



Applications

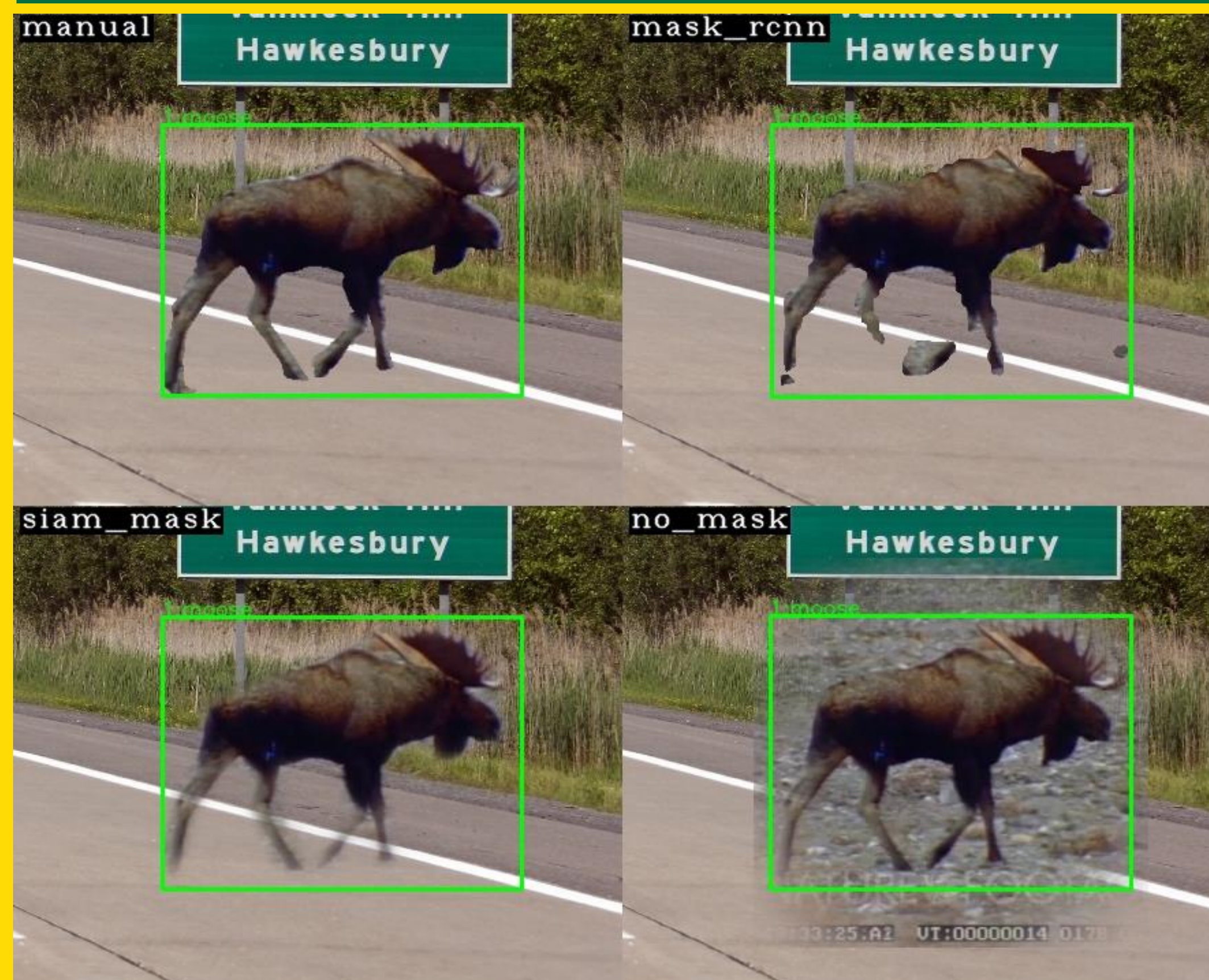
- Airport perimeter patrolling with autonomous ATV
- Preventing animal-vehicle collisions on highways



