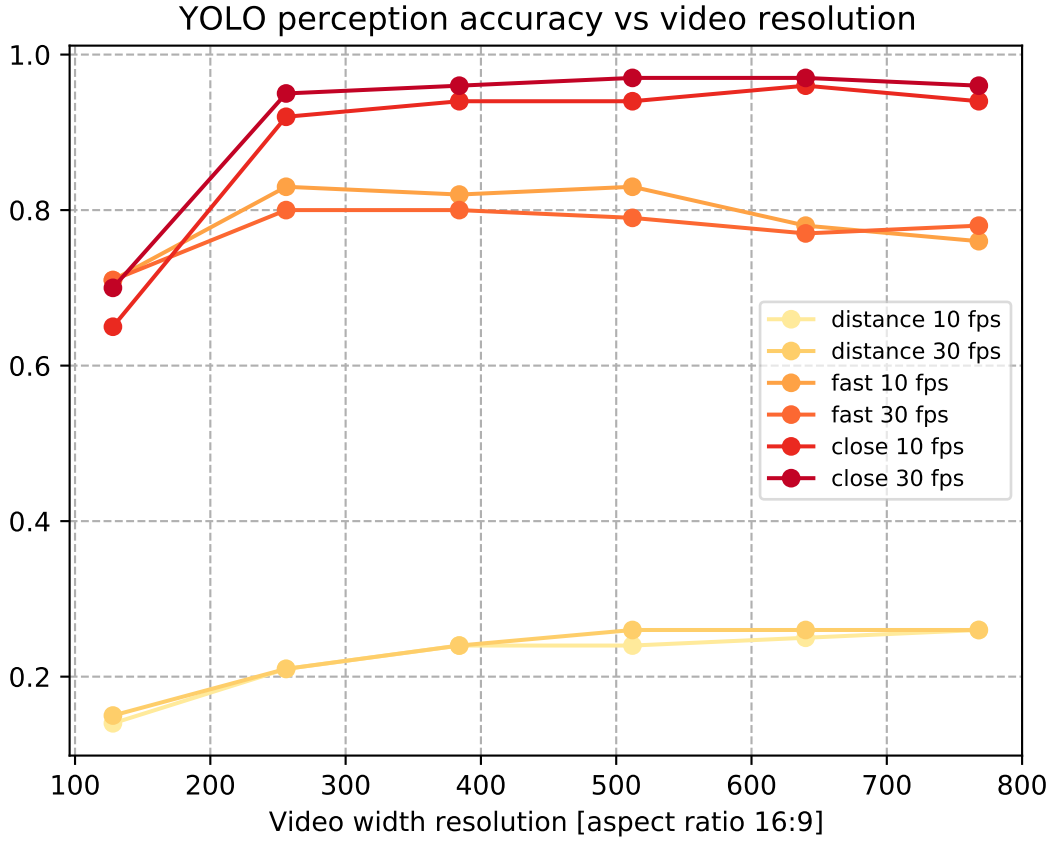
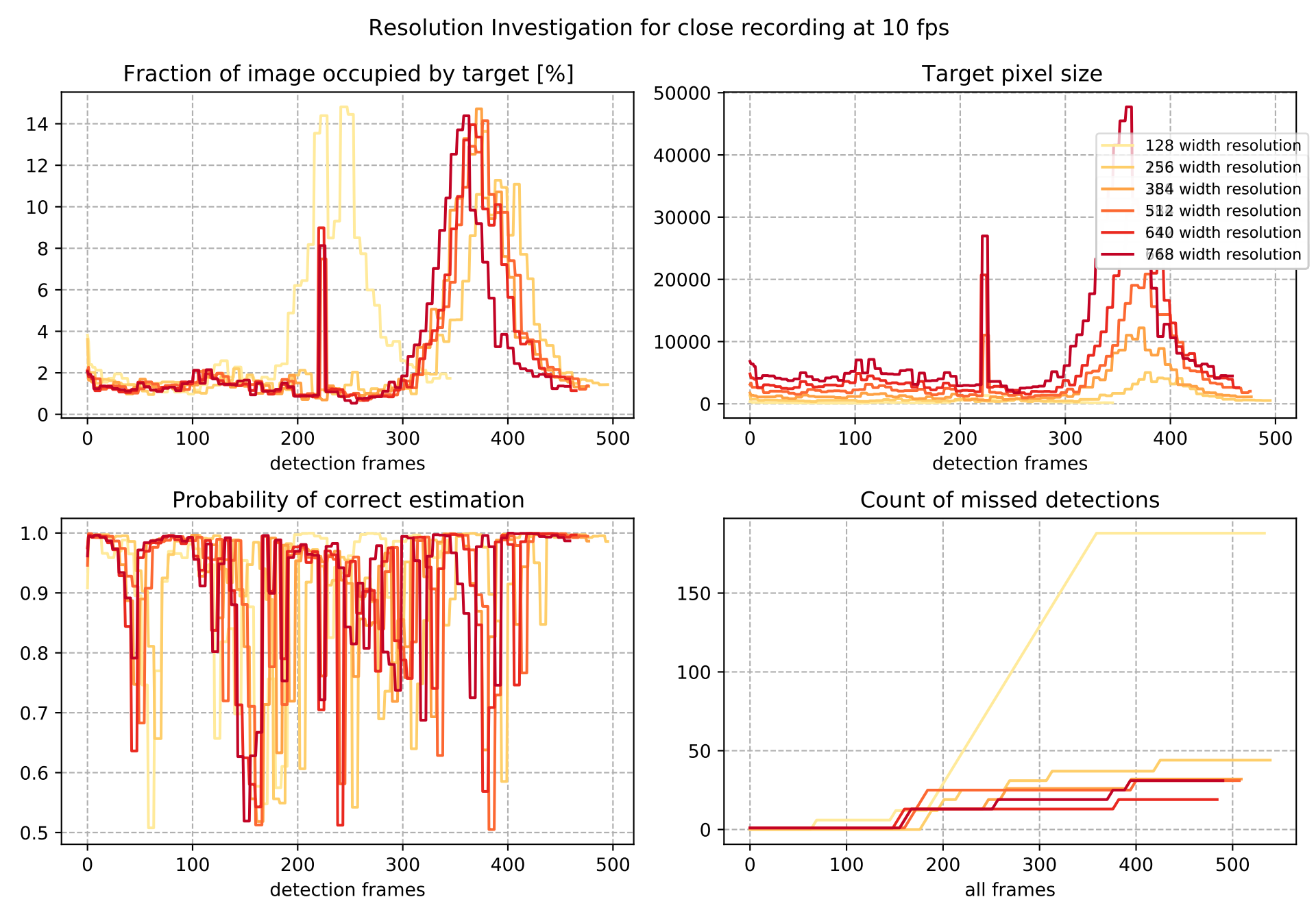
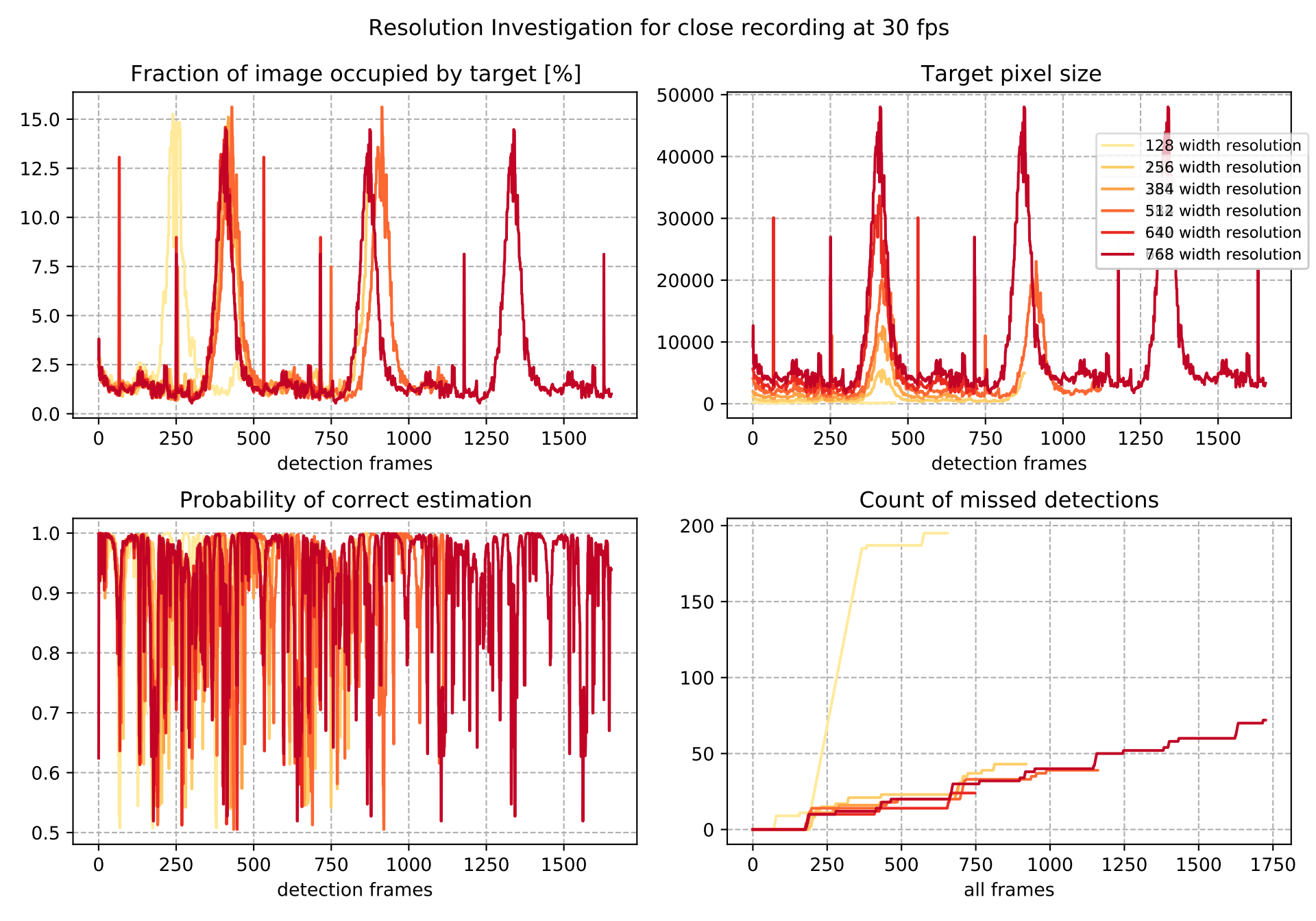
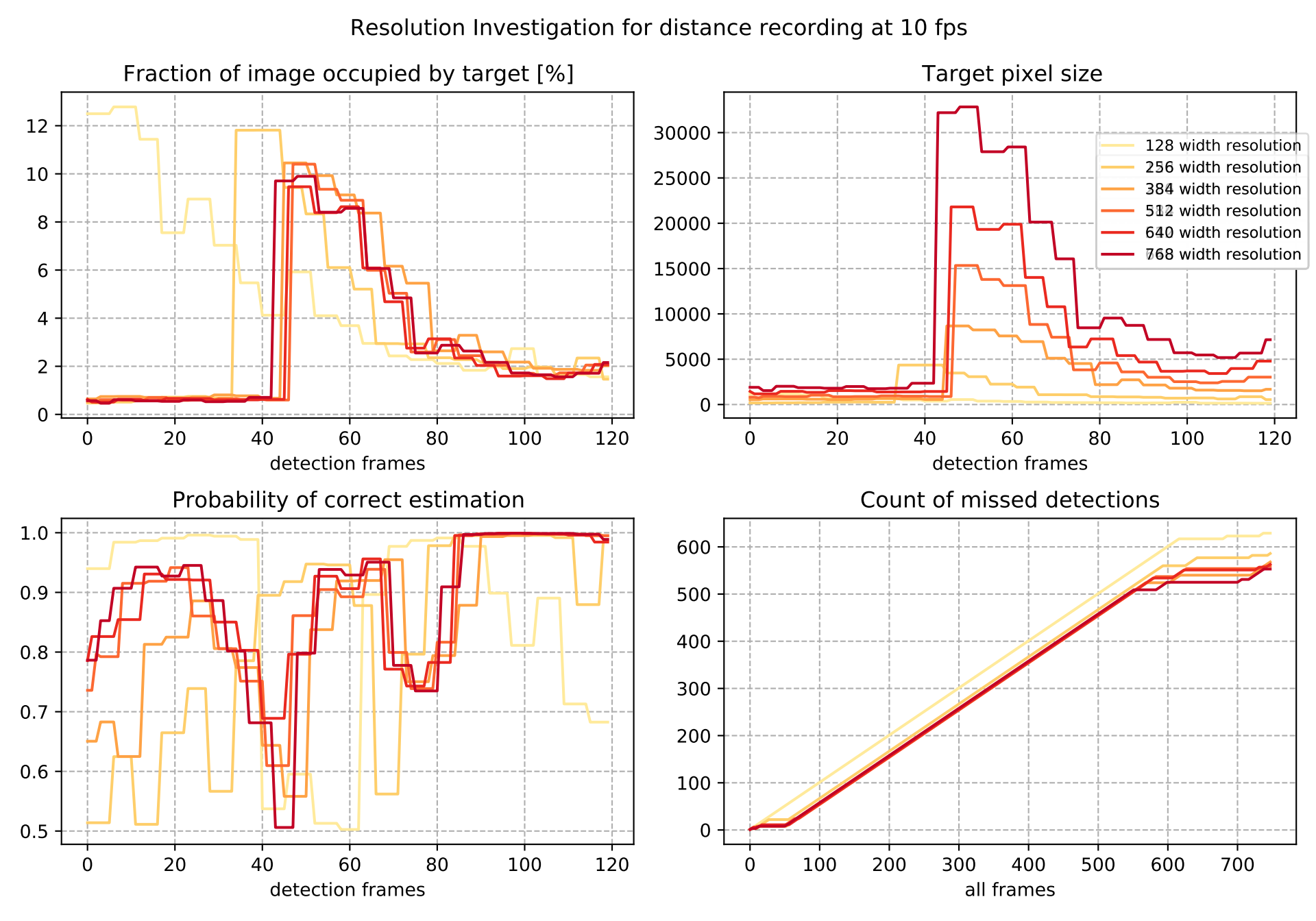
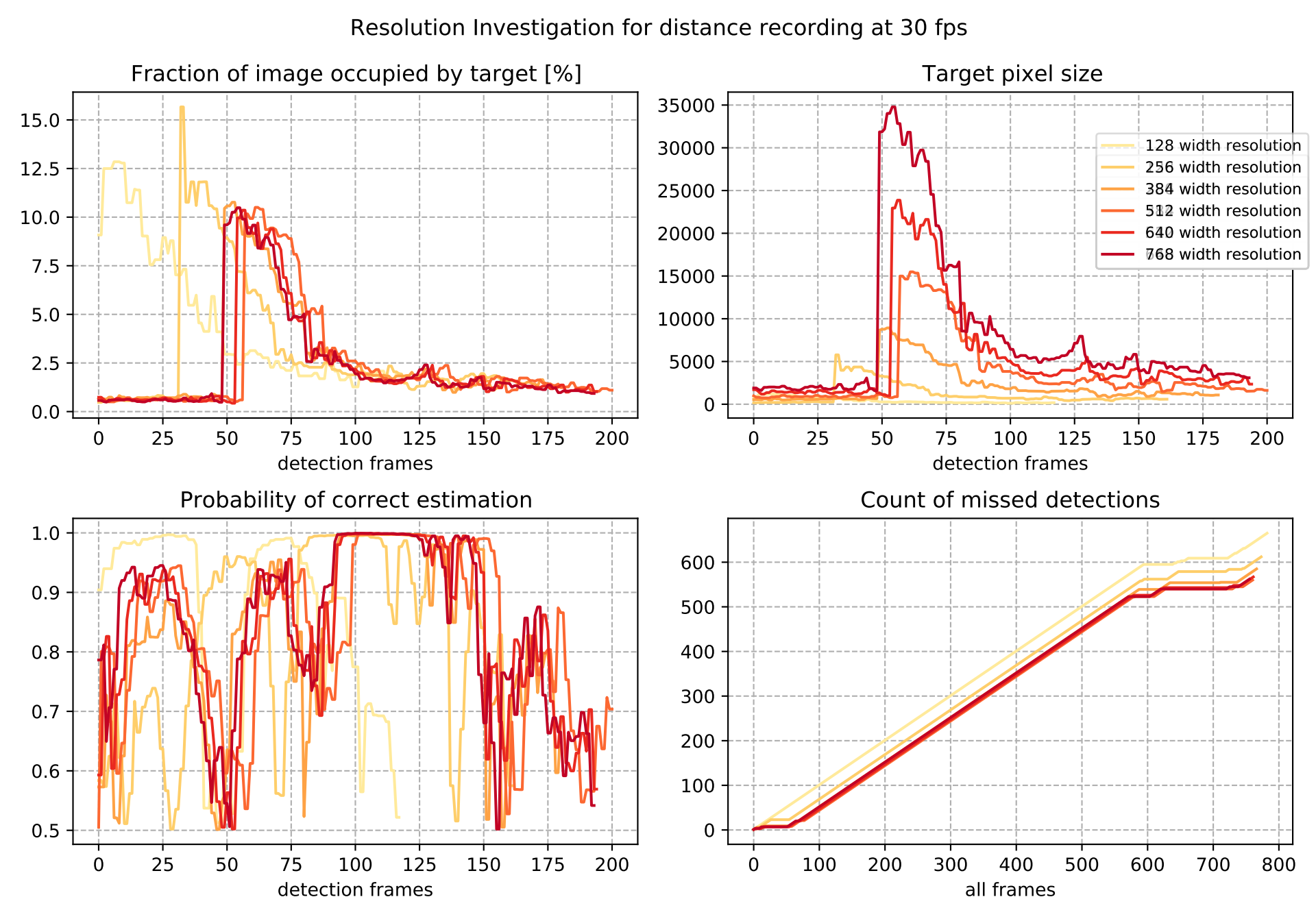
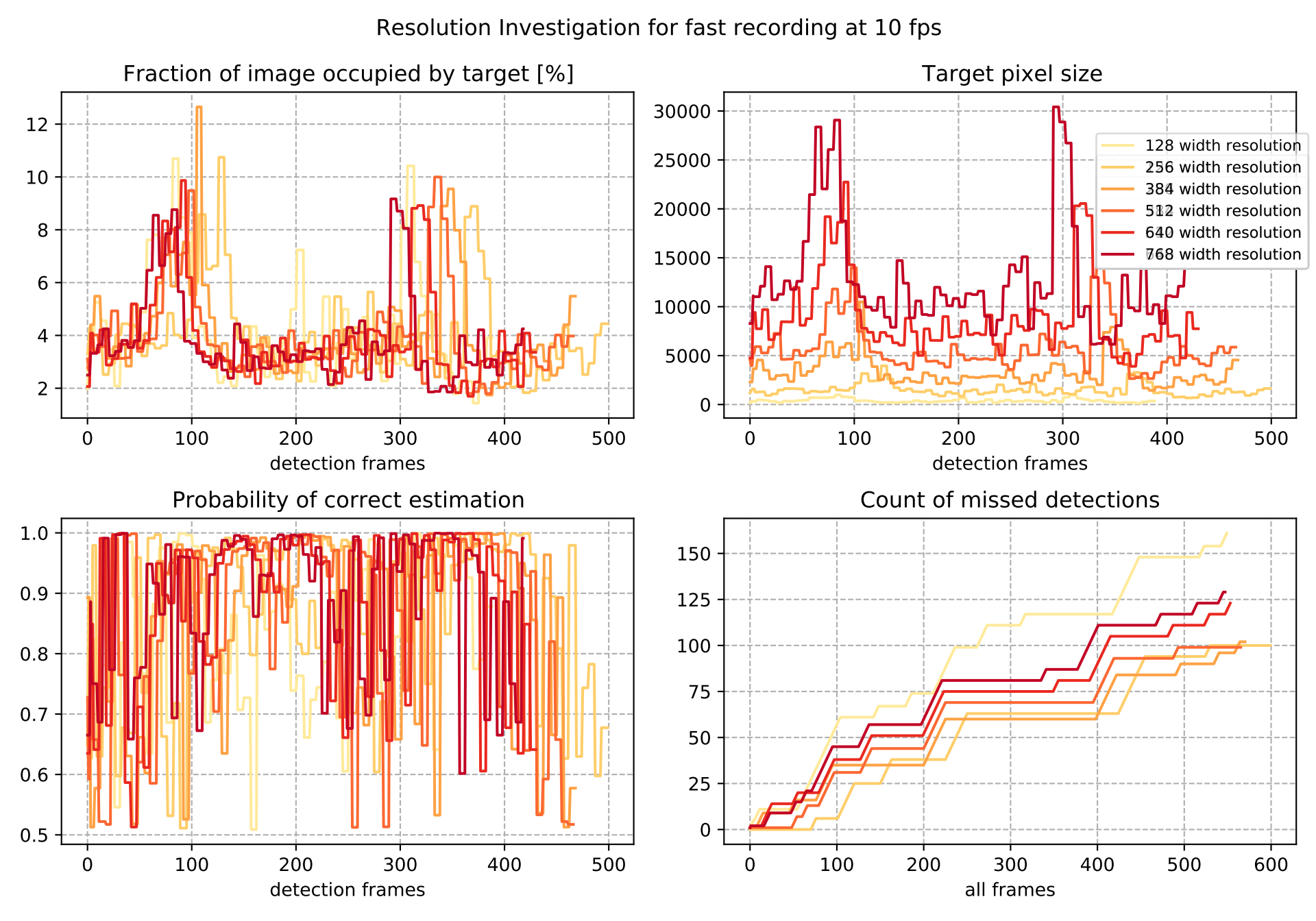

