

Recognizing Activities of Daily Living with a Wrist-mounted Camera

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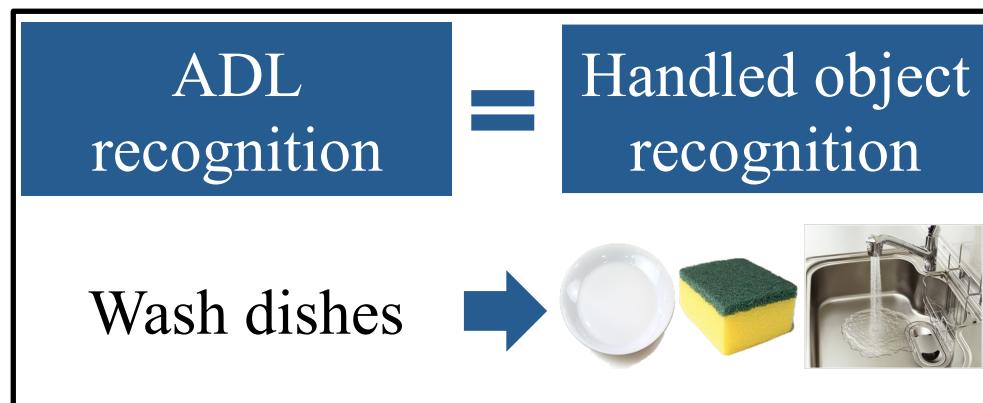
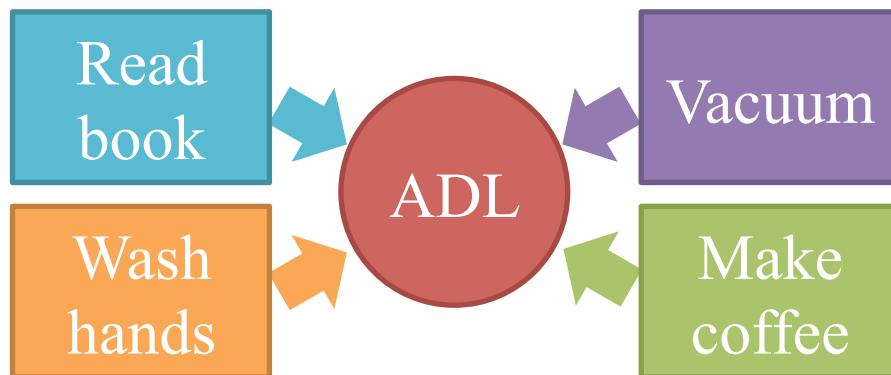
The University of Tokyo, CVPR spotlight 2016

Poster ID: 3A-13

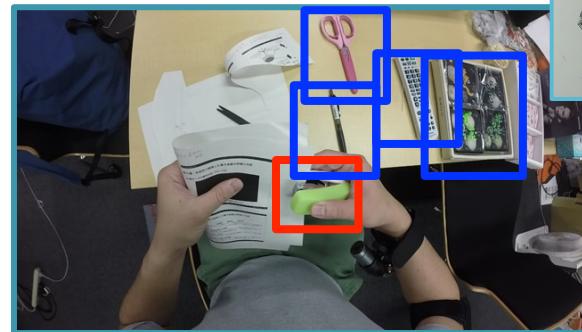
Activities of Daily Living (ADL)

Applications:

tele-rehabilitation, life-logging



Head-mounted camera



We have to...

- detect objects
- choose handled object

Wrist-mounted camera



We can skip detection ☺

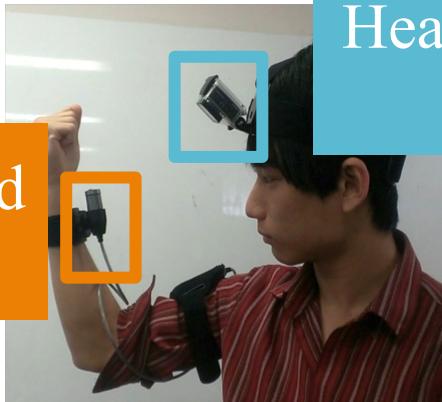


Dataset

Poster ID: 3A-13

Download: <http://www.mi.t.u-tokyo.ac.jp/static/projects/milad1>

Wrist-mounted camera



Head-mounted camera

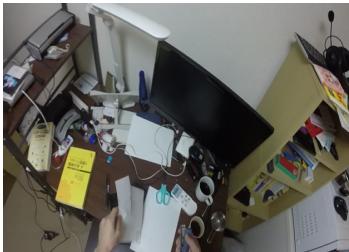
- ✓ 20 subjects
- ✓ 20 different houses
- ✓ 23 daily activities
- ✓ 6.5 hours
- ✓ Publicly available!



