

Part II: VOC 2005-2012

History and analysis

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History of PASCAL VOC

PASCAL challenges introduced in 2004

VOC Goals:

1. Provide challenging images, high-quality annotation, standard evaluation methodology
2. Measure state of the art each year via the competition

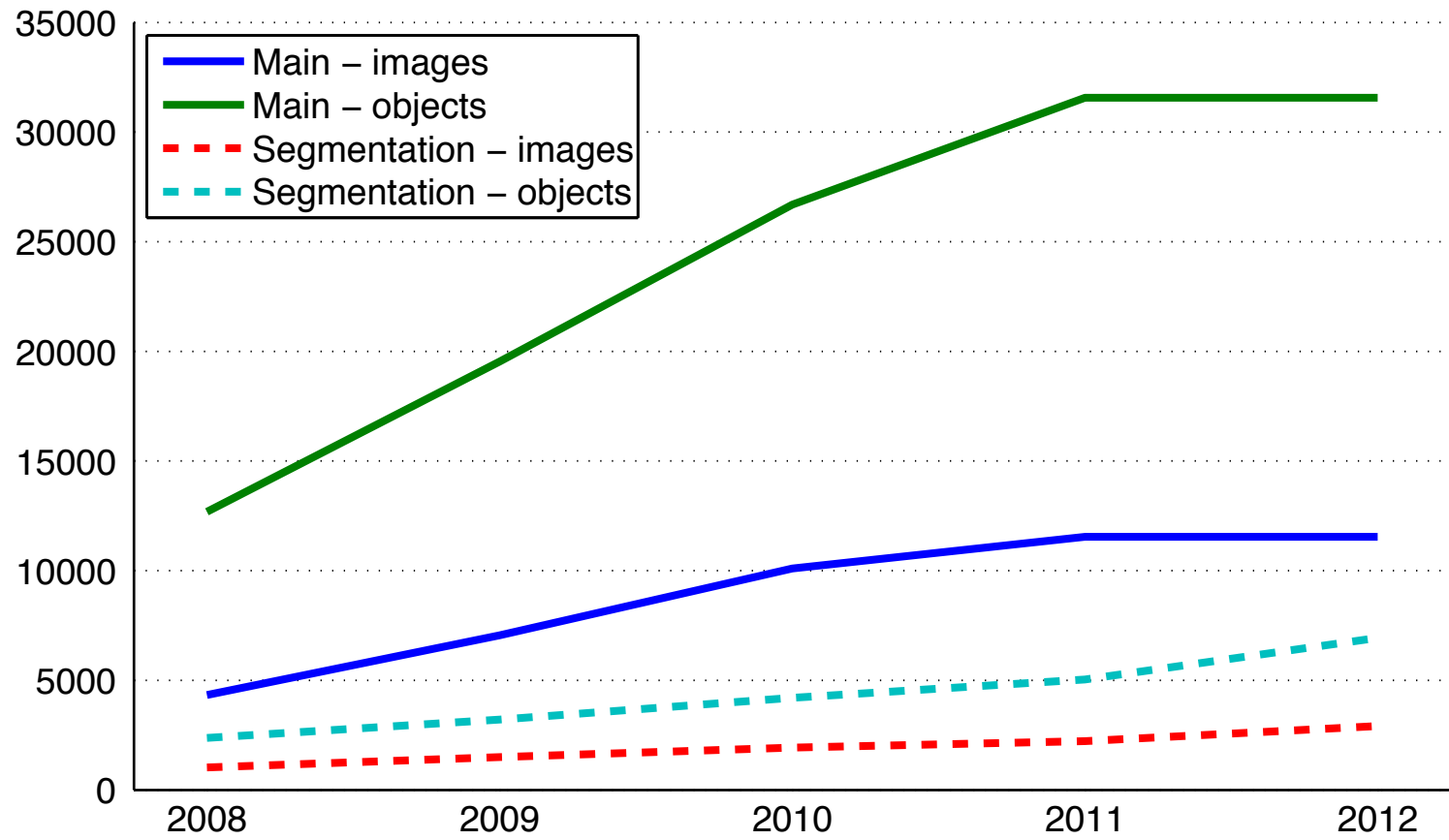
Comparisons:

