Hirokatsu Kataoka
Ph.D. in Engineering (Keio University; Mar 2014)

Current Affiliations:

- Apr 2023 – Present: Chief Senior Researcher, AIST
- Sep 2024 – Present: Academic Visitor, Visual Geometry Group, University of Oxford
- Oct 2024 – Present: Co-supervisor, FunAI Research Lab, Univ of Technology Nuremberg
- Oct 2024 – Present: Visiting Associate Professor, Keio University
- May 2024 – Present: Adjunct Researcher, SB Intuitions
- Apr 2024 – Present: Adjunct Associate Professor, Tokyo Denki University
- Nov 2020 – Present: Mentor, Tatsujin Program
- Oct 2016 – Present: Researcher, TICO-AIST Advanced Logistics Lab.
- May 2015 – Present: PI, cvpaper.challenge (Community with 1,500+ collaborators)

Selected Projects (within 3 years):

"Scaling Backwards: Minimal Synthetic Pre-training? (ECCV24)"
"Rethinking Image Super-Resolution from Training Data Perspectives (ECCV24)"
"Pre-training Vision Transformers with Very Limited Synthesized Images (ICCV23)"
"Primitive Geometry Segment Pre-training (BMVC23 Best Industry Paper Finalist)"
"SegRCDB: Semantic Segmentation via Formula-Driven Supervised Learning (ICCV23)"
"Visual Atoms: Pre-training Vision Transformers with Sinusoidal Waves (CVPR23)"
"Replacing Labeled Real-Image Datasets with Auto-Generated Contours (CVPR22)"
"Point Cloud Pre-training with Natural 3D Structures (CVPR22)"
"Pre-training without Natural Images (IJCV22; ACCV Best Paper Honorable Mention)"
& 20+ top-tier conferences / journals

片 かた
岡 おか
裕 ひろ
雄 かつ

Spatiotemporal 3D ResNet
Promising baseline for 3D convolution in video understanding

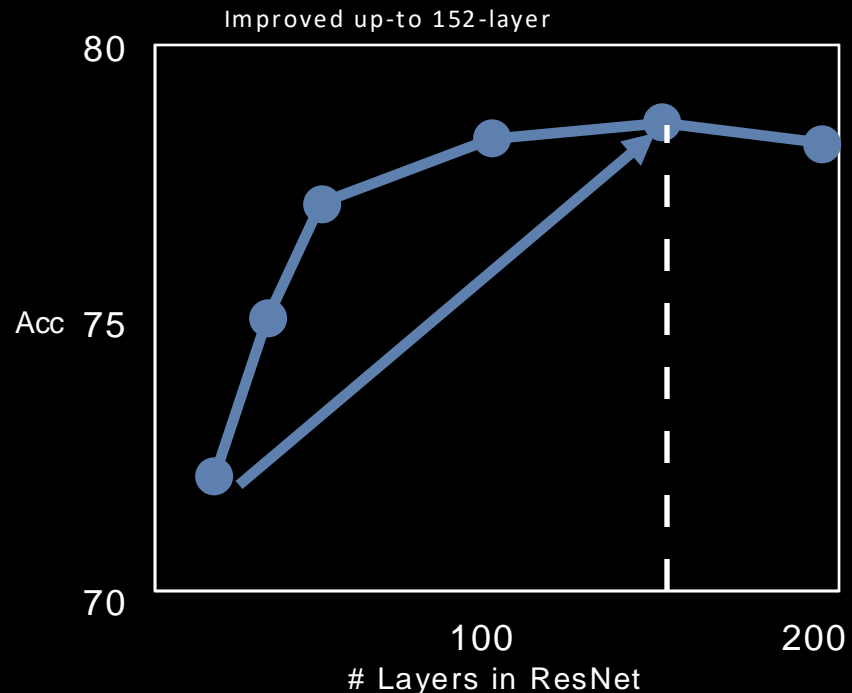Improved up-to 152-layer

Video | 3D ResNet

Improved up-to 152-layer
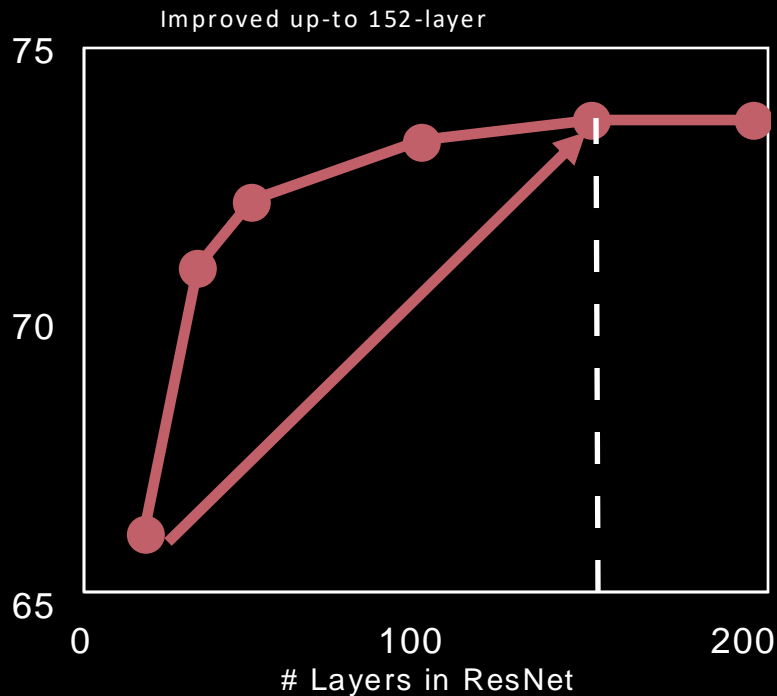
Image | 2D ResNet

