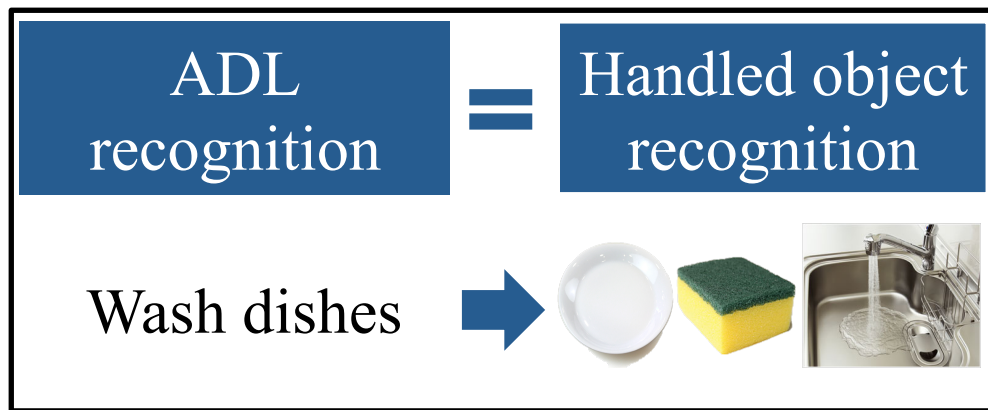
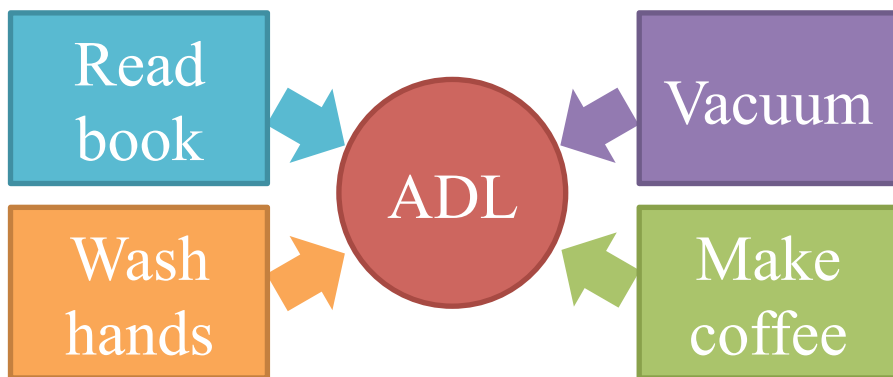


Recognizing Activities of Daily Living with a Wrist-mounted Camera

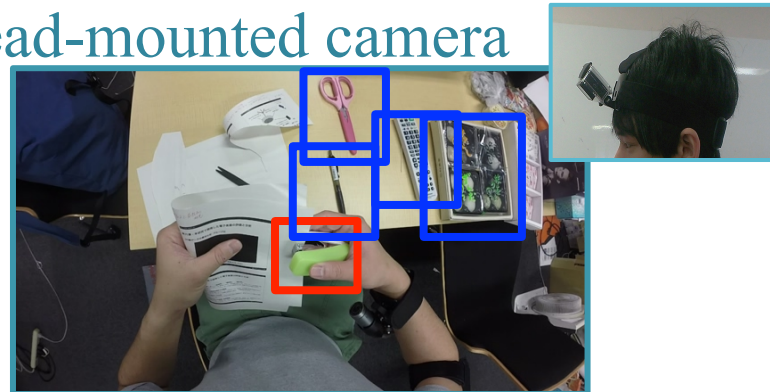


Katsunori Ohnishi Atsushi Kanehira Asako Kanezaki Tatsuya Harada
The University of Tokyo, CVPR spotlight 2016 Poster ID: 3A-13

Activities of Daily Living (ADL)
Applications:
tele-rehabilitation, life-logging



Head-mounted camera



We have to...