Wrist



Head



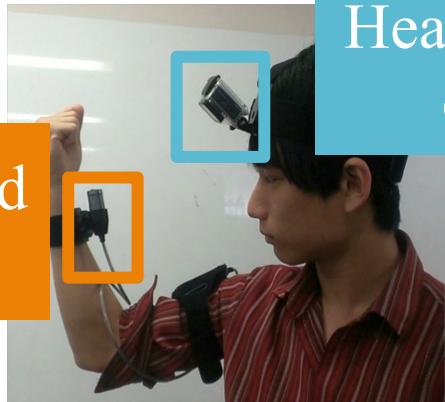
Mean image

Dataset

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Wrist-mounted
camera



Head-mounted
camera

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Wrist



Head

Mean image

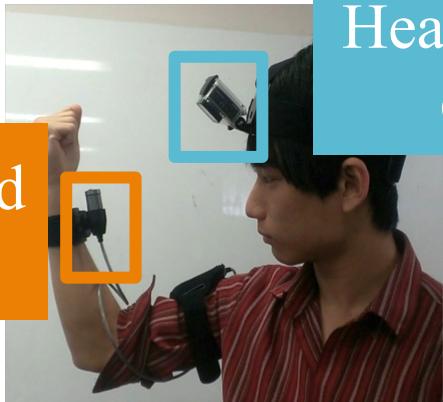


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Wrist-mounted camera



Head-mounted camera

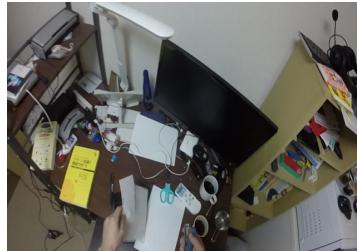
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Wrist



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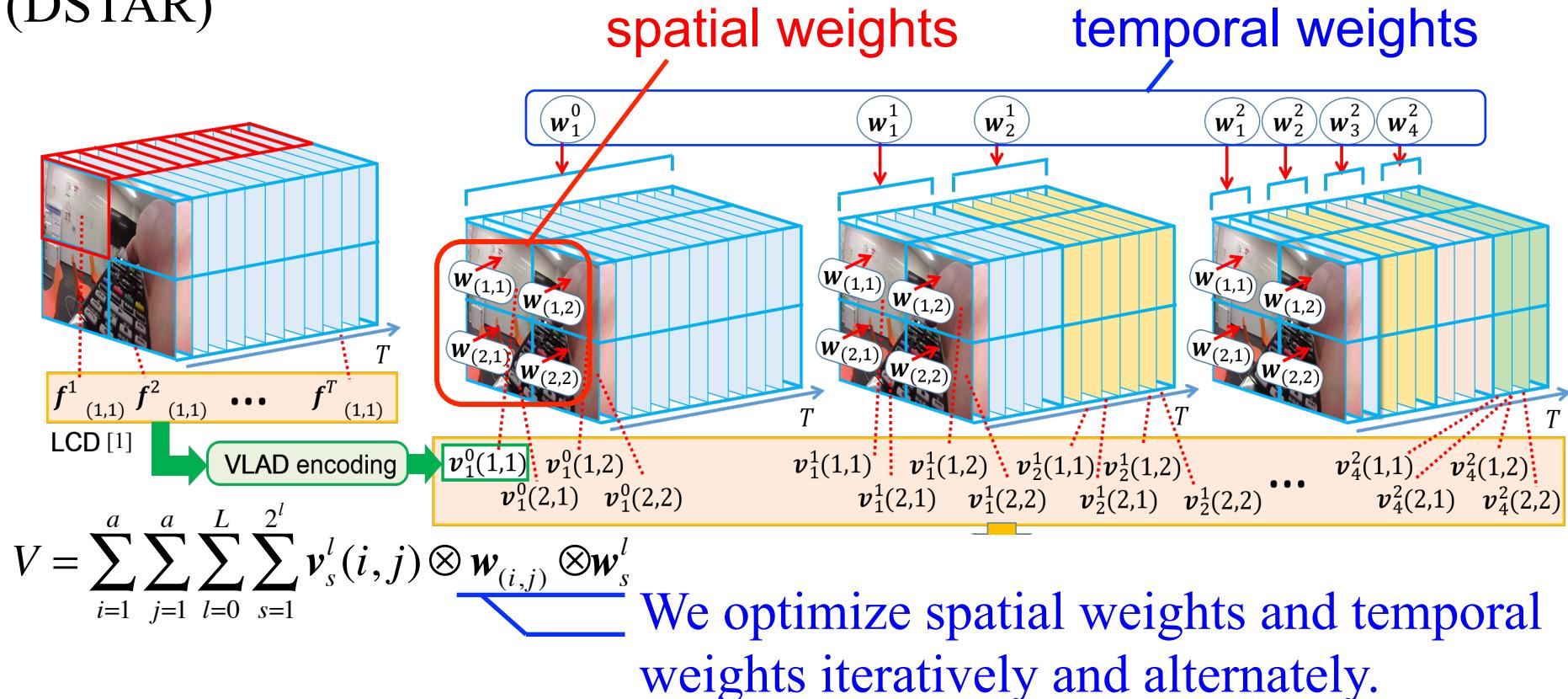


Mean image

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

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- ✓ 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:

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static/projects/miladl](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%