YOLO perception accuracy vs video resolution
1.0
0.8
0.6
0.4
0.2
100
200
300
400
500
600
700
800
Video width resolution [aspect ratio 16:9]
distance 10 fps
distance 30 fps
fast 10 fps
fast 30 fps
close 10 fps
close 30 fps

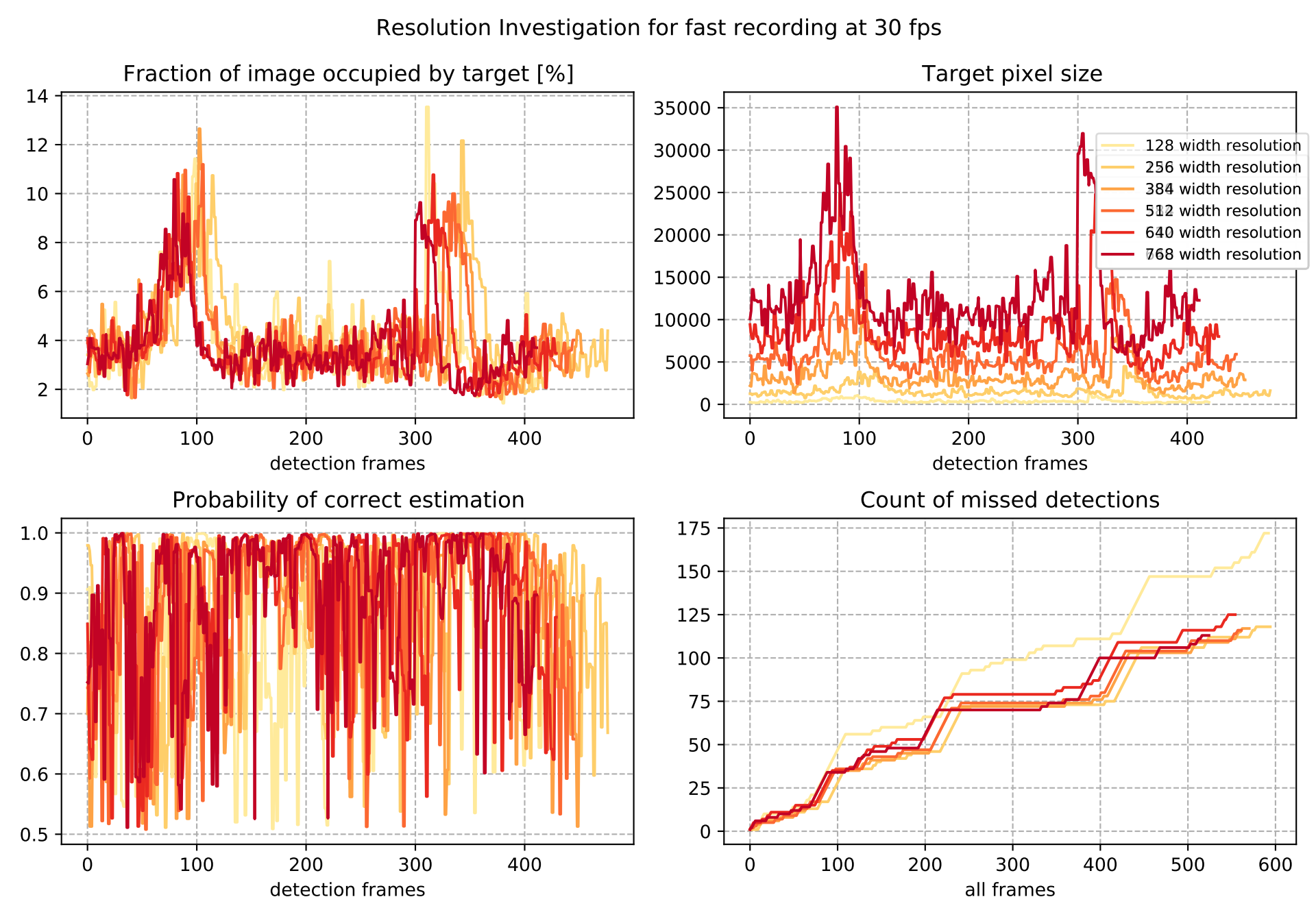

Resolution Investigation for close recording at 10 fps
Fraction of image occupied by target [%]
detection frames
Target pixel size
128 width resolution
256 width resolution
384 width resolution
512 width resolution
640 width resolution
768 width resolution
detection frames
Probability of correct estimation
detection frames
Count of missed detections
all frames


Resolution Investigation for close recording at 30 fps
Fraction of image occupied by target [%]
Target pixel size
Probability of correct estimation
Count of missed detections
detection frames
detection frames
detection frames
all frames
128 width resolution
256 width resolution
384 width resolution
512 width resolution
640 width resolution
768 width resolution

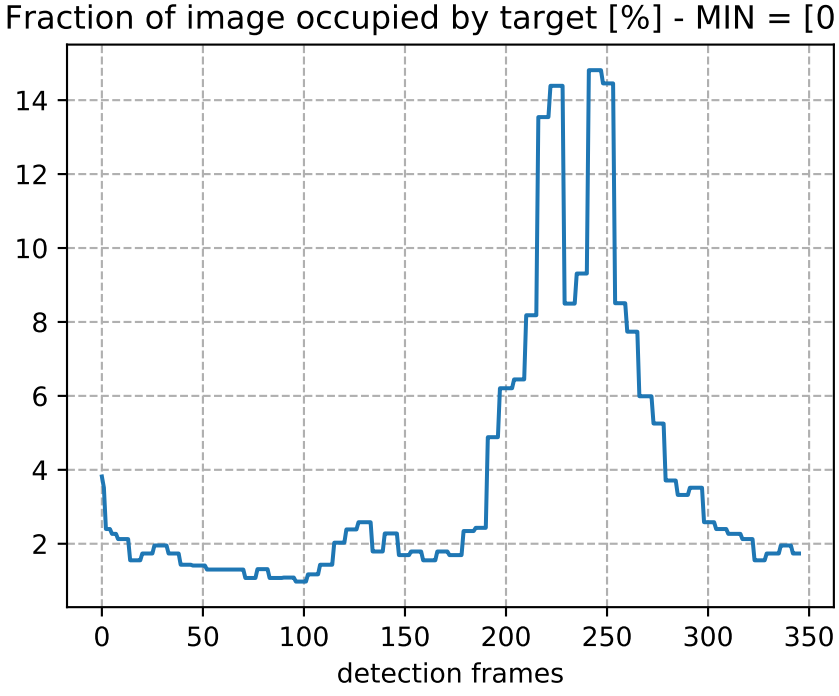

Resolution Investigation for distance recording at 10 fps
Fraction of image occupied by target [%]
detection frames
Target pixel size
detection frames
128 width resolution
256 width resolution
384 width resolution
512 width resolution
640 width resolution
768 width resolution
Probability of correct estimation
detection frames
Count of missed detections
all frames

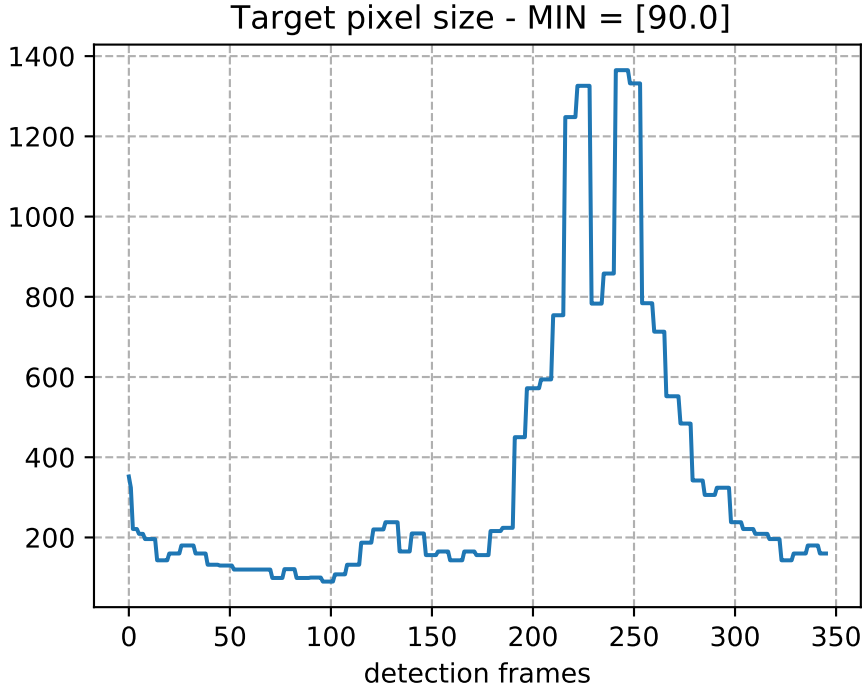

Resolution Investigation for distance recording at 30 fps
Fraction of image occupied by target [%]
Target pixel size
Probability of correct estimation
Count of missed detections
detection frames
detection frames
detection frames
all frames
128 width resolution
256 width resolution
384 width resolution
512 width resolution
640 width resolution
768 width resolution

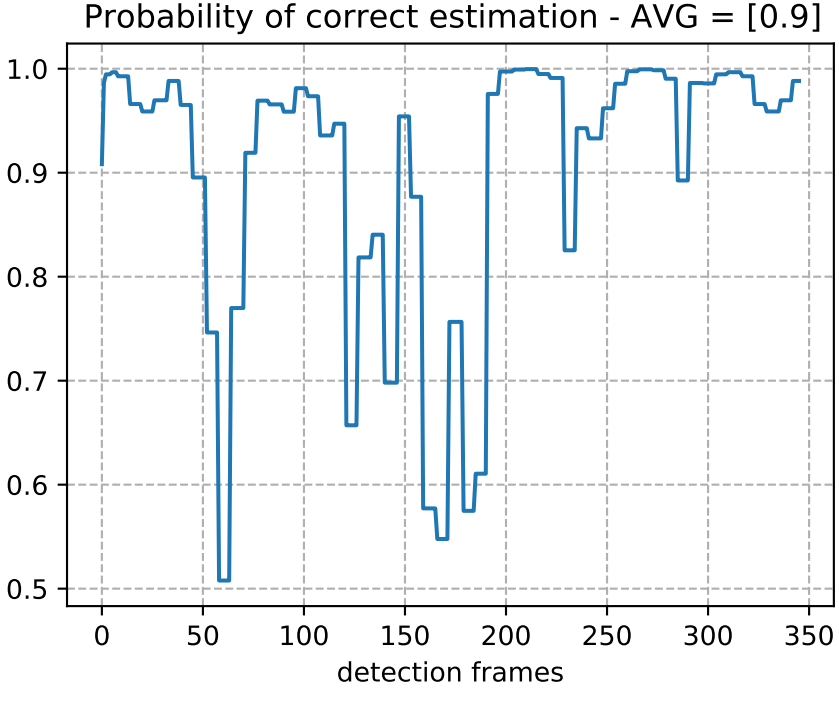

Resolution Investigation for fast recording at 10 fps
Fraction of image occupied by target [%]
detection frames
Target pixel size
128 width resolution
256 width resolution
384 width resolution
512 width resolution
640 width resolution
768 width resolution
detection frames
Probability of correct estimation
detection frames
Count of missed detections
all frames

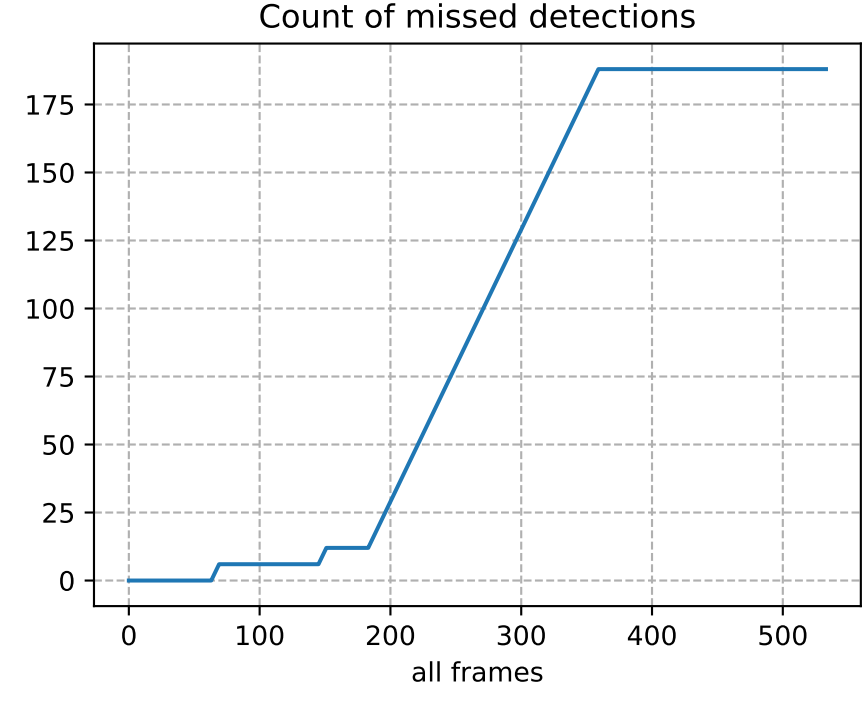

Resolution Investigation for fast recording at 30 fps
Fraction of image occupied by target [%]
detection frames
Target pixel size
128 width resolution
256 width resolution
384 width resolution
512 width resolution
640 width resolution
768 width resolution
detection frames
Probability of correct estimation
detection frames
Count of missed detections
all frames

Performance Report for close-128-10-bb.csv - ACC = [0.65%]