- detect objects
- choose handled object

Wrist-mounted camera



We can skip detection ☺

Dataset

Poster ID: 3A-13

Download: <http://www.mi.t.u-tokyo.ac.jp/static/projects/miladl>

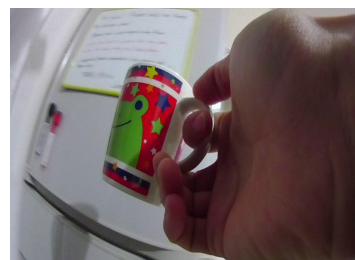
Wrist-mounted
camera

Head-mounted
camera

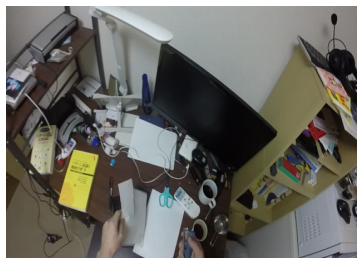
- ✓ 20 subjects
- ✓ 20 different houses
- ✓ 23 daily activities
- ✓ 6.5 hours
- ✓ Publicly available!



Wrist



Head



Mean image

Dataset

Poster ID: 3A-13

Download: <http://www.mi.t.u-tokyo.ac.jp/static/projects/miladl>

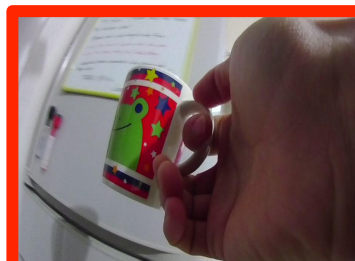
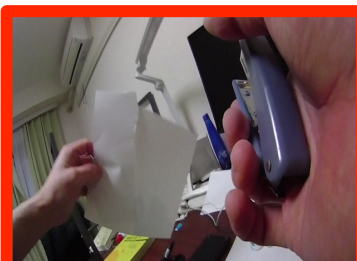
Wrist-mounted
camera

Head-mounted
camera

- ✓ 20 subjects
- ✓ 20 different houses
- ✓ 23 daily activities
- ✓ 6.5 hours
- ✓ Publicly available!

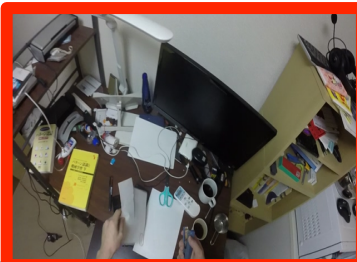


Wrist



Head

Mean image



Dataset

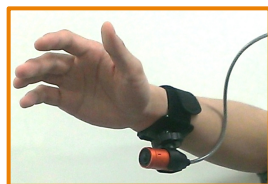
Poster ID: 3A-13

Download: <http://www.mi.t.u-tokyo.ac.jp/static/projects/miladl>

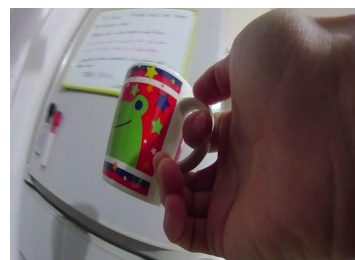
Wrist-mounted
camera

Head-mounted
camera

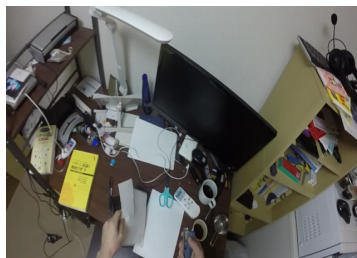
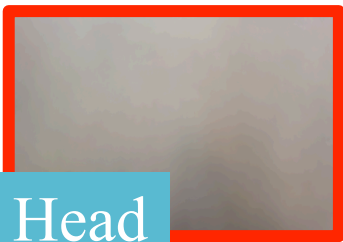
- ✓ 20 subjects
- ✓ 20 different houses
- ✓ 23 daily activities
- ✓ 6.5 hours
- ✓ Publicly available!