- ▶ Caltech 101/256: images largely without clutter, limited variation in pose, images aligned to reduce variability in appearance
- ▶ LabelMe dataset: initially a lack of consistency re labelling and incompleteness of annotation

- ▶ 2005: 4 object classes (bicycles, cars, motorbikes, people). Images from existing public datasets.
- ▶ 2006: 10 object classes (bicycle, bus, car, cat, cow, dog, horse, motorbike, person, sheep). Images from flickr and MSRC
- ▶ 2007: 20 object classes in 4 groups (person, animal, vehicle, indoor). Segmentation taster introduced
- ▶ 2008-2012: Test set annotation no longer made public. Data accumulates over the years
- ▶ Tasters: person layout (since 2007), action classification (since 2010)

Year-on-year statistics

year	images	objects	seg. obj
2005	1,578	2,209	
2006	2,618	4,754	
2007	9,963	24,640	1,215
2008	4,340	10,363	2,369
2009	7,054	17,218	3,211
2010	10,103	23,374	4,203
2011	11,530	27,450	5,034
2012	11,530	27,450	6,929



Annotation

- ▶ Goals: consistent, accurate, exhaustive
- ▶ Annotation "party": originally physical, then virtual
- ▶ Written guidelines, plus examples
- ▶ Thanks to all of the annotators
- ▶ VOC dataset cited in thousands of computer vision and machine learning papers

Mark Everingham

- ▶ Mark was the major contributor, collecting data, writing annotation and evaluation software, monitoring and checking the annotation, and overseeing the actual challenge process and workshop
- ▶ The VOC 2012 challenge and workshop is dedicated to Mark's memory

A Minute's Silence



Mark Everingham 1973 - 2012

- ▶ **Memorial site:** http://www.bmva.org/w/doku.php?id=obituaries:mark_everingham
- ▶ The first Everingham Prize will be awarded at ECCV 2014

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Temporal performance analysis