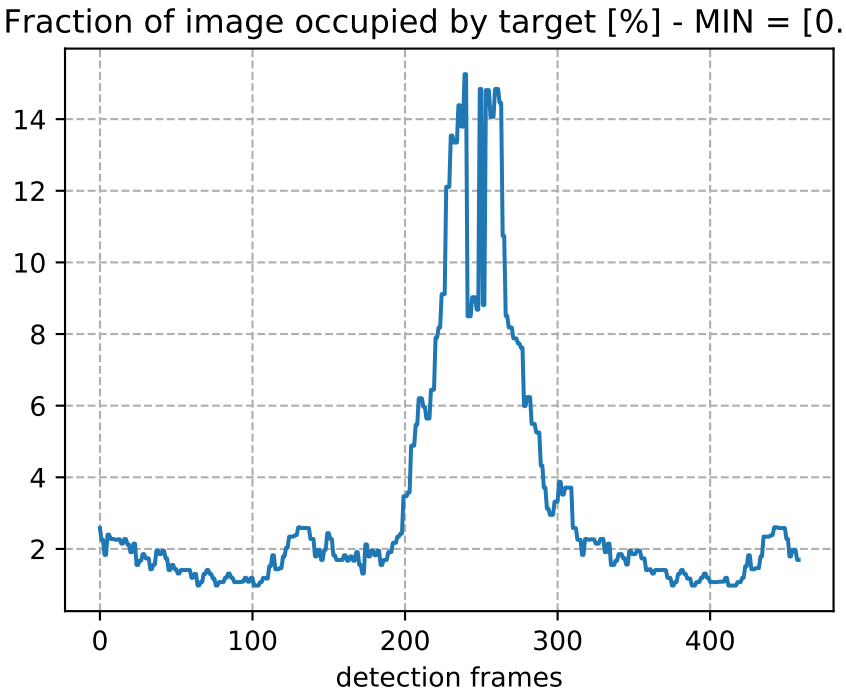


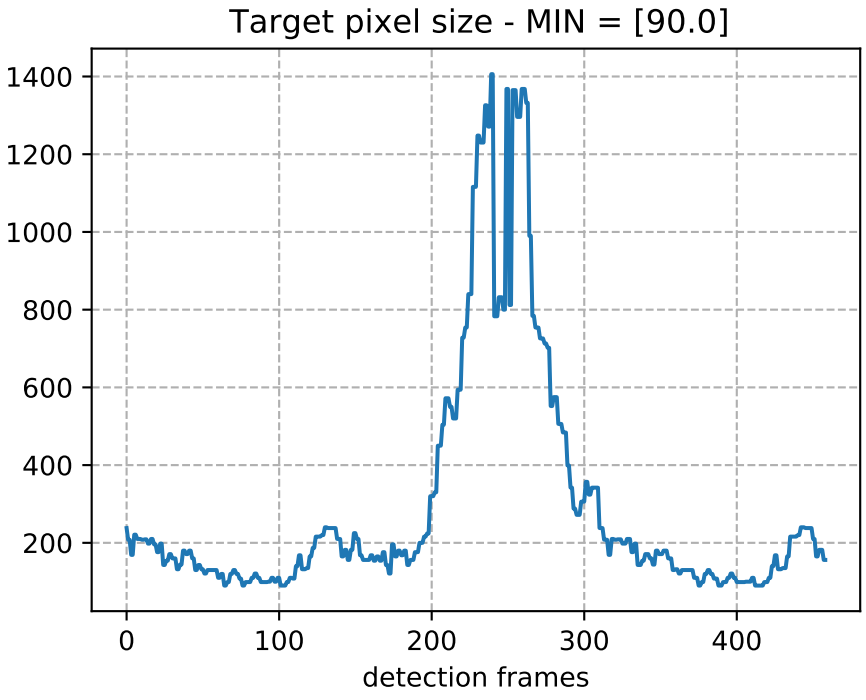


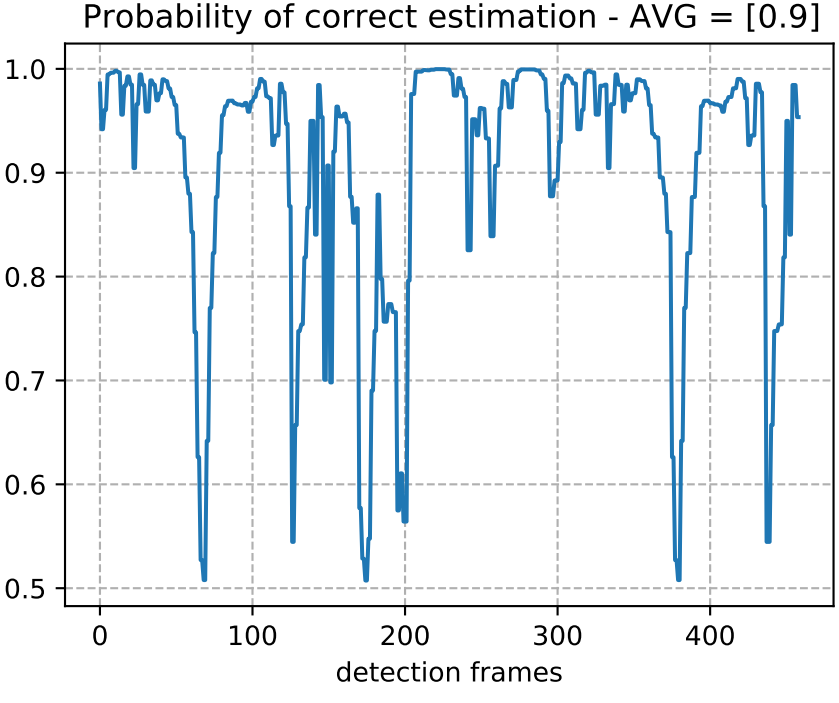


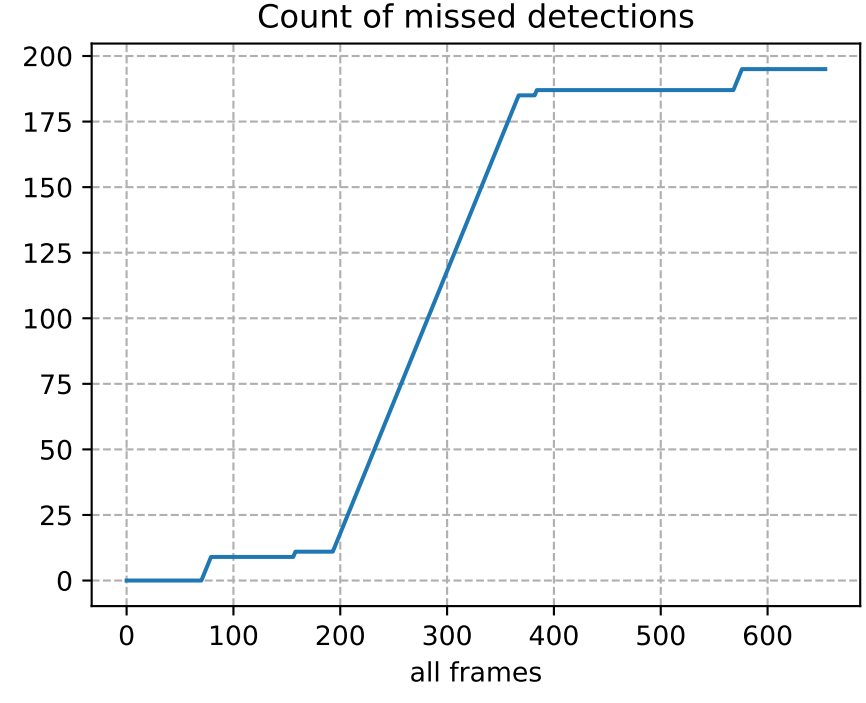


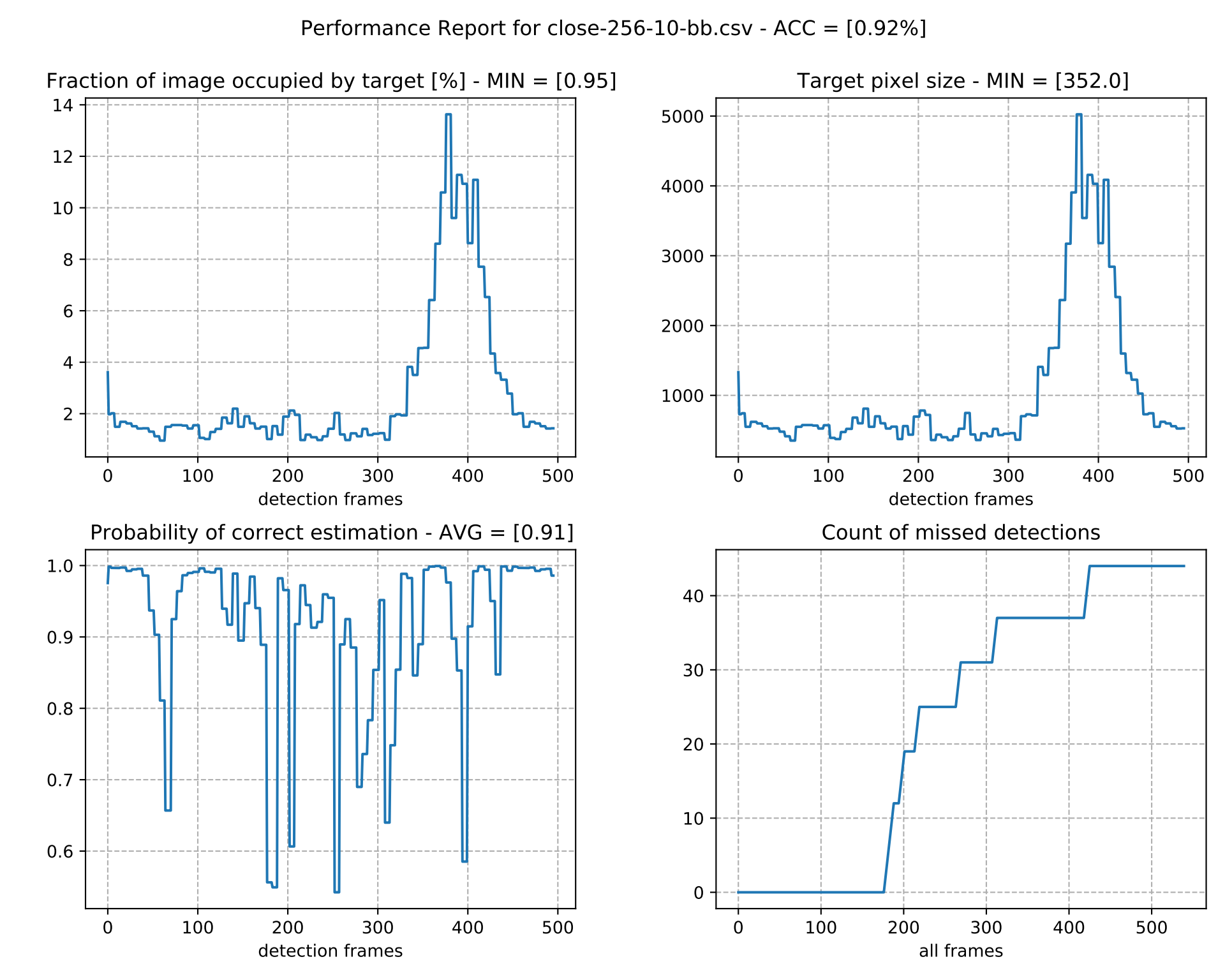
Performance Report for close-128-30-bb.csv - ACC = [0.7%]