Wrist



Head

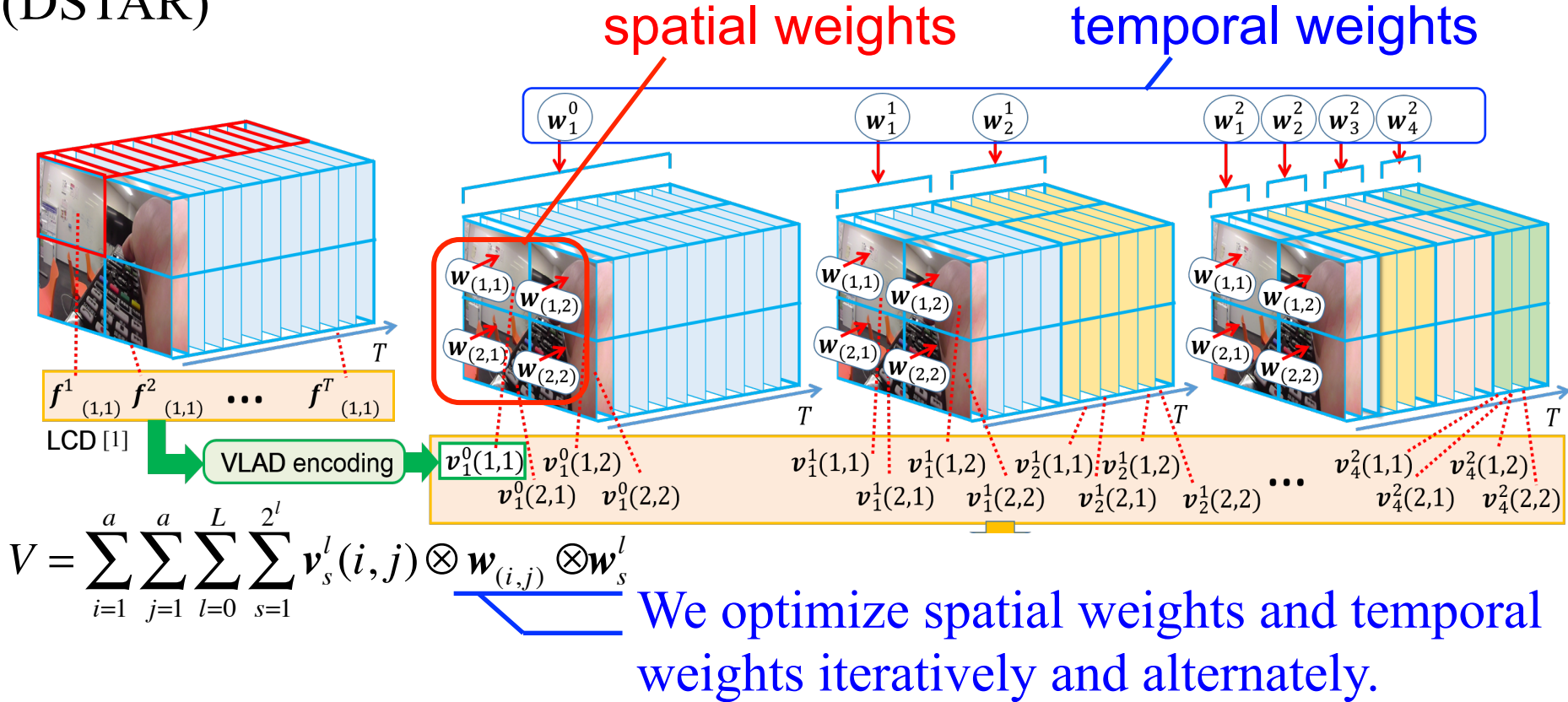


Mean image

Algorithm

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Discriminative Spatio-Temporal Aggregated latent concept descriptors (DSTAR)



DSTAR can take advantage of *spatial bias* and *temporal bias* of the video captured by a wrist-mounted camera

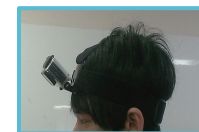
Results

Poster ID: 3A-13

- ✓ WMD is suitable for ADL recognition than HMD.
- ✓ Our methods are effective for datasets that have spatial/temporal bias.
- ✓ Especially spatial bias on WMD is strong.

Download:

<http://www.mi.t.u-tokyo.ac.jp/static/projects/miladl>



Video Features	WMD	HMD
LCD+VLAD [1]	78.6%	62.4%
DSAR (ours)	82.0%	61.6%
DSTAR (ours)	83.7%	62.0%