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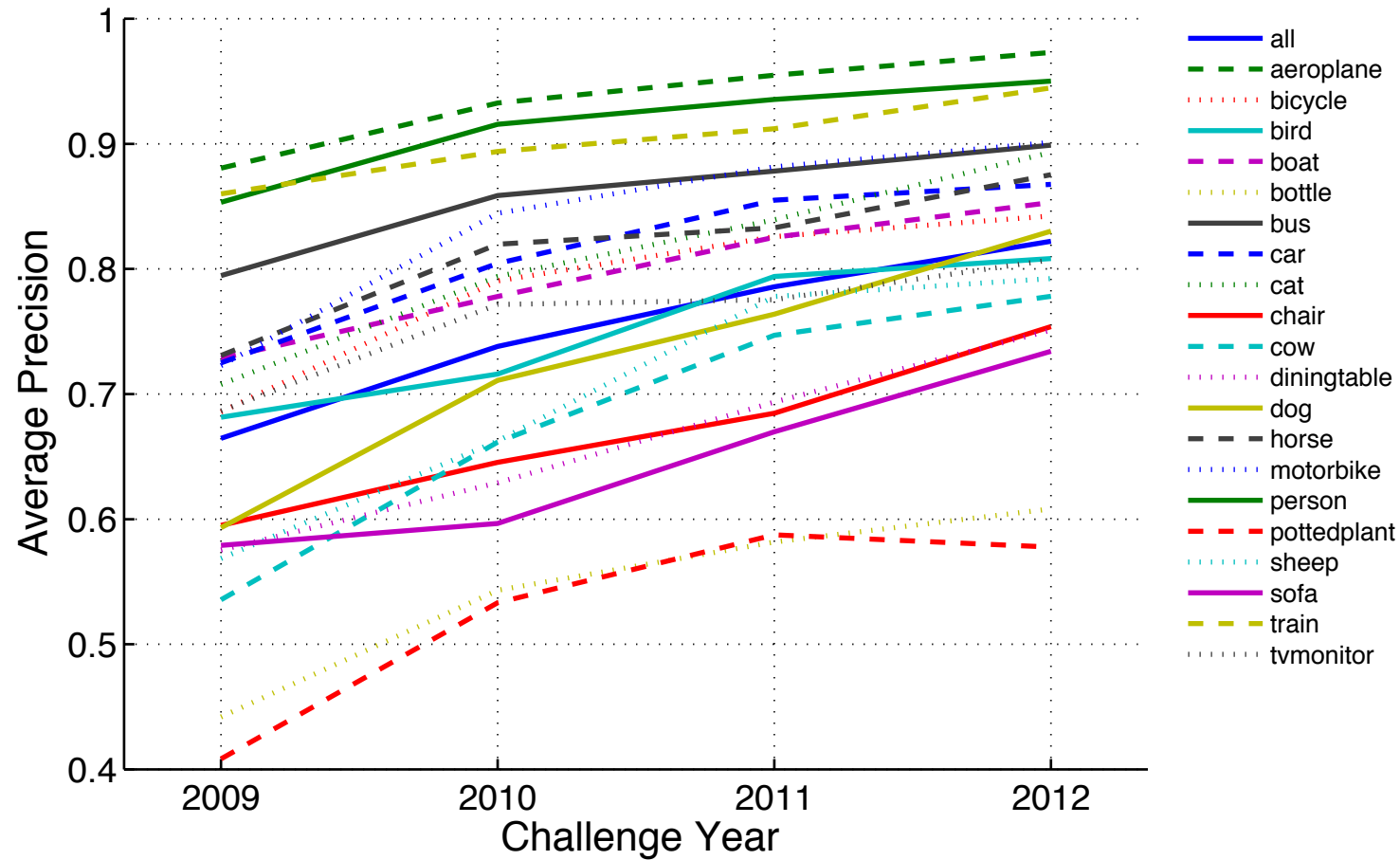
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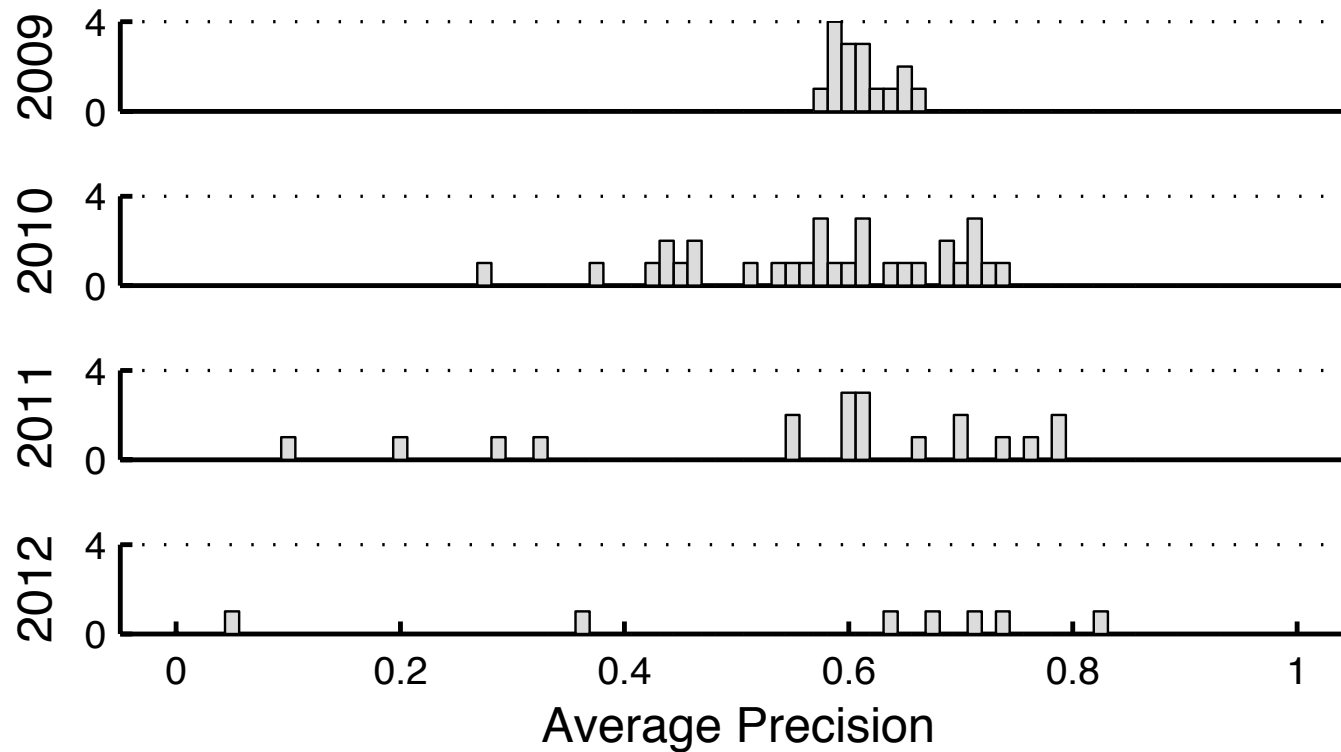
Classification (2009-2012)