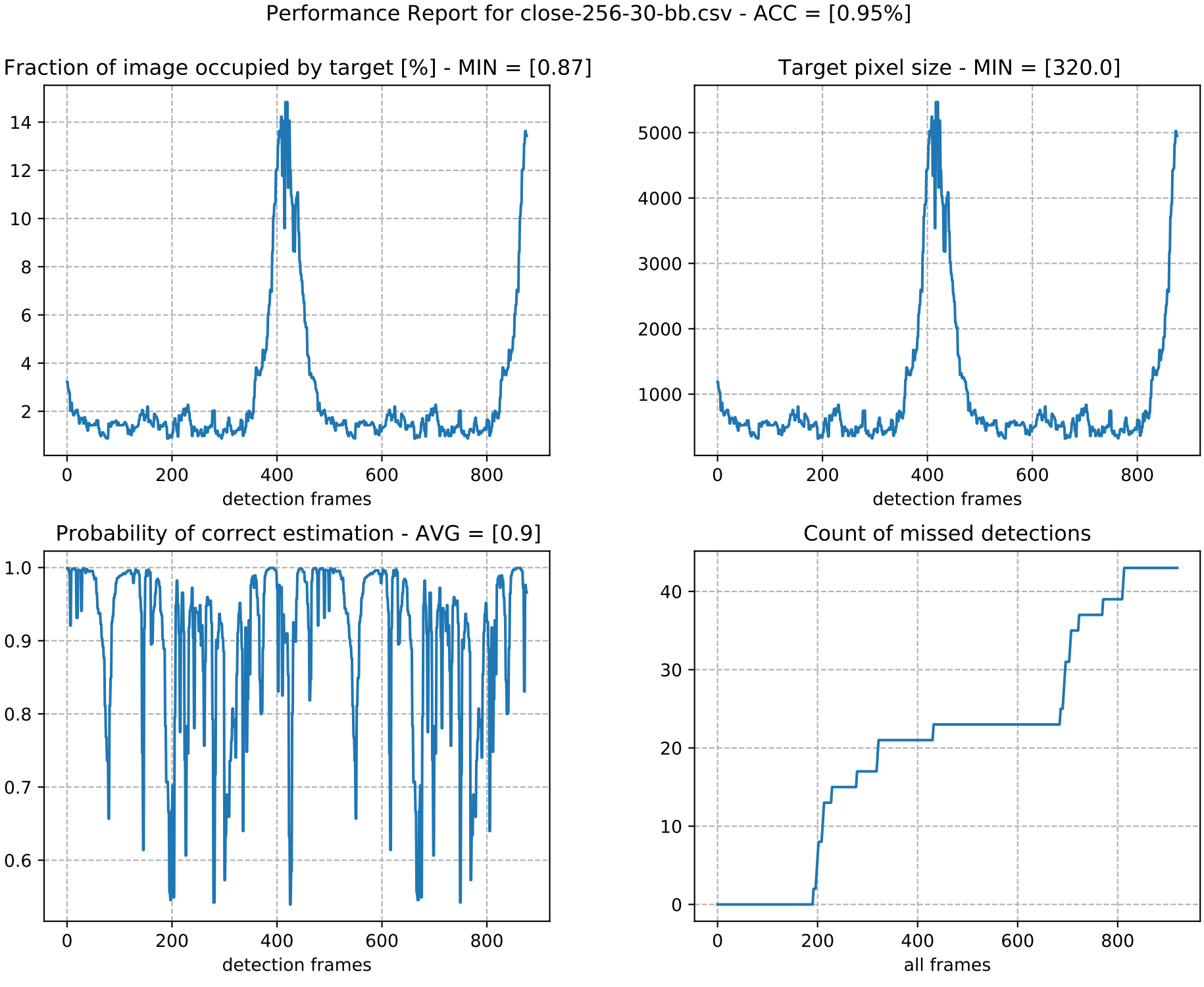


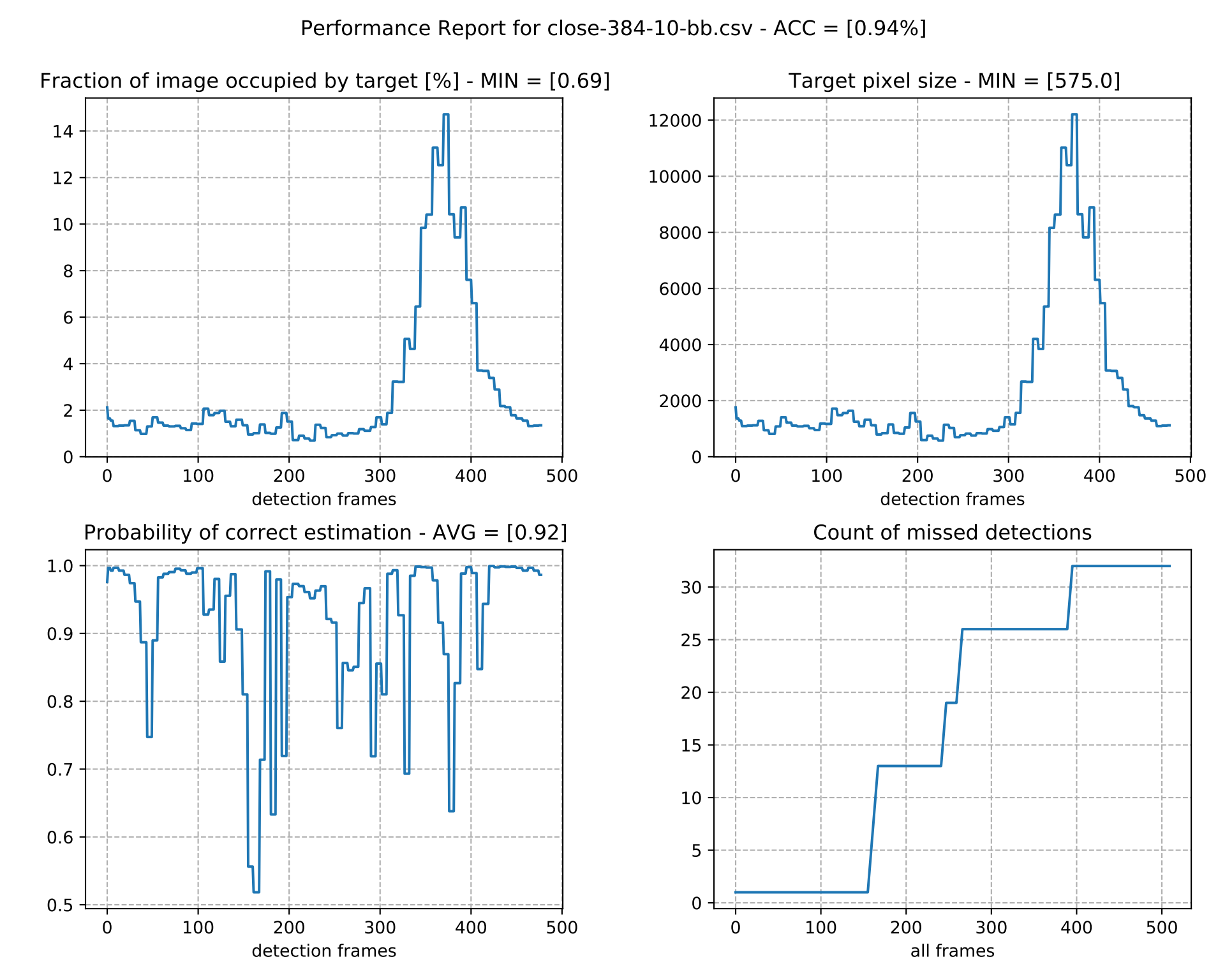


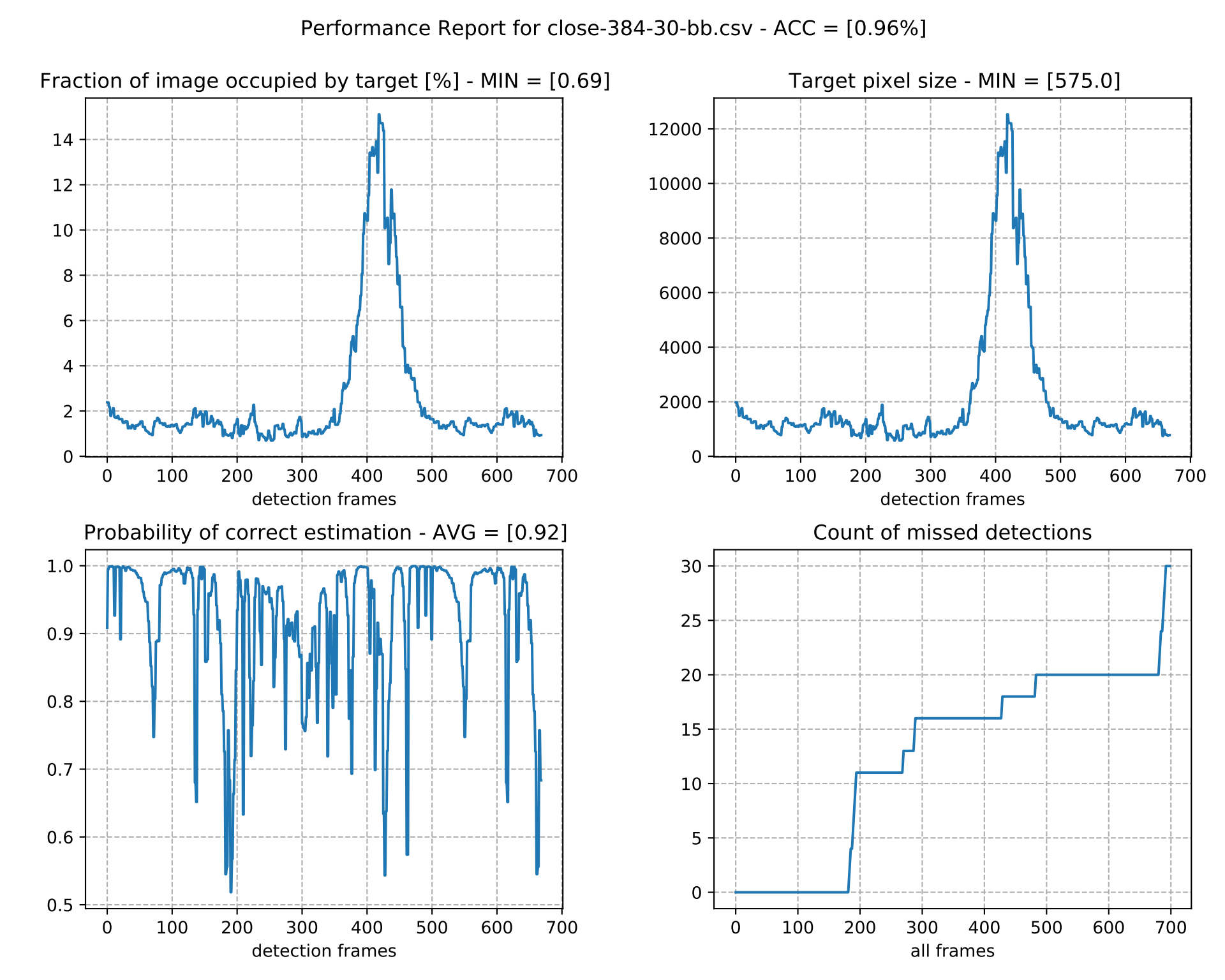




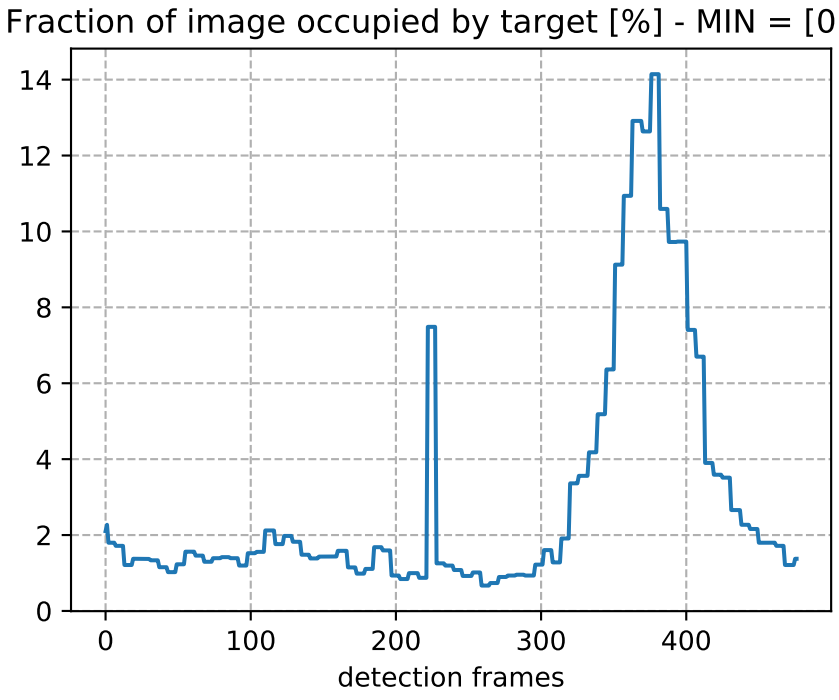

Performance Report for close-256-10-bb.csv - ACC = [0.92%]
Fraction of image occupied by target [%] - MIN = [0.95]
14
12
10
8
6
4
2
0
100
200
300
400
500
detection frames
Target pixel size - MIN = [352.0]
5000
4000
3000
2000
1000
0
100
200
300
400
500
detection frames
Probability of correct estimation - AVG = [0.91]
1.0
0.9
0.8
0.7
0.6
0
100
200
300
400
500
detection frames
Count of missed detections
40
30
20
10
0
0
100
200
300
400
500
all frames

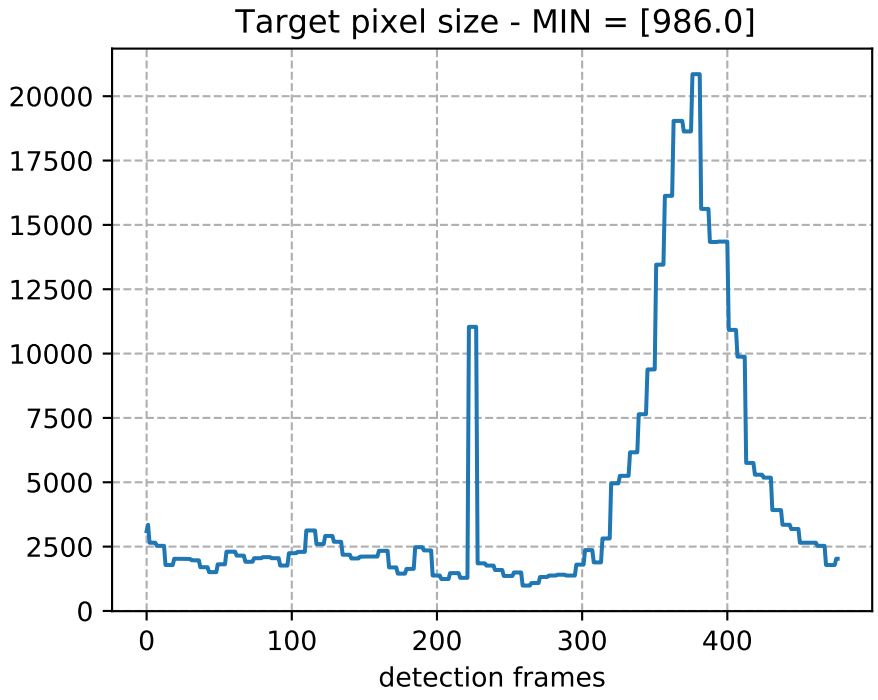

Performance Report for close-256-30-bb.csv - ACC = [0.95%]
Fraction of image occupied by target [%] - MIN = [0.87]
14
12
10
8
6
4
2
0
200
400
600
800
detection frames
Target pixel size - MIN = [320.0]
5000
4000
3000
2000
1000
0
200
400
600
800
detection frames
Probability of correct estimation - AVG = [0.9]
1.0
0.9
0.8
0.7
0.6
0
200
400
600
800
detection frames
Count of missed detections
40
30
20
10
0
0
200
400
600
800
all frames

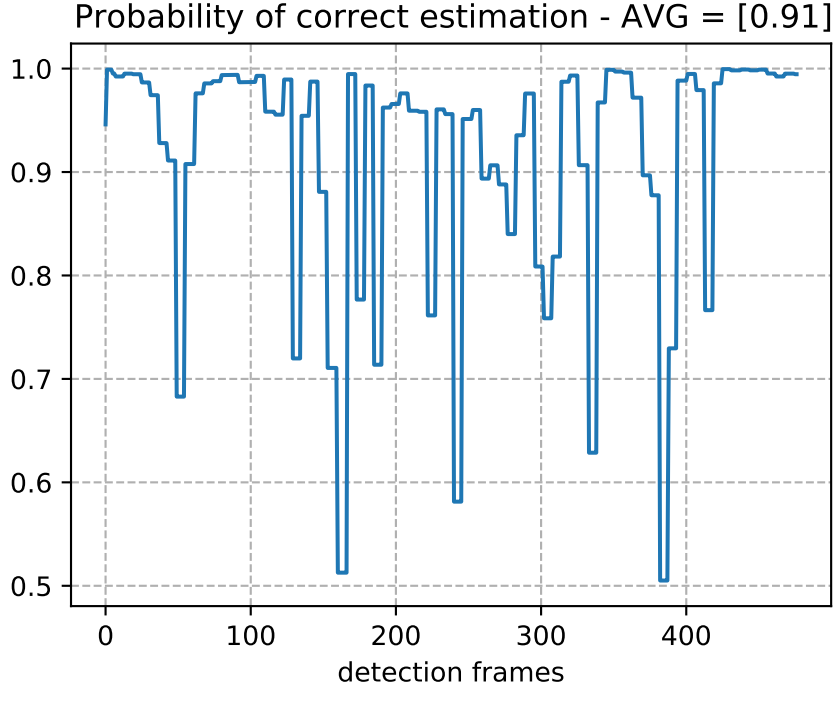

Performance Report for close-384-10-bb.csv - ACC = [0.94%]
Fraction of image occupied by target [%] - MIN = [0.69]
detection frames
Target pixel size - MIN = [575.0]
detection frames
Probability of correct estimation - AVG = [0.92]
detection frames
Count of missed detections
all frames

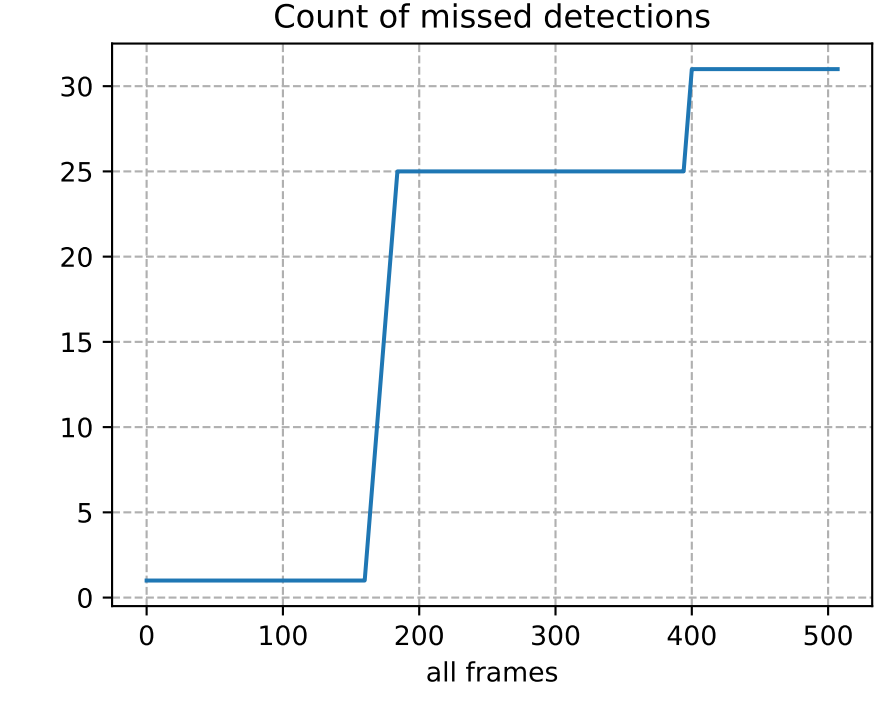

Performance Report for close-384-30-bb.csv - ACC = [0.96%]
Fraction of image occupied by target [%] - MIN = [0.69]
detection frames
Target pixel size - MIN = [575.0]
detection frames
Probability of correct estimation - AVG = [0.92]
detection frames
Count of missed detections
all frames

Performance Report for close-512-10-bb.csv - ACC = [0.94%]