- Accepted to CVPR 2018（2.4k+ citations; Top 0.5% in 8,800 5-year CVPR papers）
- GitHub 3.9k Stars (Top-1 in video recognition at the time of published)

K. Hara, H. Kataoka, Y. Satoh, "Can Spatiotemporal 3D CNNs Retrace the History of 2D CNNs and ImageNet?", CVPR 2018.

http://hirokatsukataoka.net/

Pre-training without Natural Images
Building AI foundation models from the natural laws

- ACCV 2020 Best Paper Honorable Mention Award

- BMVC 2023 Best Industry Paper Finalist

- Featured in MIT Technology Review (Feb. 4th, 2021)

H. Kataoka, et al. "Pre-training without Natural Images", ACCV 2020 & IJCV 2022. / & many other projects

@HirokatuKataoka   @hirokatukataoka.bsky.social

http:// hirokatsukataoka.net/

CVPR JUNE 17-21, 2024 SEATTLE, WA · cvpaper.challenge

CVPR 2024 Workshop on Representation Learning with Very Limited Images

-Zero-shot, Unsupervised, and Synthetic Learning in the Era of Big Models-

https://hirokatsukataoka16.github.io/CVPR-2024-LIMIT/

- Exploring how to build an AI foundation models with very limited resources
- Primary organizer at LIMIT Workshop in ICCV 2023 and CVPR 2024
- As organizers, we've collaborated with Oxford, MIT, UvA, UTN, Center for AI Safety, Fujitsu, BYU
- ViT can be pre-trained w/ only one single synthetic image!
  → One-instance FractalDB (ICCV23), Scaling Backwards (ECCV24)

4 Academic Services

- Area Chair
  - CVPR 2024
- Workshop Organizer
  - CVPR 2021 Workshop
  - ICCV 2019 Workshop
- Reviewer (International Conferences)
  - CVPR 2021, 2022, 2023
  - ICCV 2023
  - ECCV 2022, 2024
  - AAAI 2019, 2020
  - NeurIPS 2022, 2023
  - WACV 2021, 2022, 2023, 2024 (Outstanding Reviewer Award)
  - ACCV 2020, 2022 (Outstanding Reviewer Award)
  - ICRA 2021, 2022, 2023, 2024
  - IROS 2018, 2019, 2020, 2021, 2022, 2023
- Reviewer (Journals)
  - International Journal of Computer Vision (IJCV)
  - Pattern Recognition (PR)
  - Computer Vision and Image Understanding (CVIU)
- University jobs
  - Visiting Associate Professor, Keio University
  - Adjunct Associate Professor, Tokyo Denki University
  - Co-supervisor, University of Technology Nuremberg

5 Industry Services / Tech Transfer

【Humanoid robots】

https://www.youtube.com/watch?v=ARpd5J5gDMk
1.24M+ views on the YouTube video

- Humanoid robot – HRP-5P
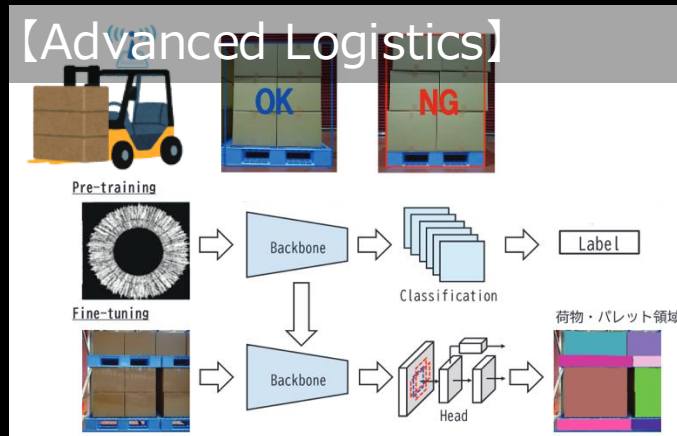- Roll: Object detection
- Collaborated w/ Humanoid Group, AIST

【Advanced Logistics】

https://unit.aist.go.jp/tico-al2022/ja/results/img/SpecialOpenHouse.pdf

- Logistics – Forklift by Toyota Industries Corp.
- Roll: Human detection, visual pre-training
- Collaborated w/ TICO-AIST Advanced Logistics Lab

【Industry robots】

https://www.youtube.com/watch?v=l0Ixeqxal7Q

- Robot manipulation projects
- Roll: Vision algorithms, visual pre-training
- Collaborated w/ ART, AIST

【Other experience】

- Keywords: Autonomous driving, visual surveillance, AI for Science (Geology, Materials, Agriculture, Animal, etc.)
- Visiting researcher, OMRON SINIC X
- Visiting researcher, LINE Corporation
- Visiting researcher, LY Corporation
- Visiting researcher, SB Intuitions (SB = SoftBank)

Feel free to contact Hirokatsu!!

e.g., Job offer, collaboration, mentoring, invited talks

Mer Blanche
Family's beloved dog

http:// hirokatsukataoka.net/