Computed on 2009 test dataset



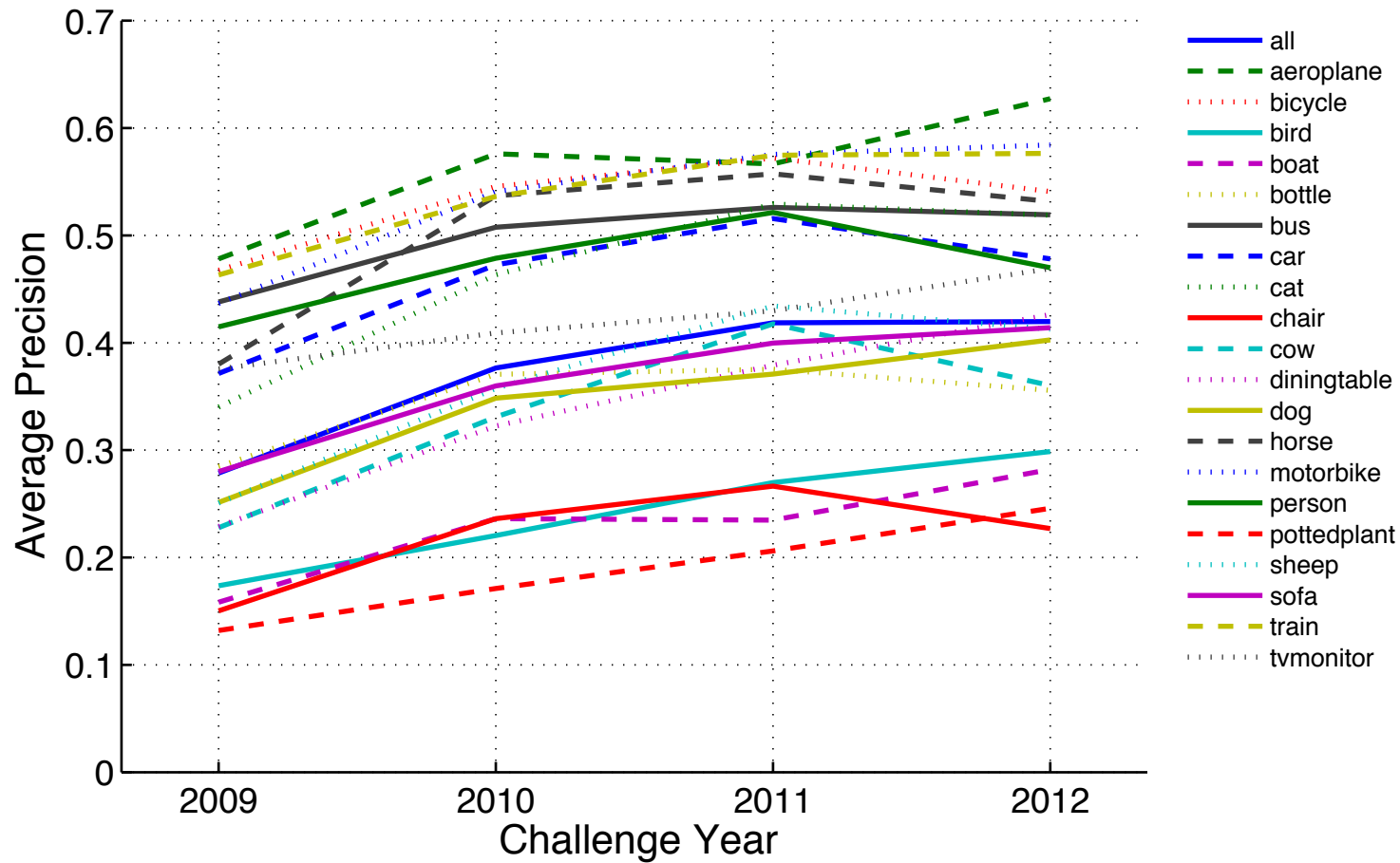
Classification (2009-2012)