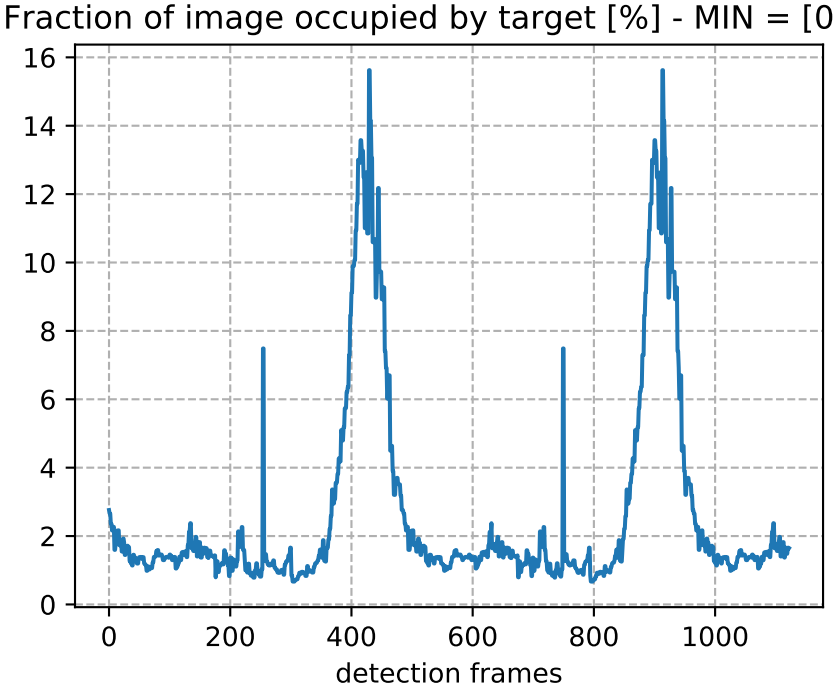


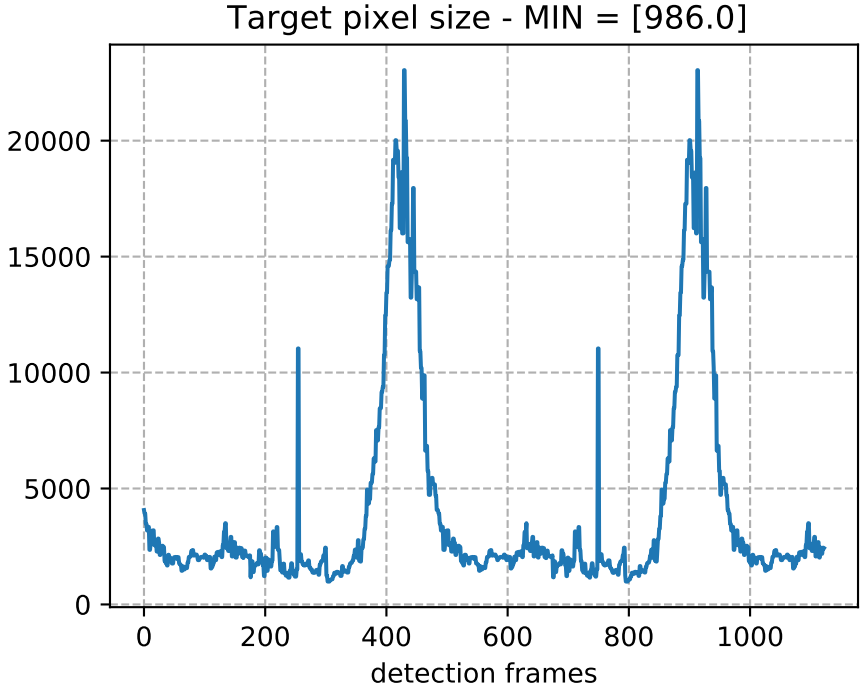


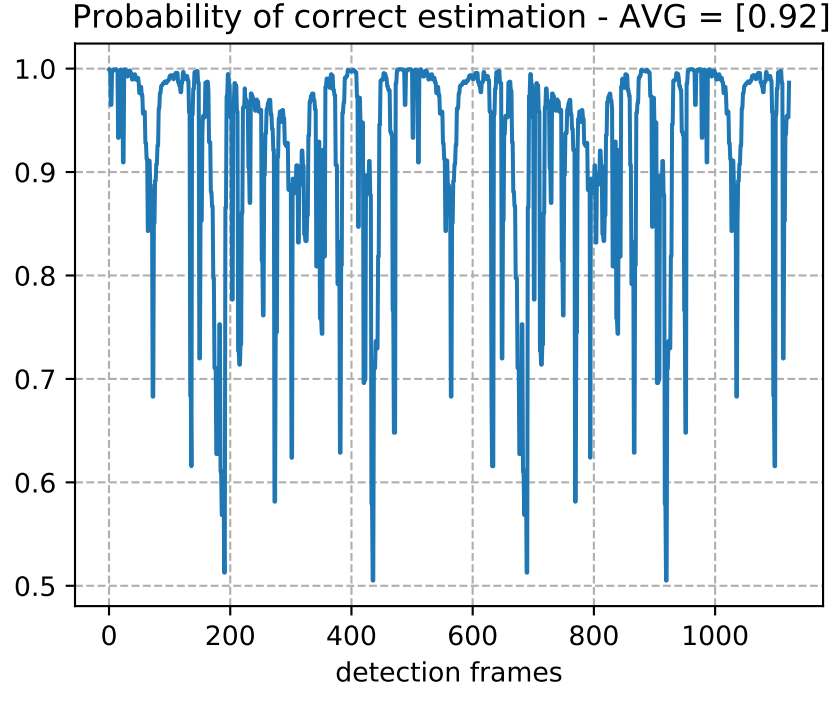


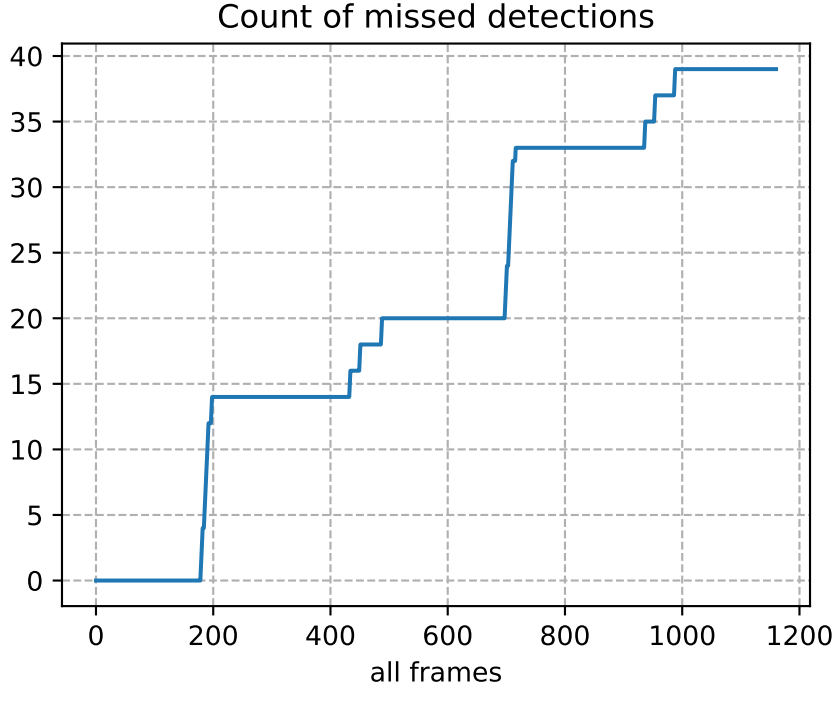


Performance Report for close-512-30-bb.csv - ACC = [0.97%]

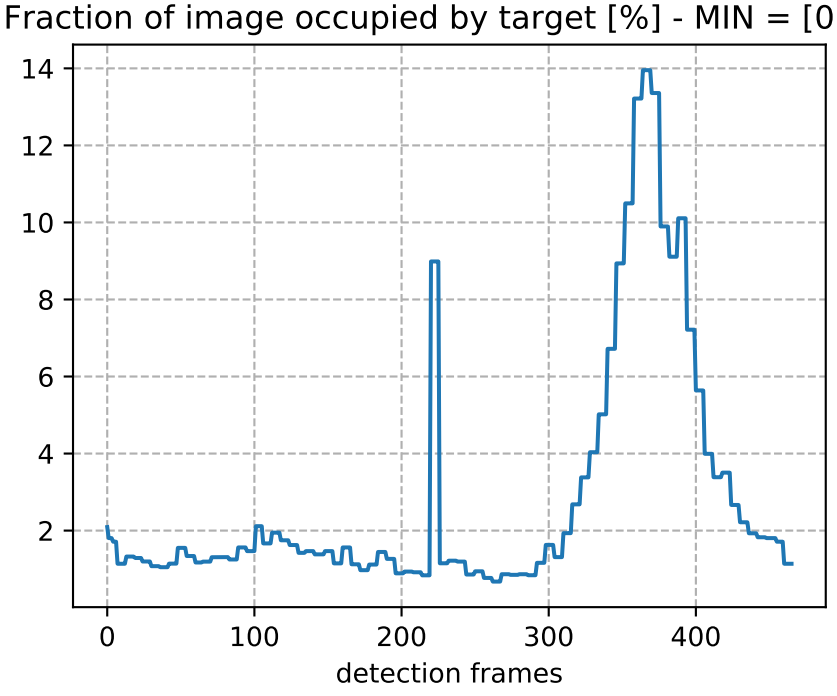


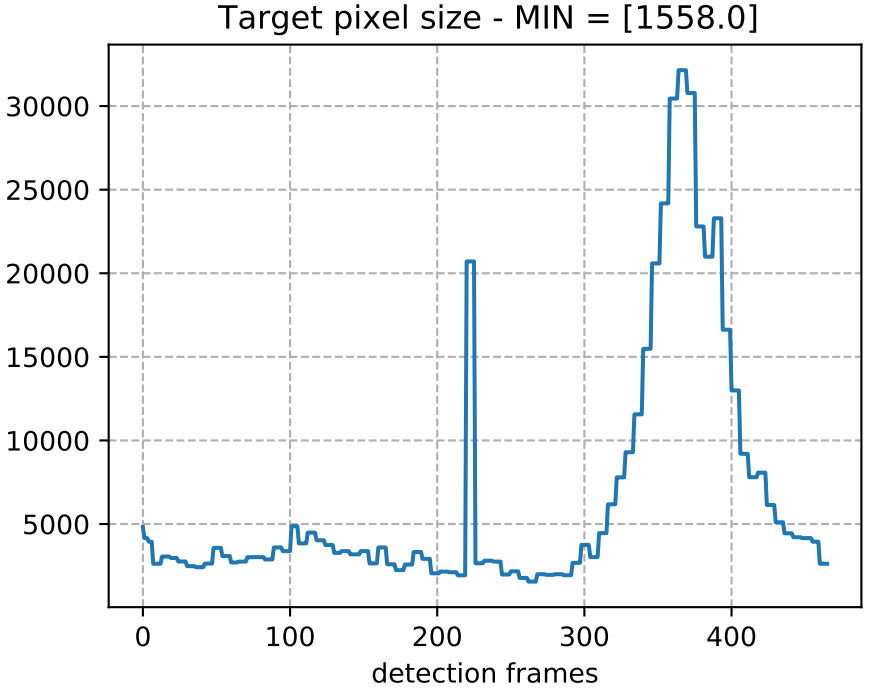


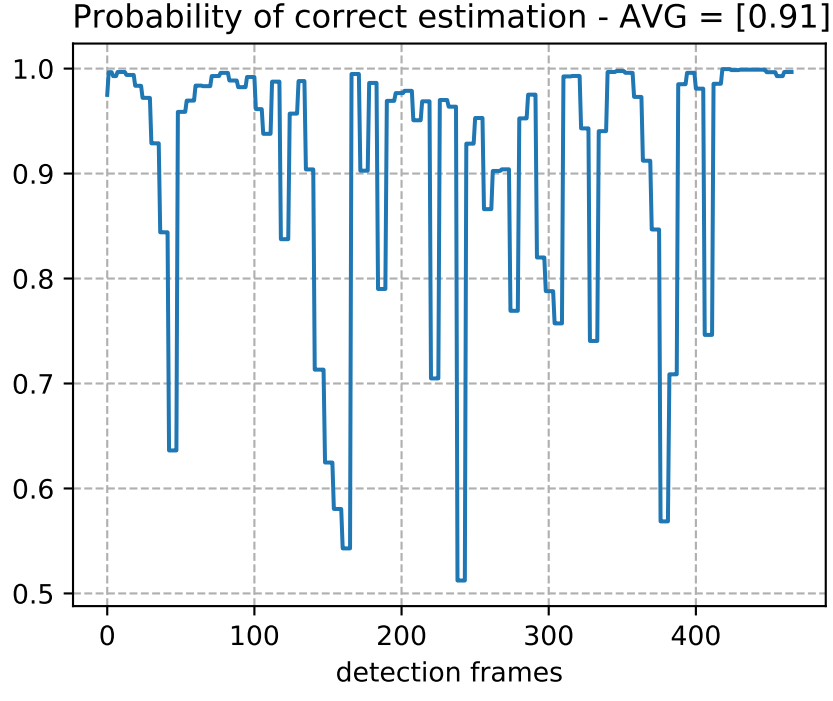


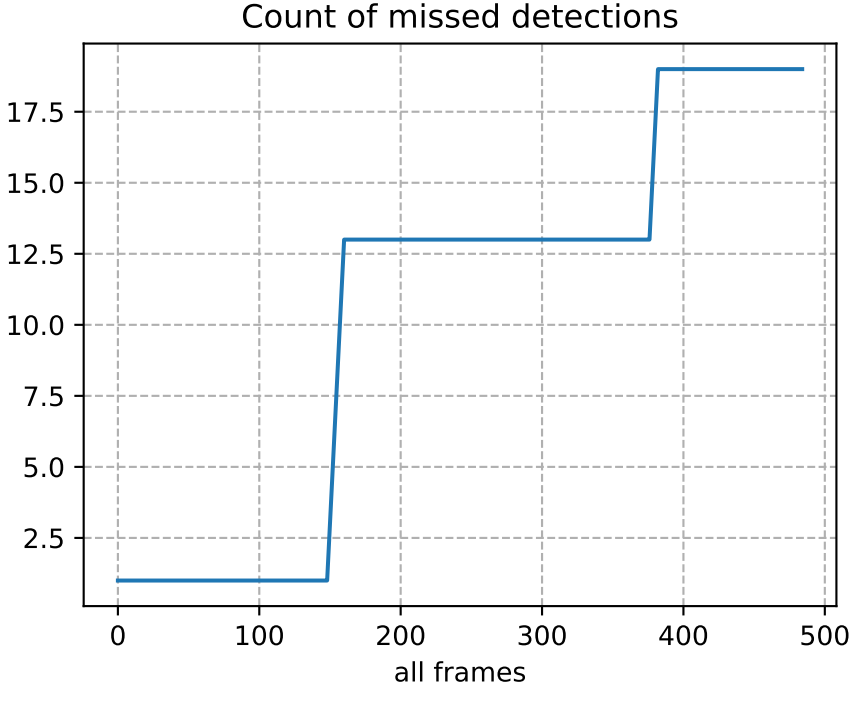


Performance Report for close-640-10-bb.csv - ACC = [0.96%]

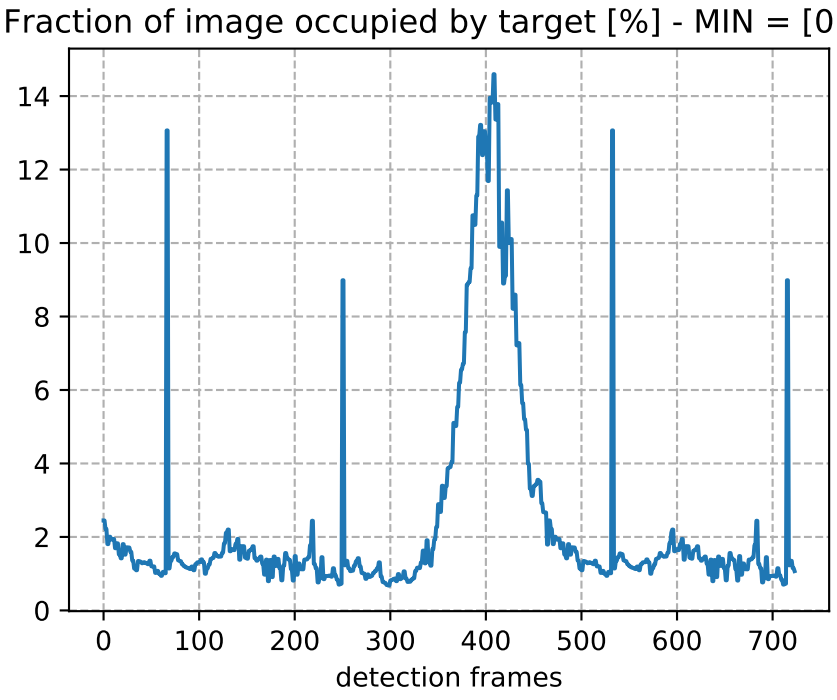


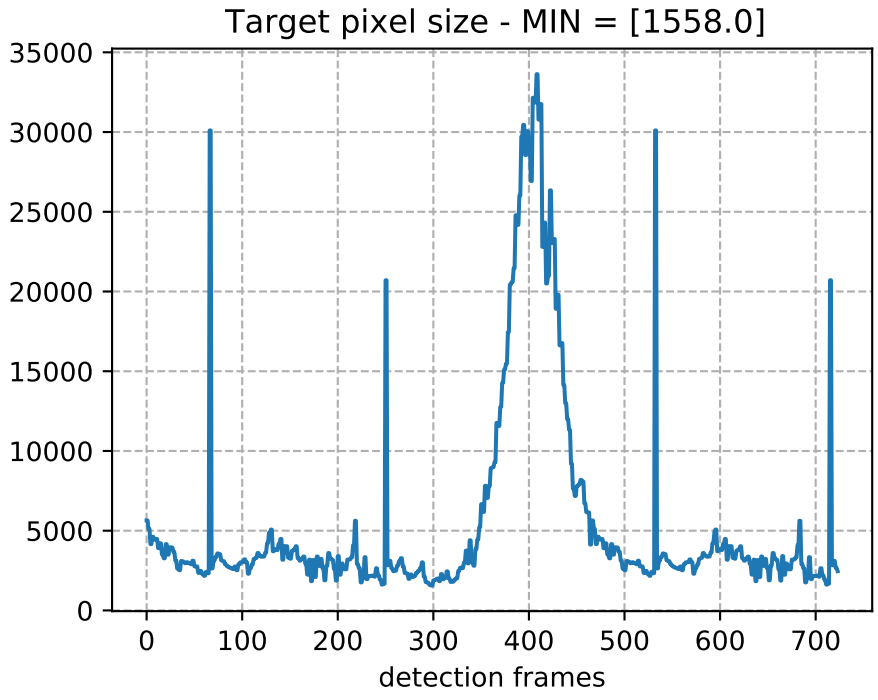


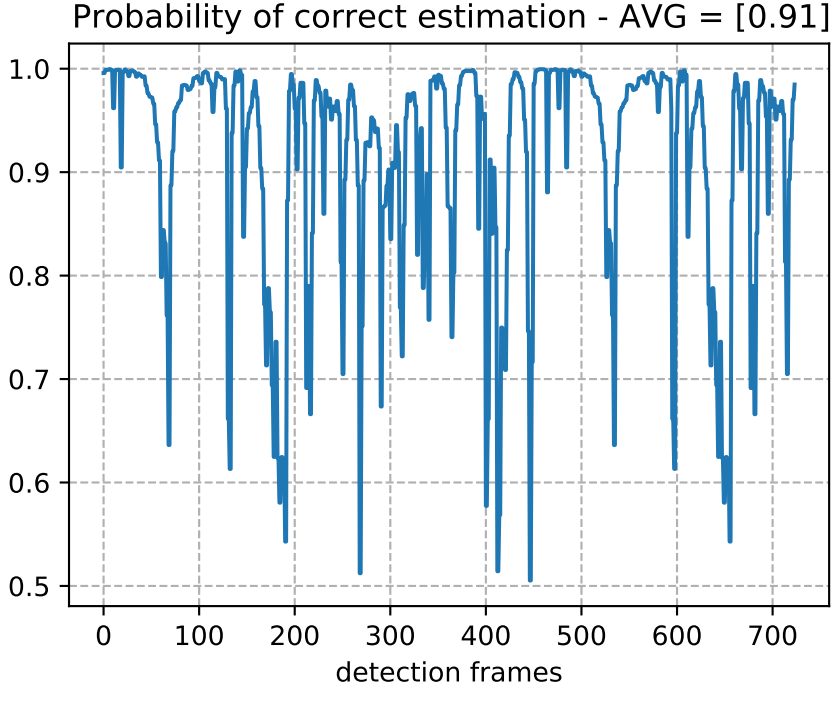


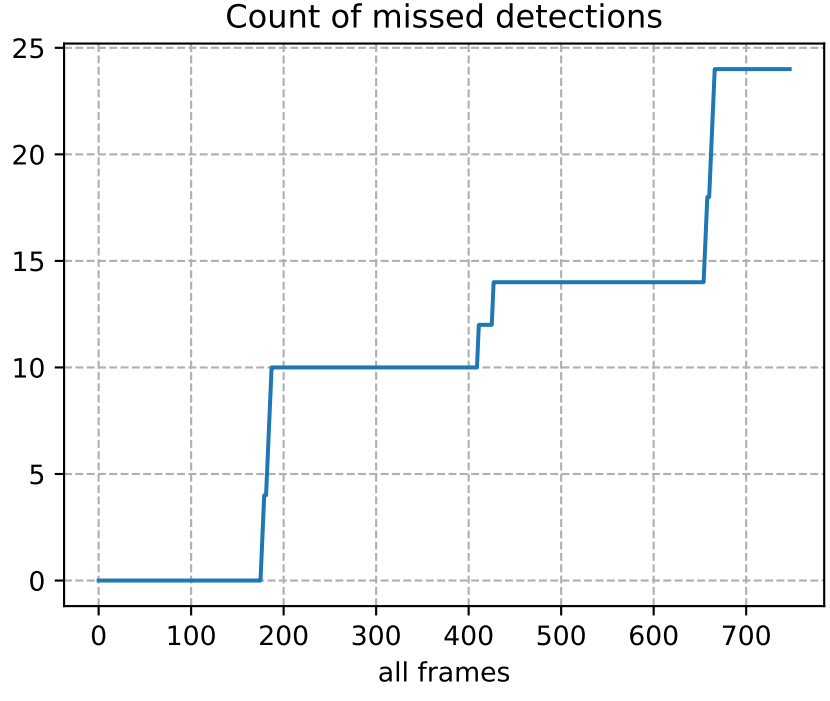


Performance Report for close-640-30-bb.csv - ACC = [0.97%]