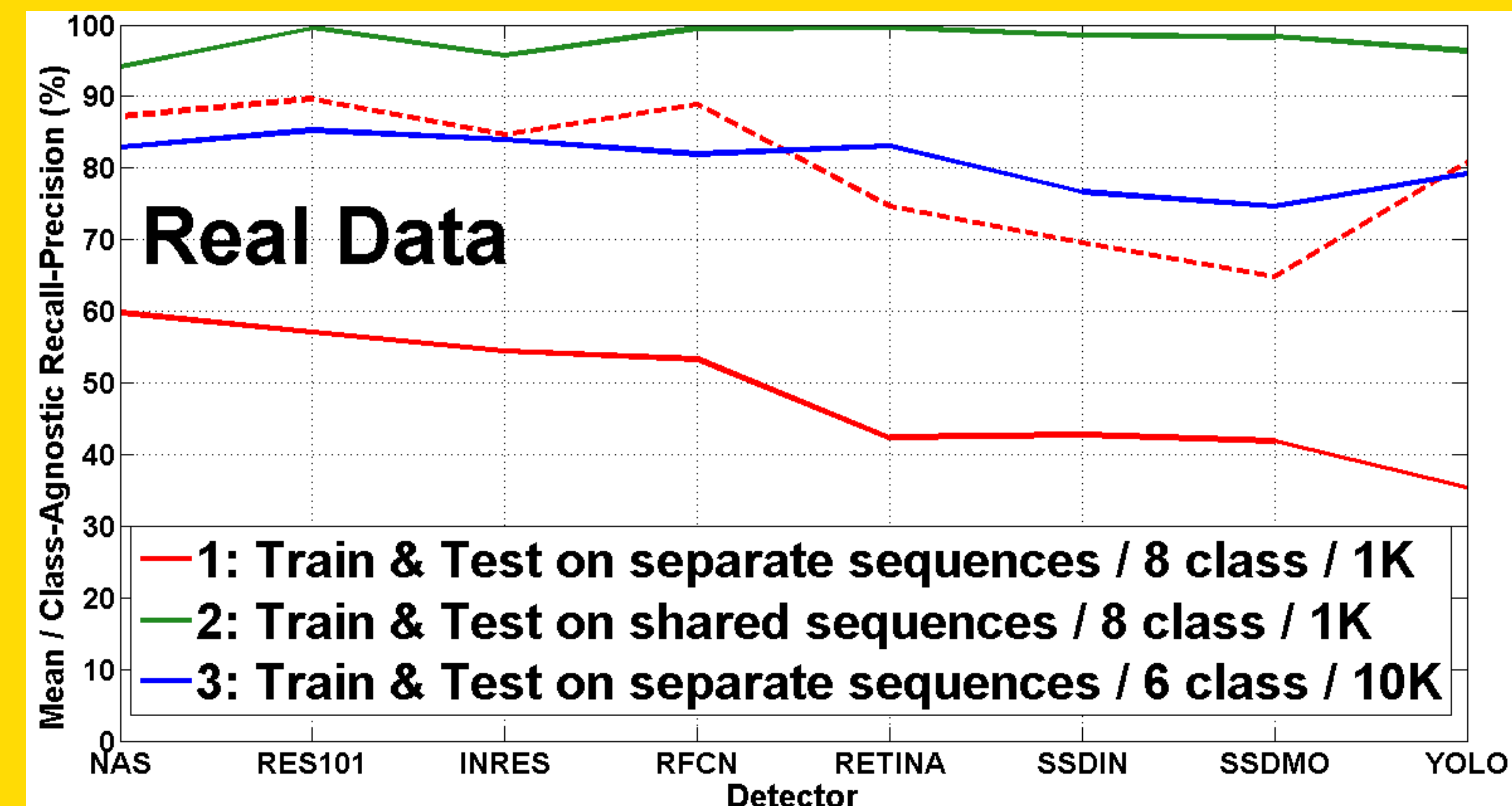
Detectors

Architecture	Backbone
Faster RCNN	Resnet101
	Inception-Resnet v2
	NAS
RFCN	Resnet101
YOLO	Darknet19, Darknet53
RetinaNet	Resnet50
SSD	Inception v2
	Mobilenet v2

Synthetic Data



Results



Contributions

- Large scale study of animal detection with deep learning
- Domain adaptation with synthetic data
- Semi-automated labeling tool with end-to-end synthetic data generation
- Dataset with 8 animals and 160K labeled frames

Dataset

Type	Videos		Static Images	Total
	#	Frames		
Bear	92	25715	1401	27116
Bison	88	25133	0	25133
Cow	14	5221	0	5221
Coyote	113	23334	1996	25330
Deer	67	23985	1835	25820
Elk	78	25059	0	25059
Horse	23	4871	0	4871
Moose	97	24800	260	25060
Total	572	158118	5492	163610