Computed on 2009 test dataset



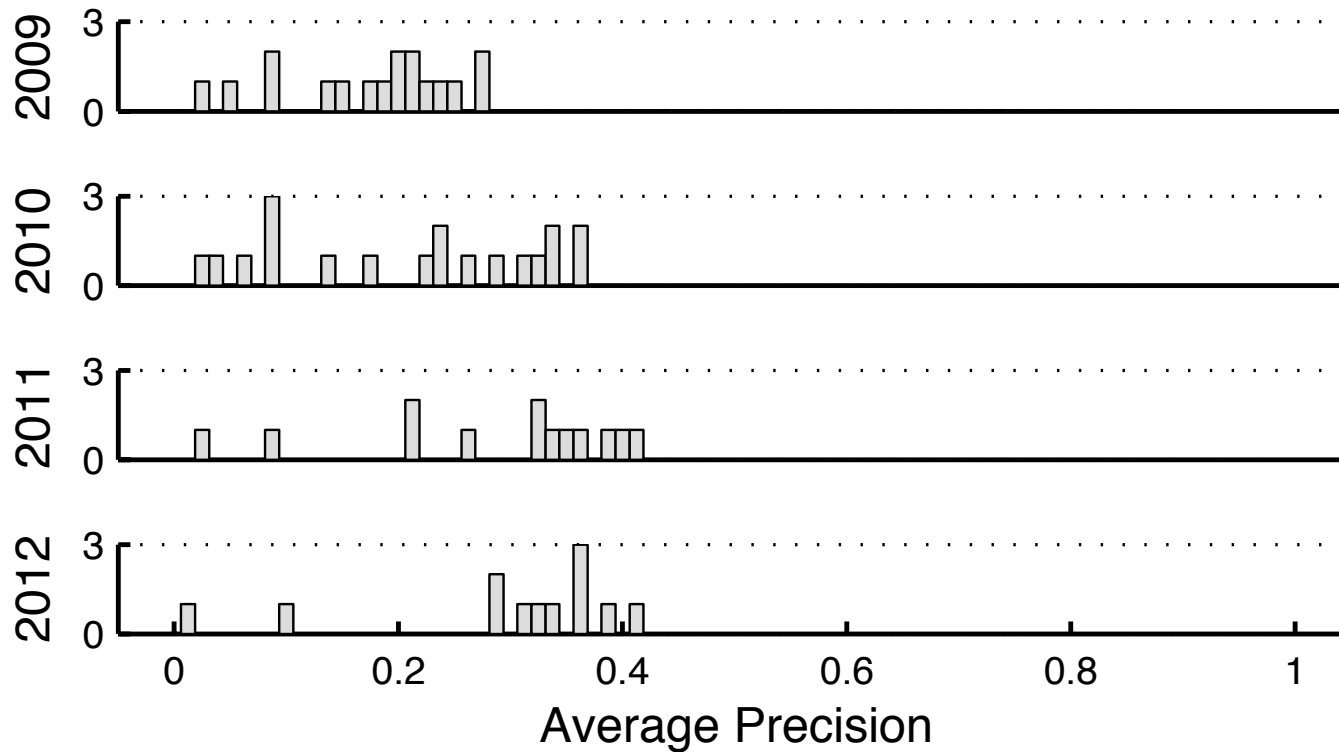
Detection (2009-2012)