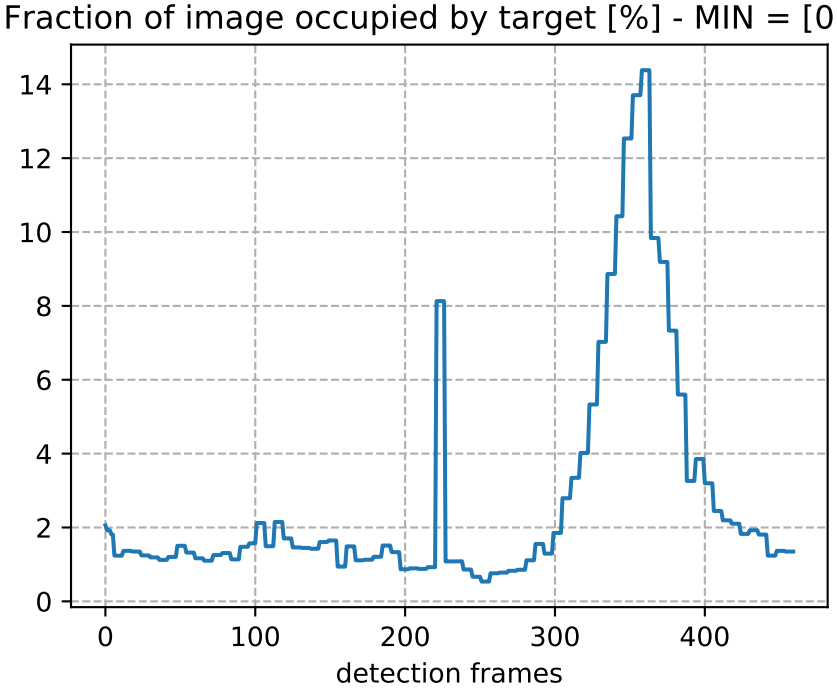


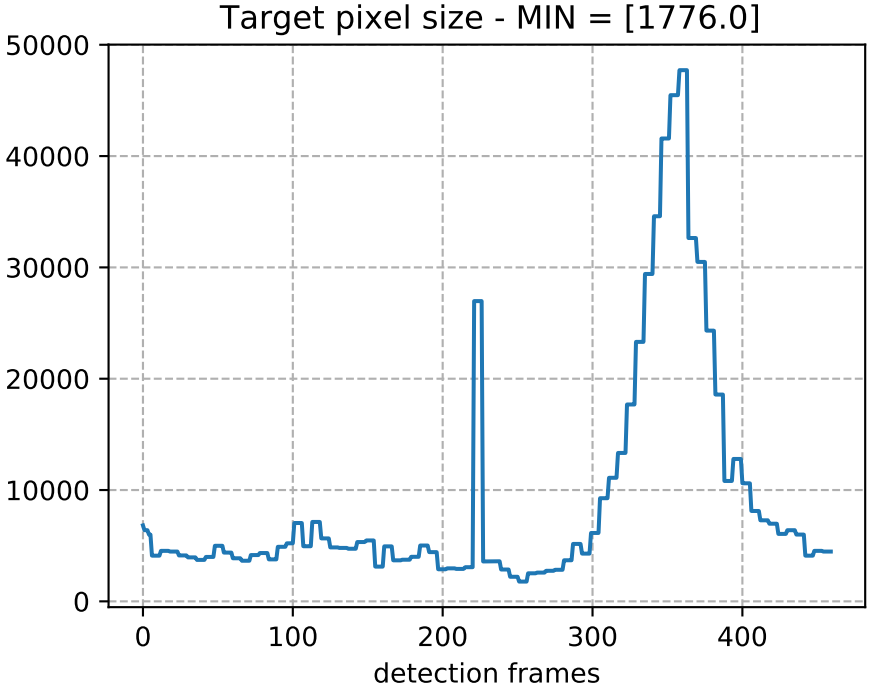


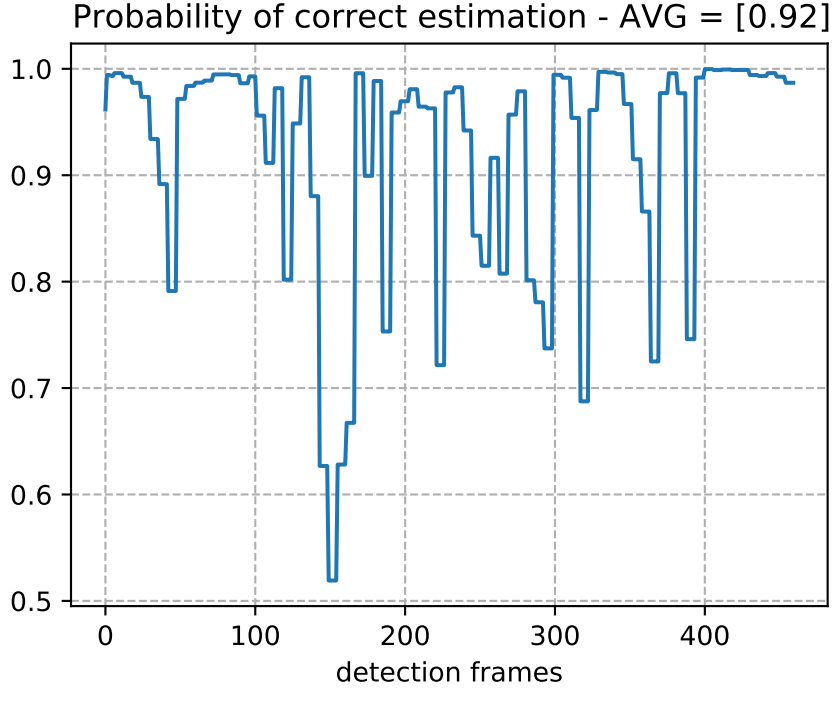


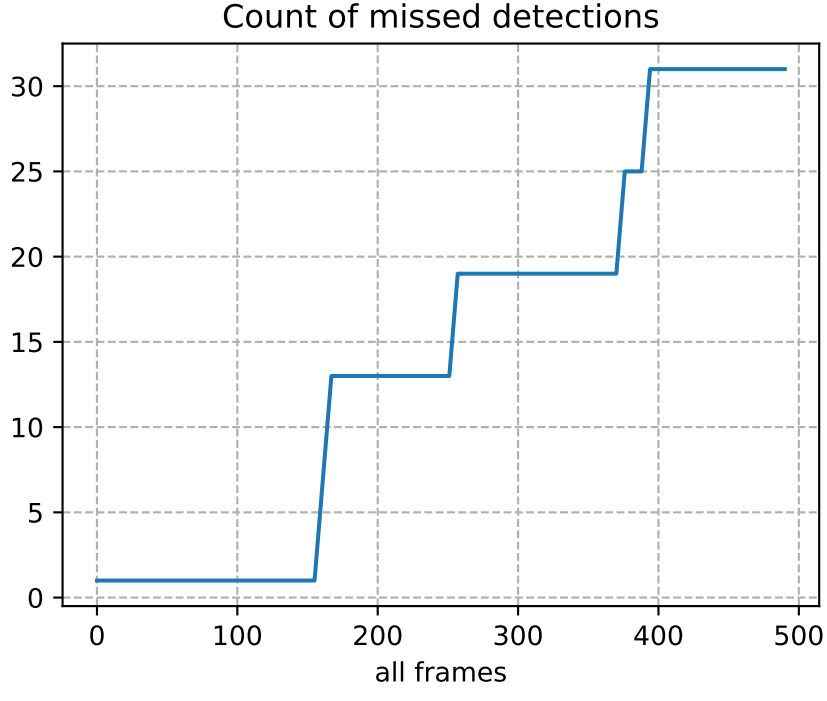


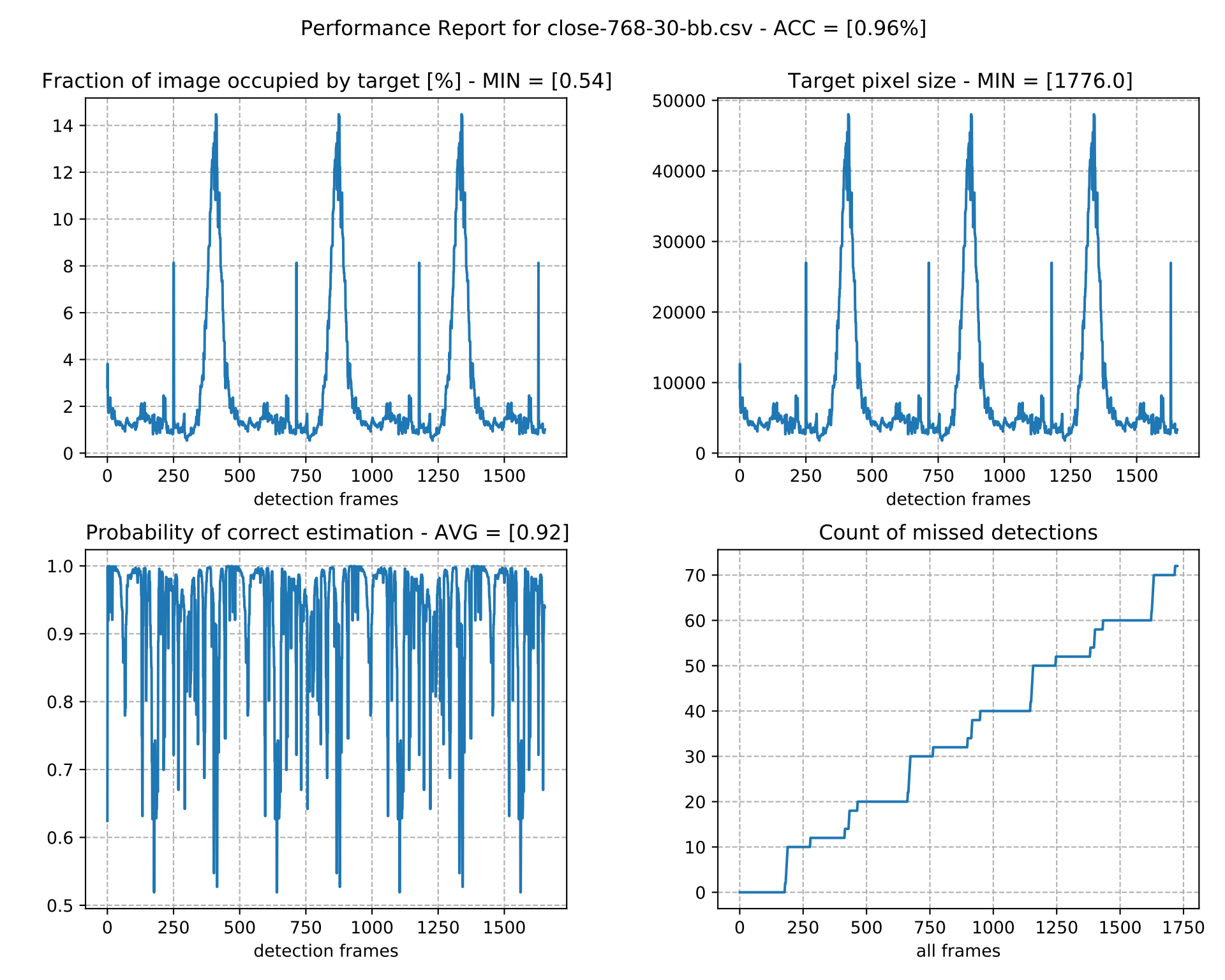
Performance Report for close-768-10-bb.csv - ACC = [0.94%]



