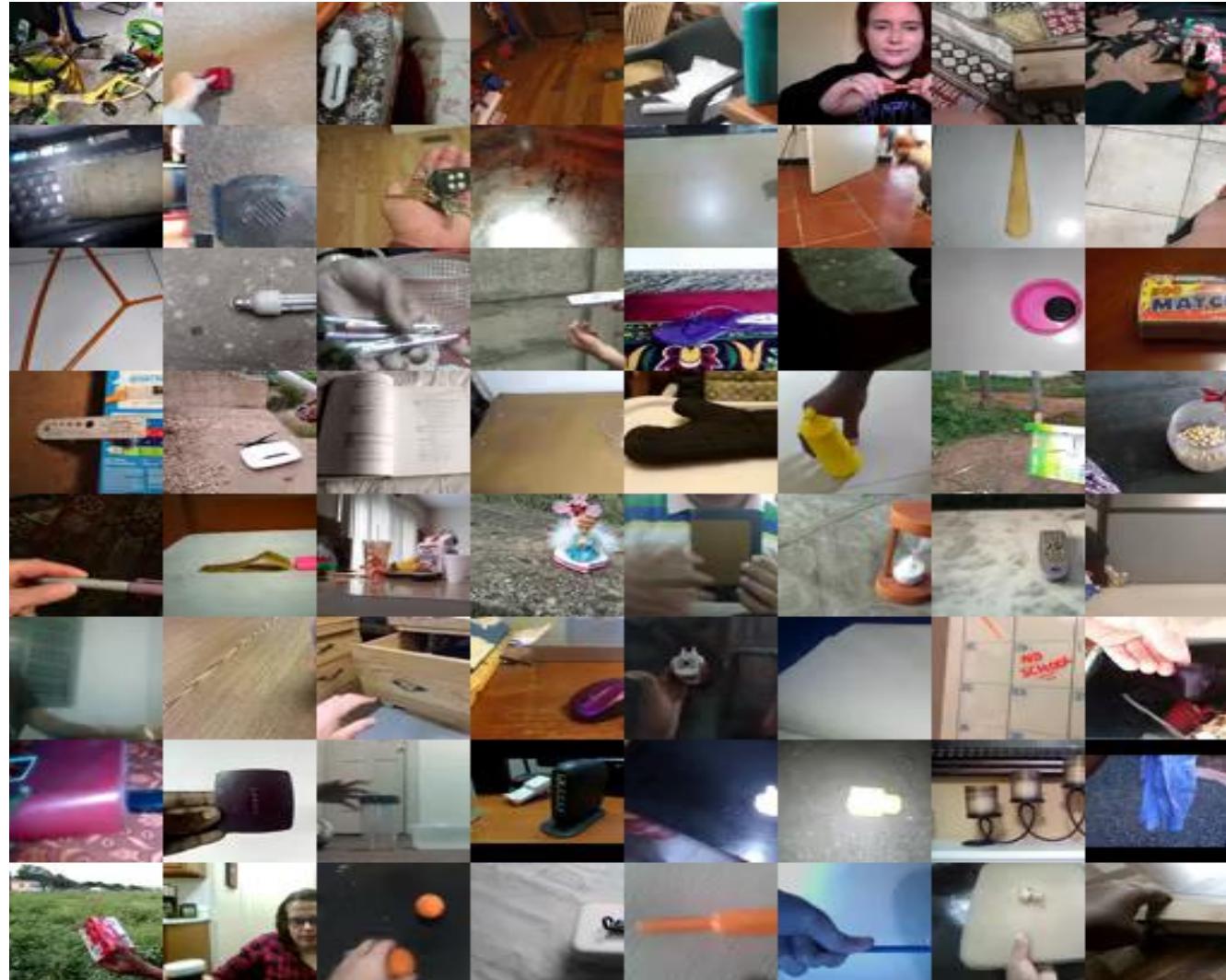
HUMBI: A Large Multiview Dataset of Human Body Expressions
POSTECH AI Z. Yu, J. Yoon, I. Lee, P. Venkatesh, J. Park, J. Yu, H. Park, CVPR 2020

3D Face Reconstruction



Uncertainty-Aware Mesh Decoder for High Fidelity 3D Face Reconstruction
KOREAI Univ. AI G. H. Lee, S.W. Lee, CVPR 2020

Video Action Recognition



Research Growth in GSAI



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KOREA UNIVERSITY



인하대학교
INHA UNIVERSITY



울산과학기술원
ULSAN NATIONAL INSTITUTE OF
SCIENCE AND TECHNOLOGY



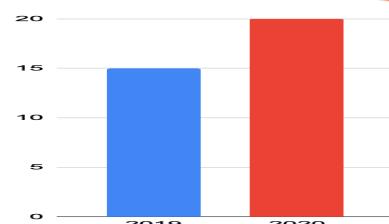
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YONSEI UNIVERSITY



한양대학교
HANYANG UNIVERSITY



한양대학교 ERICA
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Thanks for your attention!



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