Computed on 2009 test dataset



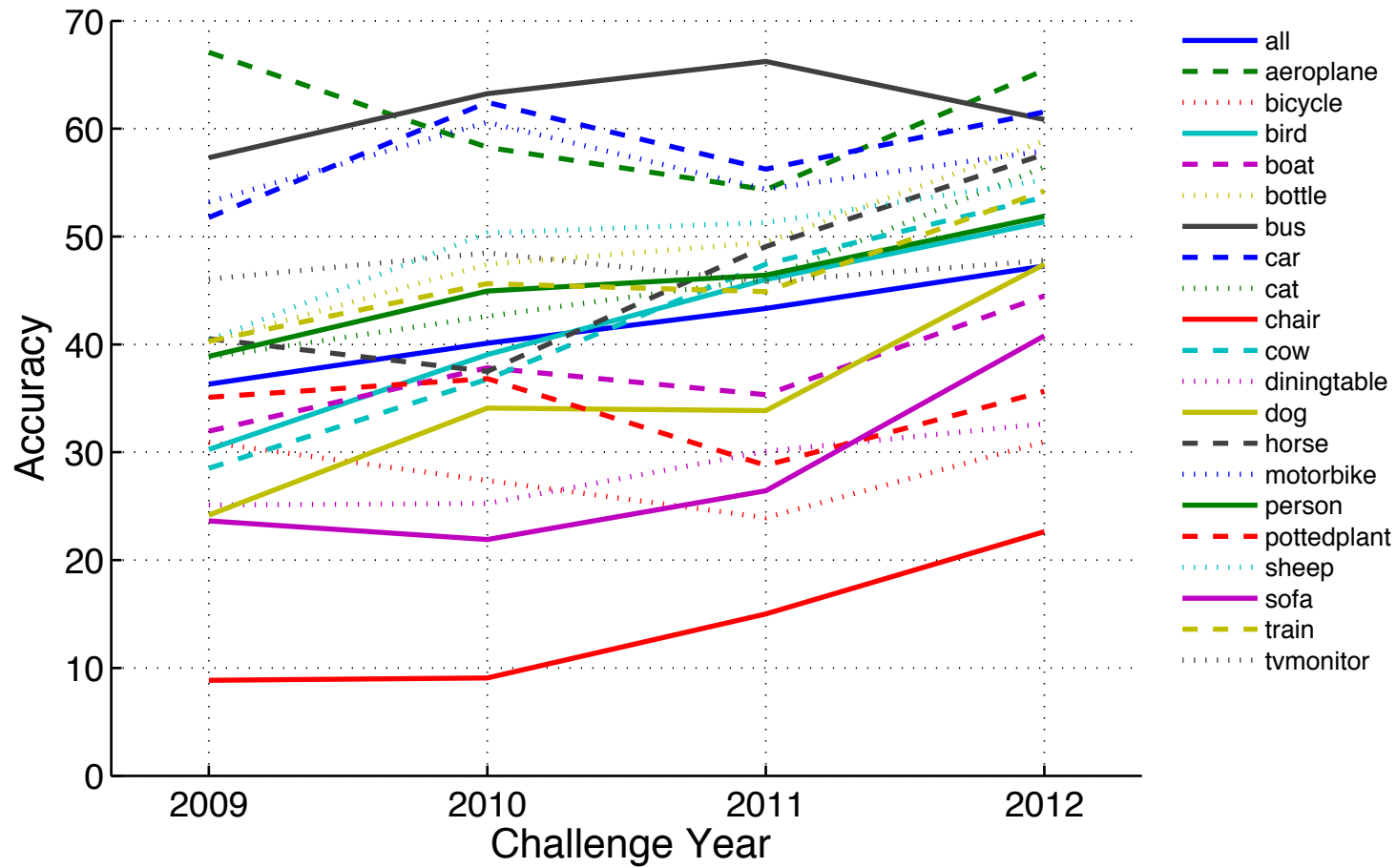
Detection (2009-2012)