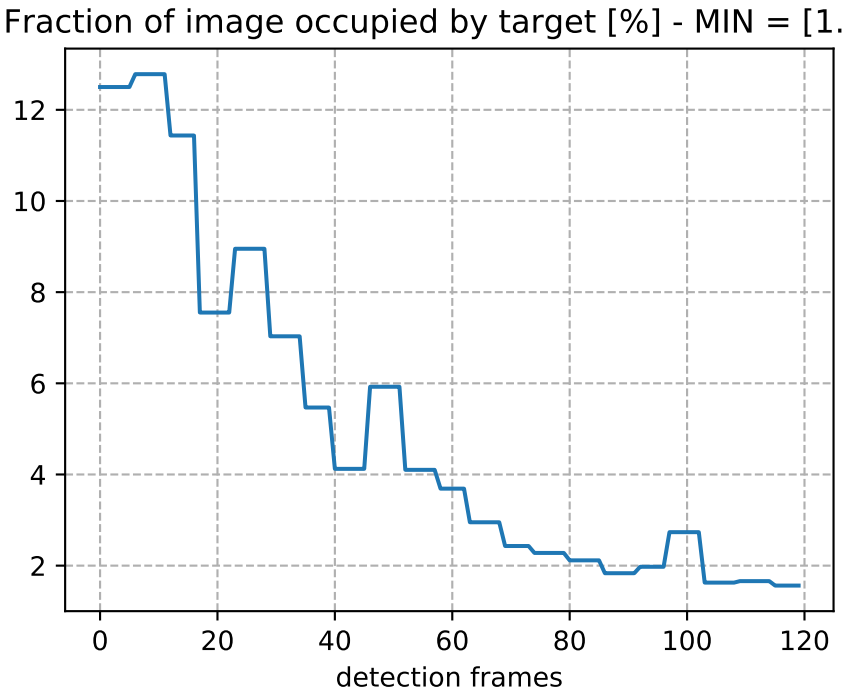


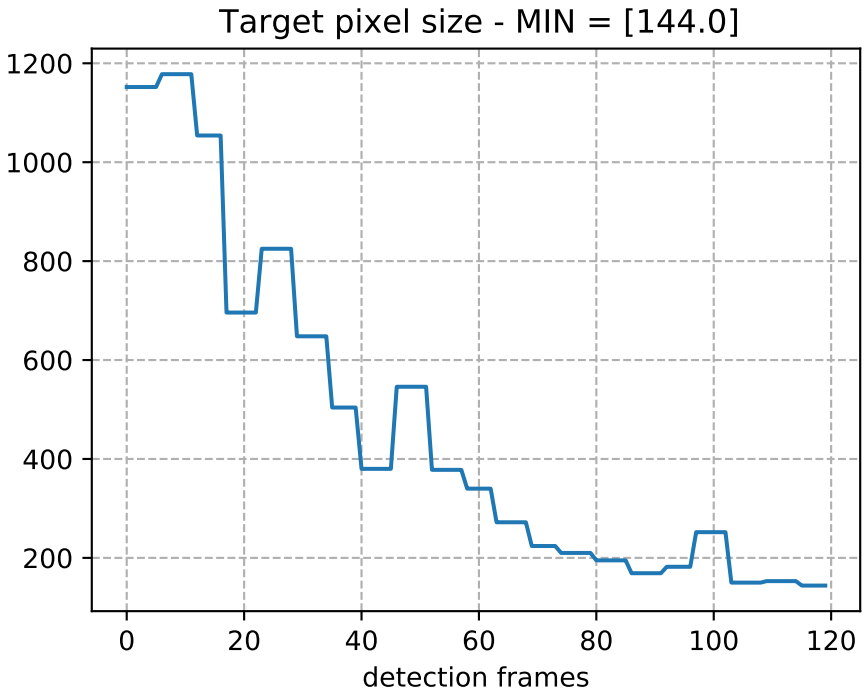


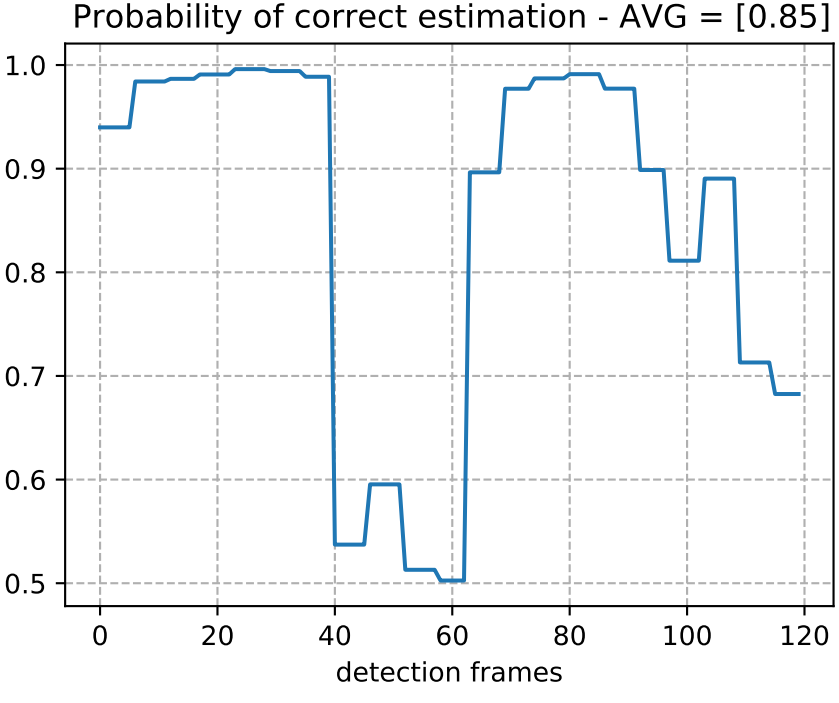


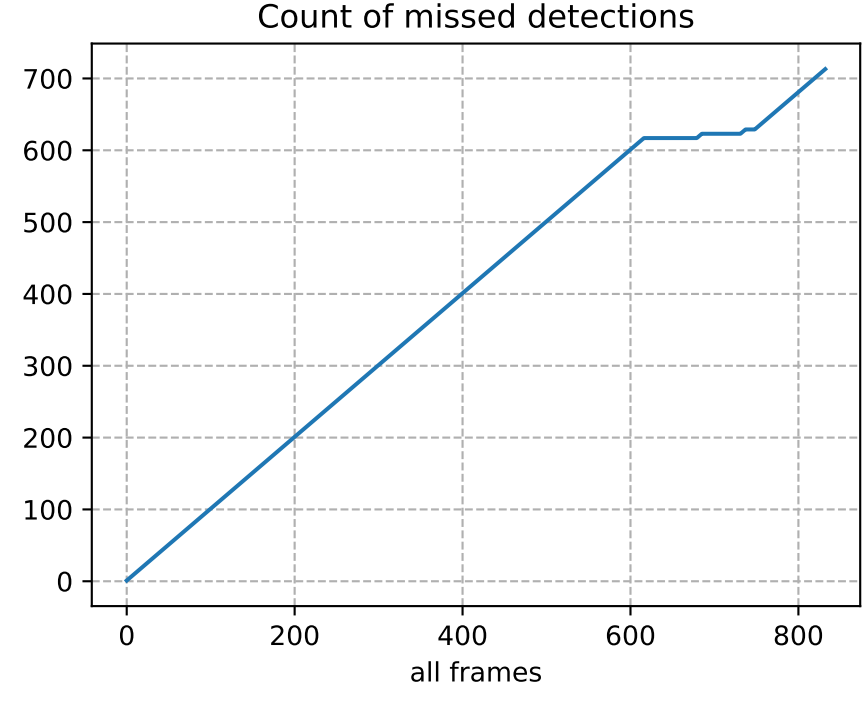

Performance Report for close-768-30-bb.csv - ACC = [0.96%]
Fraction of image occupied by target [%] - MIN = [0.54]
detection frames
Target pixel size - MIN = [1776.0]
detection frames
Probability of correct estimation - AVG = [0.92]
detection frames
Count of missed detections
all frames

Performance Report for distance-128-10-bb.csv - ACC = [0.14%]

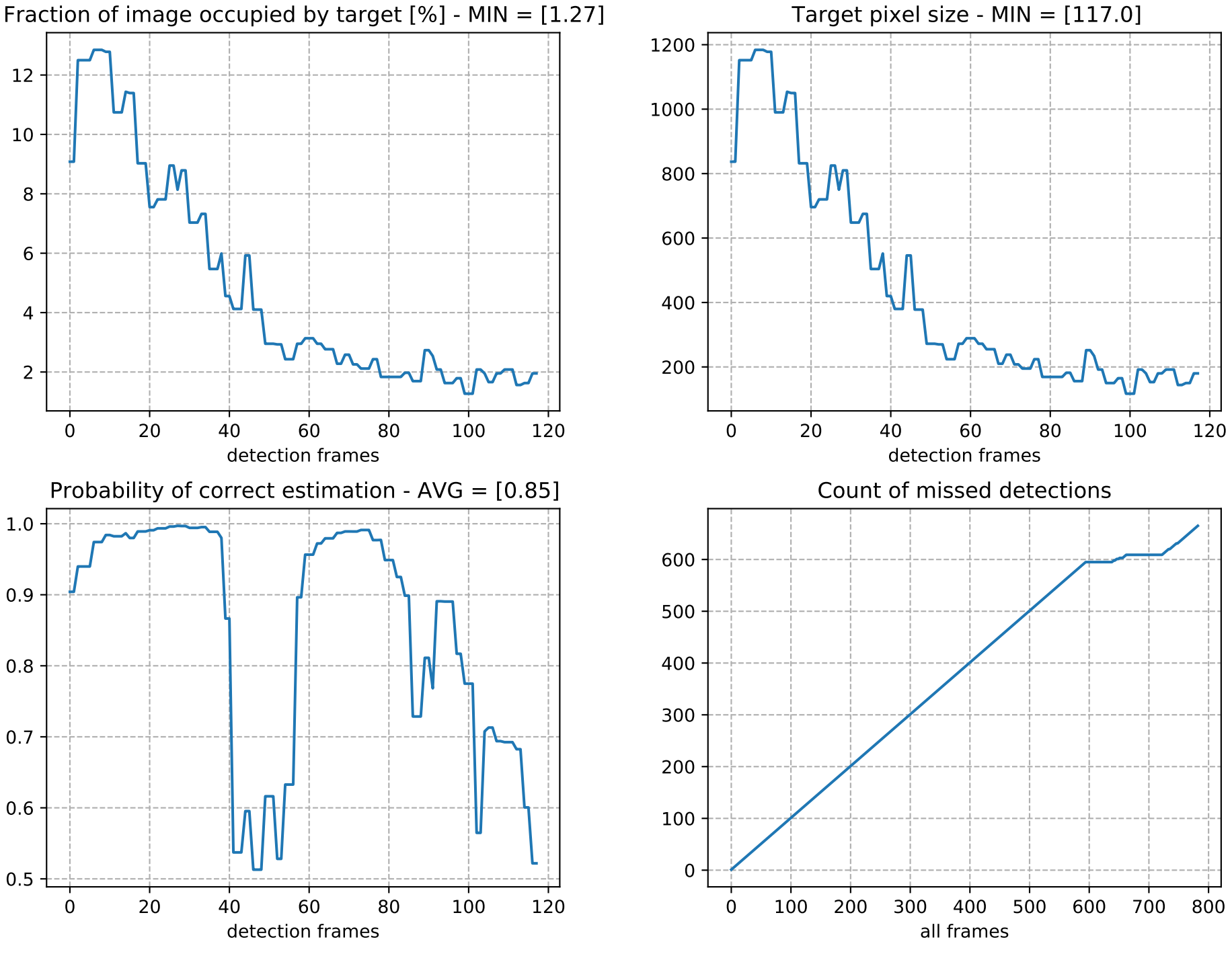


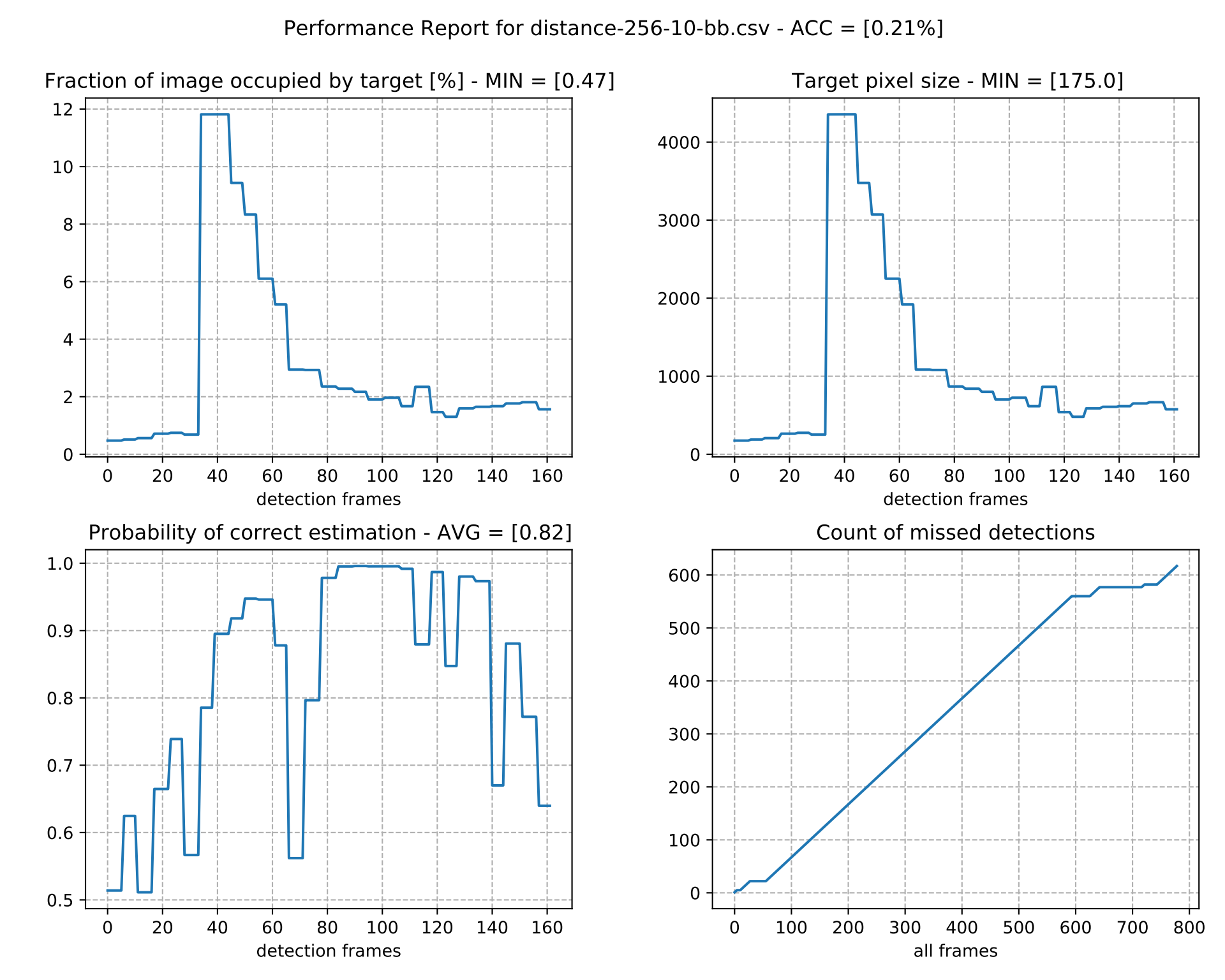




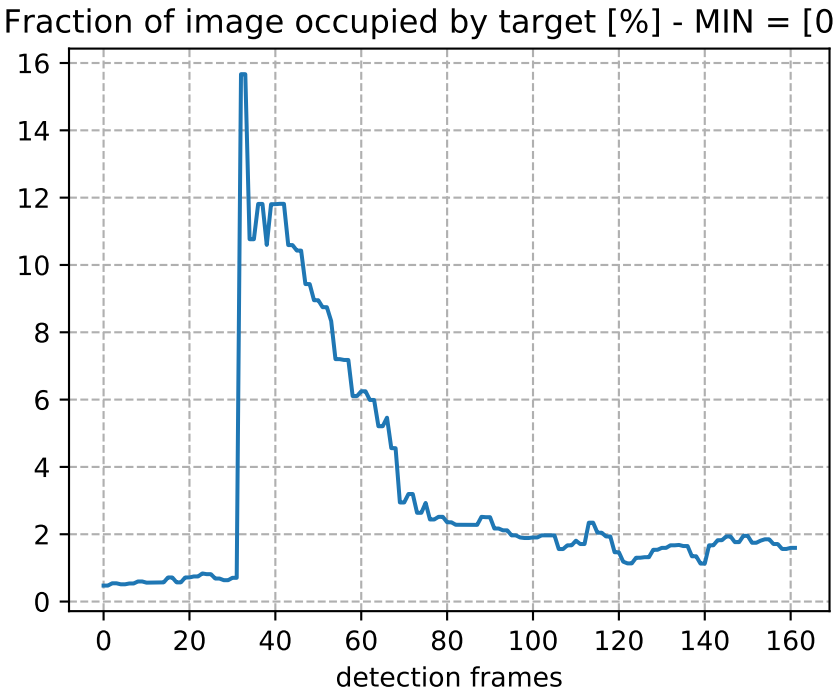


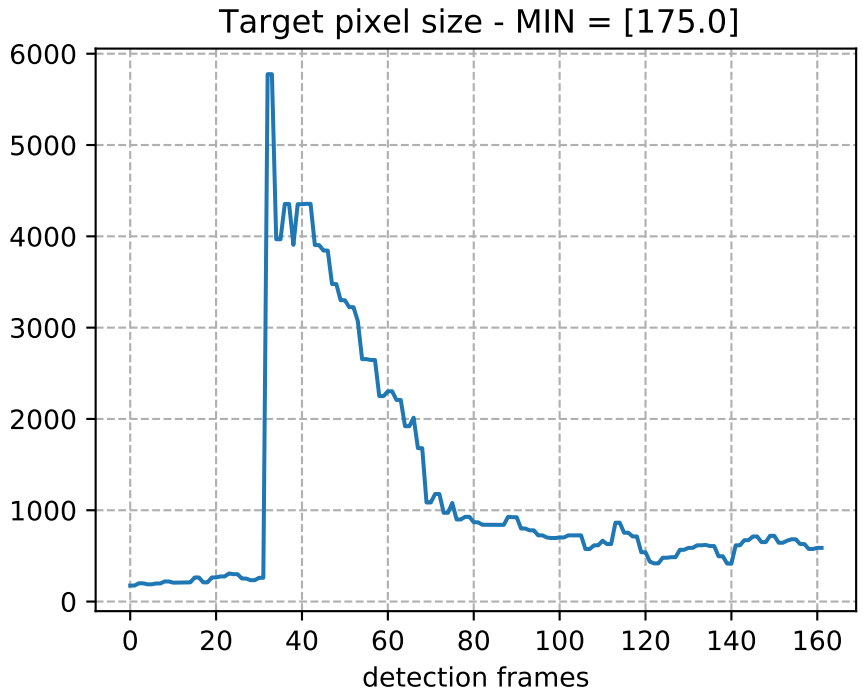
Performance Report for distance-128-30-bb.csv - ACC = [0.15%]

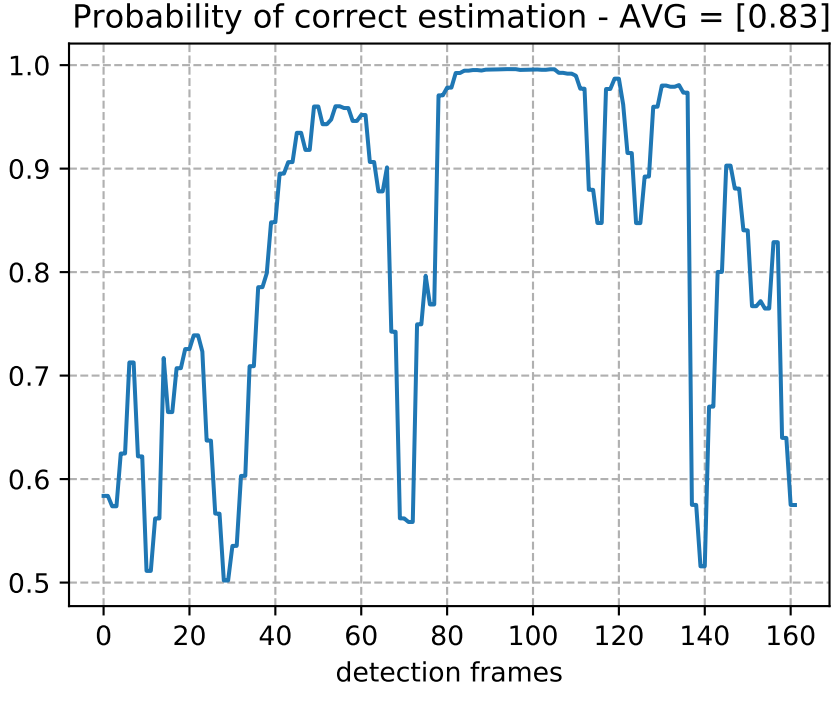


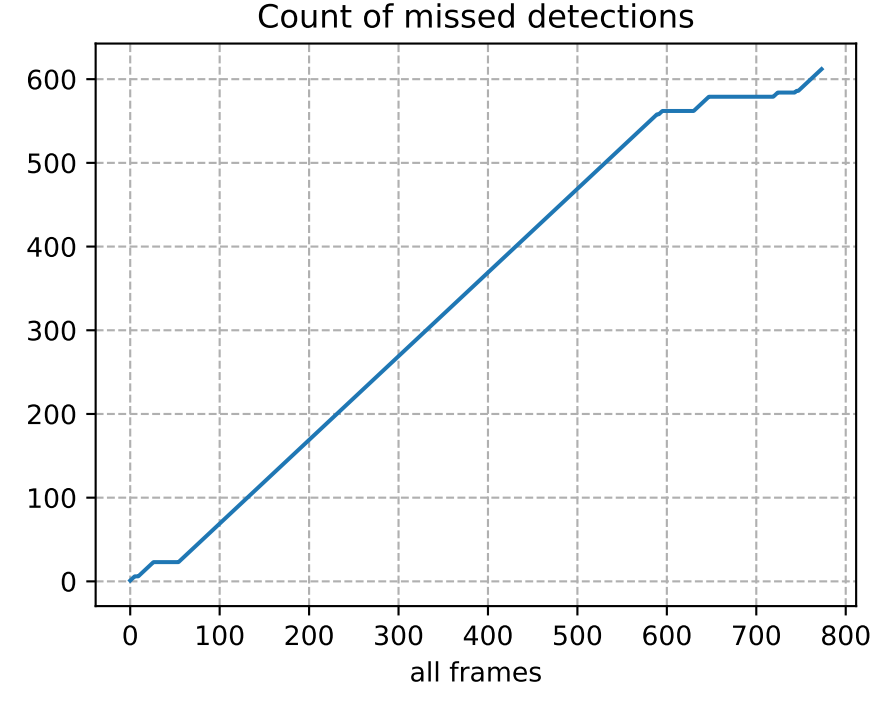

Performance Report for distance-256-10-bb.csv - ACC = [0.21%]
Fraction of image occupied by target [%] - MIN = [0.47]
Target pixel size - MIN = [175.0]
Probability of correct estimation - AVG = [0.82]
Count of missed detections
detection frames
detection frames
detection frames
all frames