Computed on 2009 test dataset



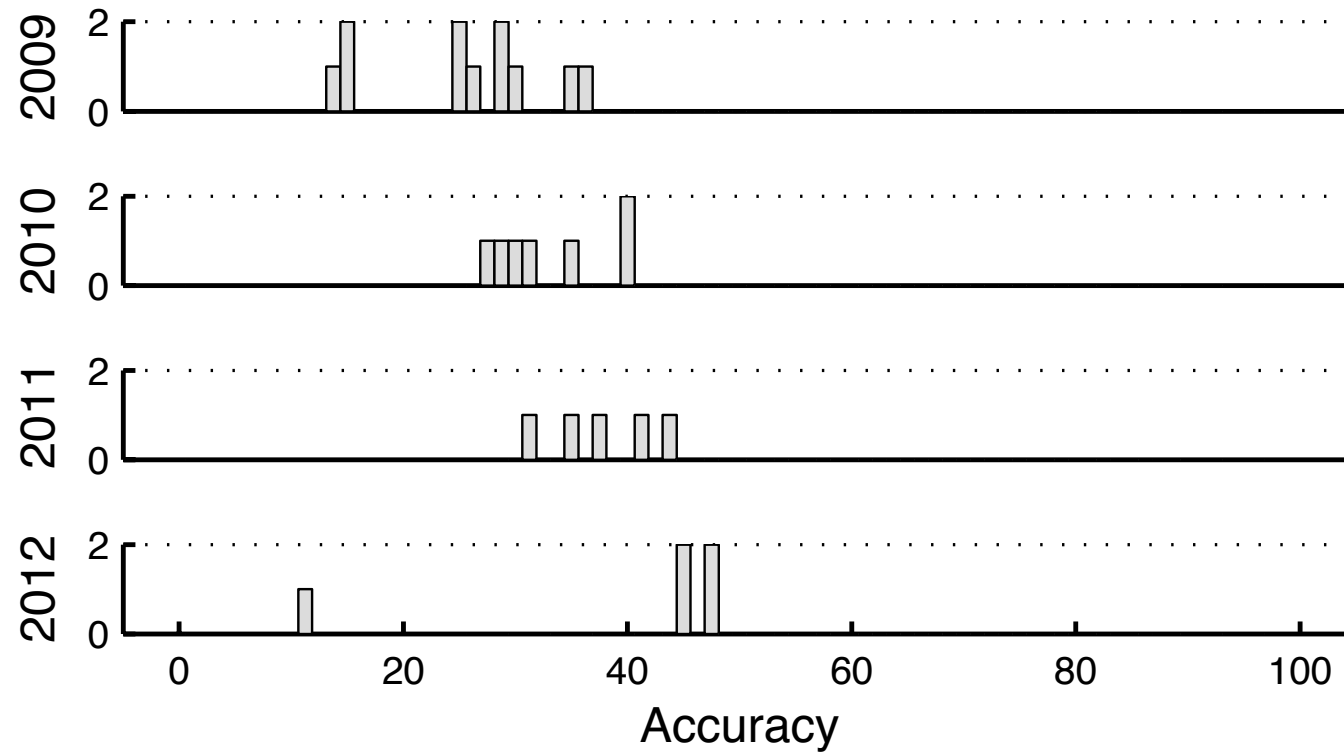
Segmentation (2009-2012)

Computed on 2009 test dataset



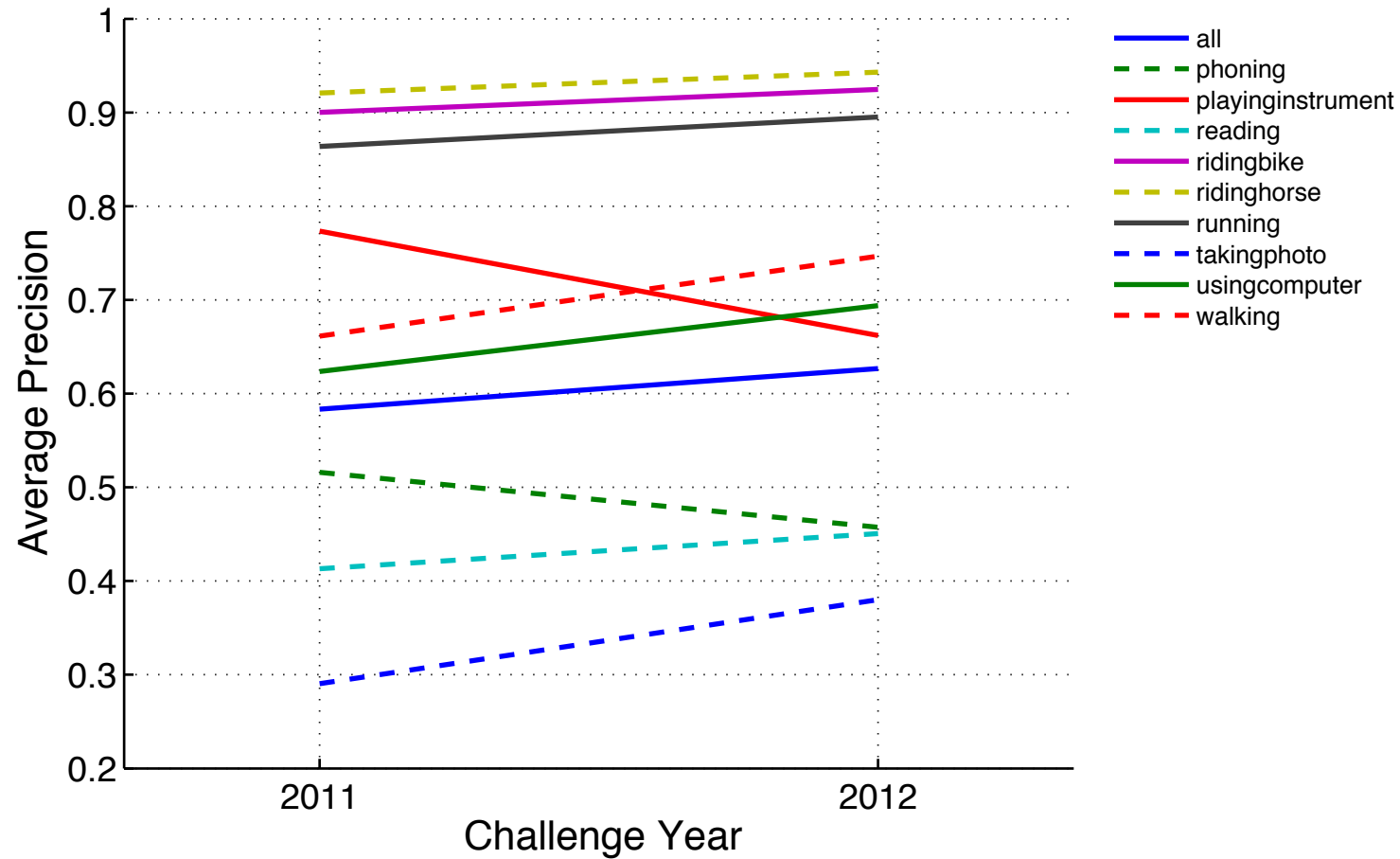
Segmentation (2009-2012)

Computed on 2009 test dataset



Action classification (2011-2012)

Computed on 2011 dataset



Action classification (2011-2012)

Computed on 2011 dataset