Performance Report for distance-256-30-bb.csv - ACC = [0.21%]

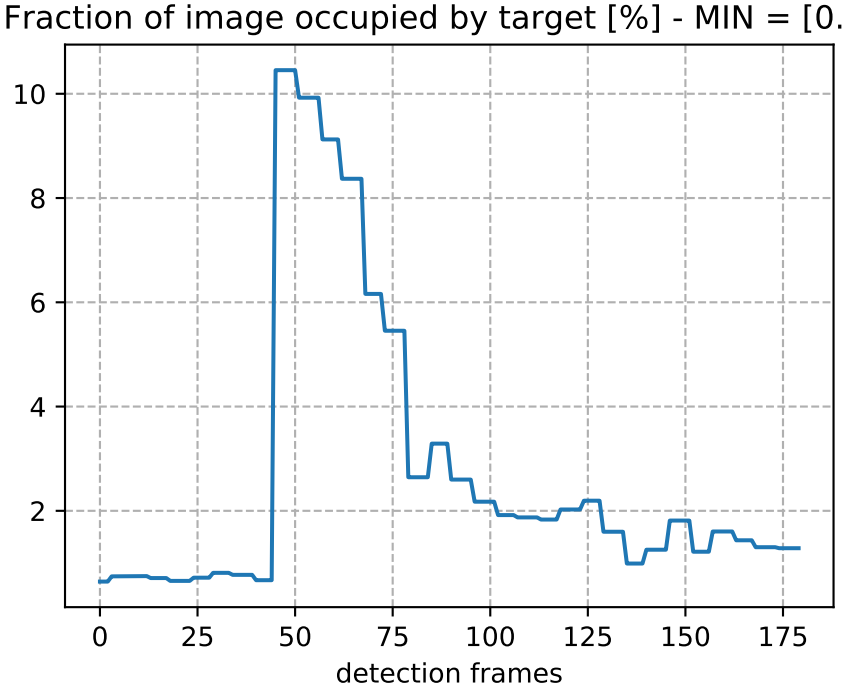


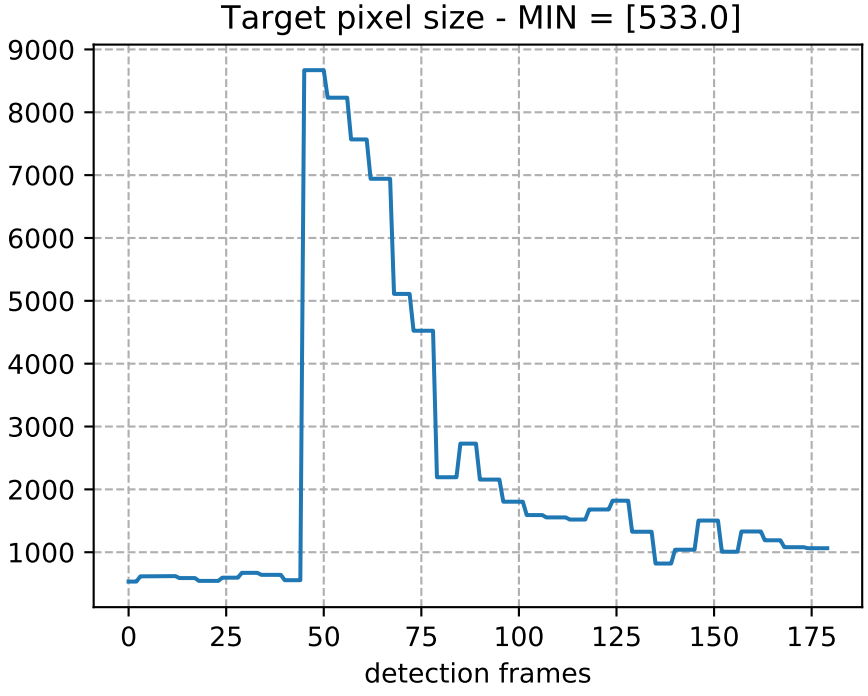


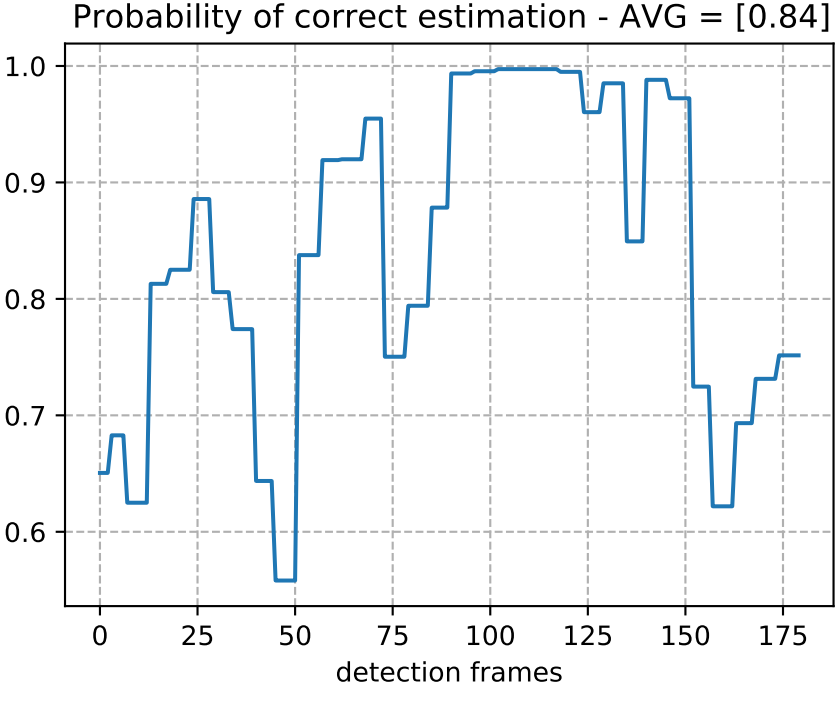




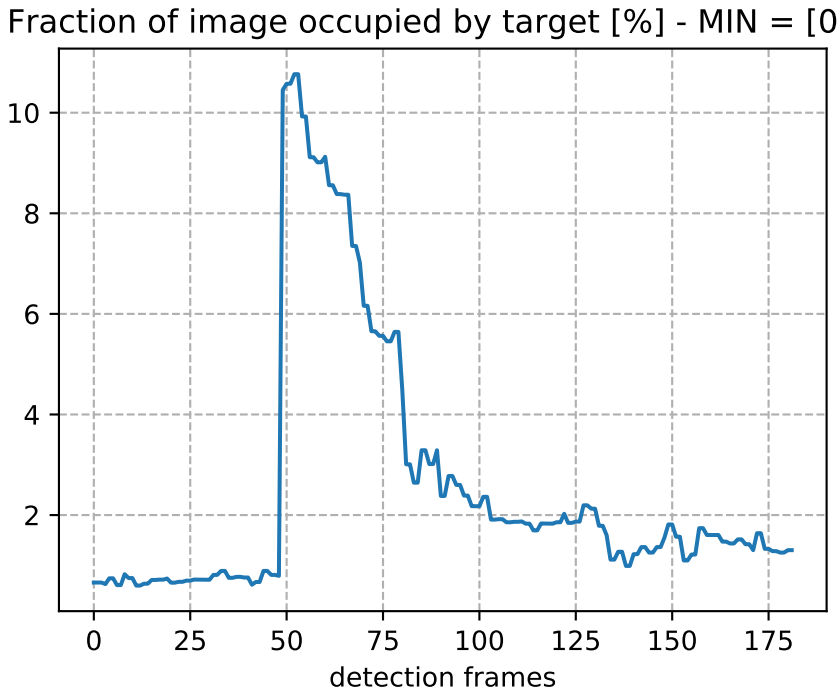
Performance Report for distance-384-10-bb.csv - ACC = [0.24%]

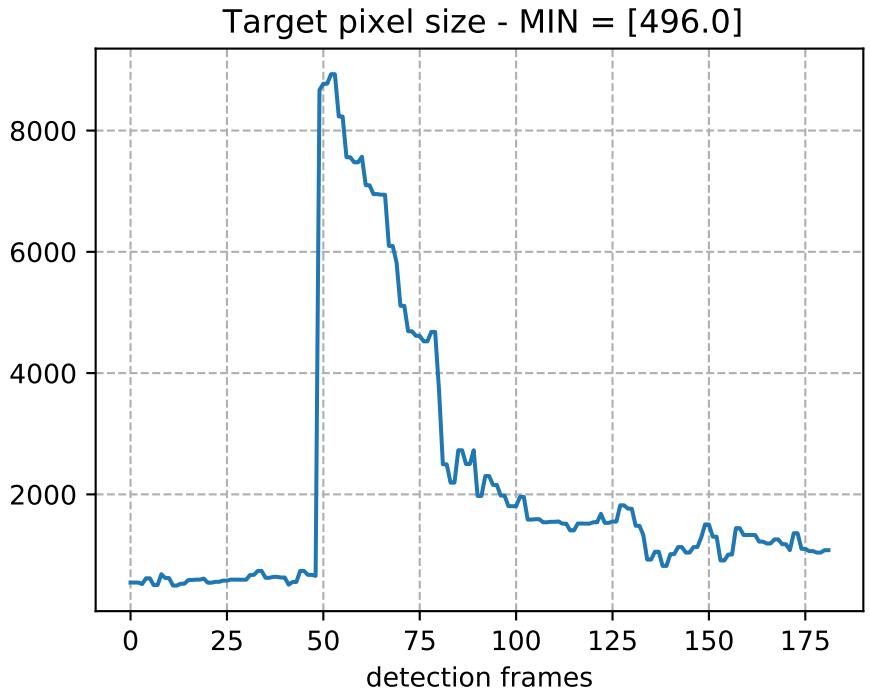


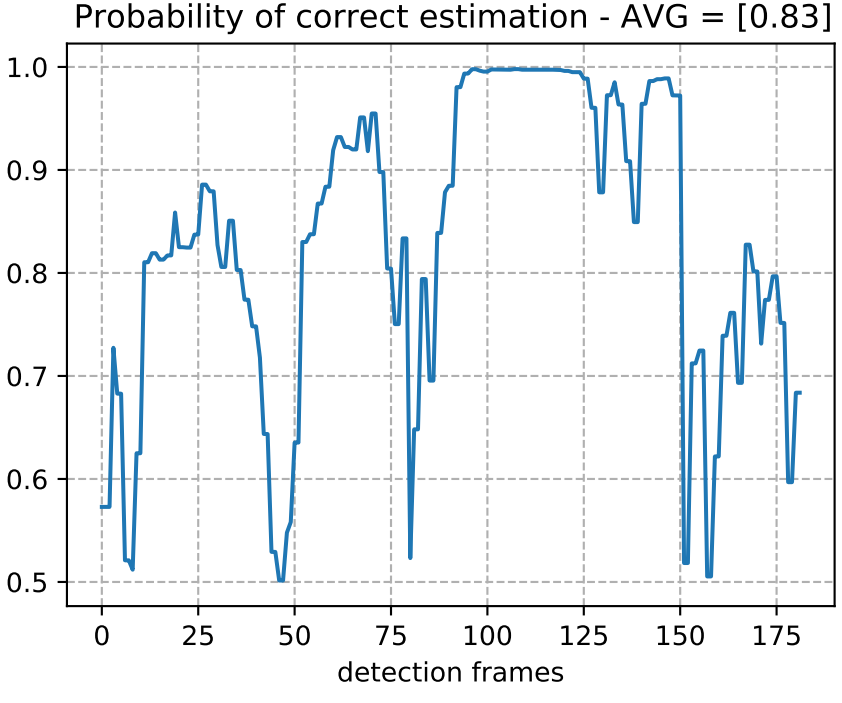


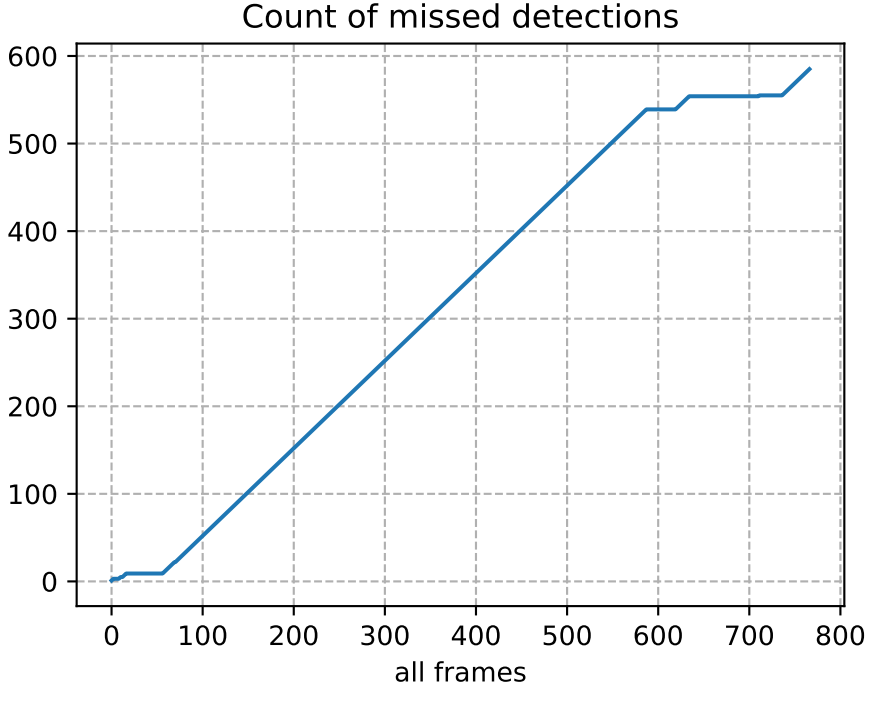


Performance Report for distance-384-30-bb.csv - ACC = [0.24%]

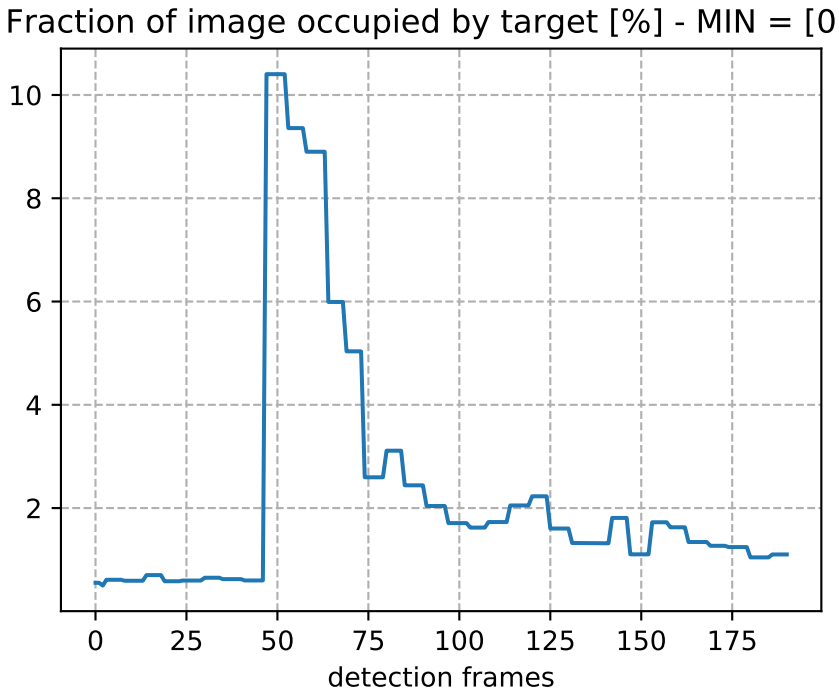


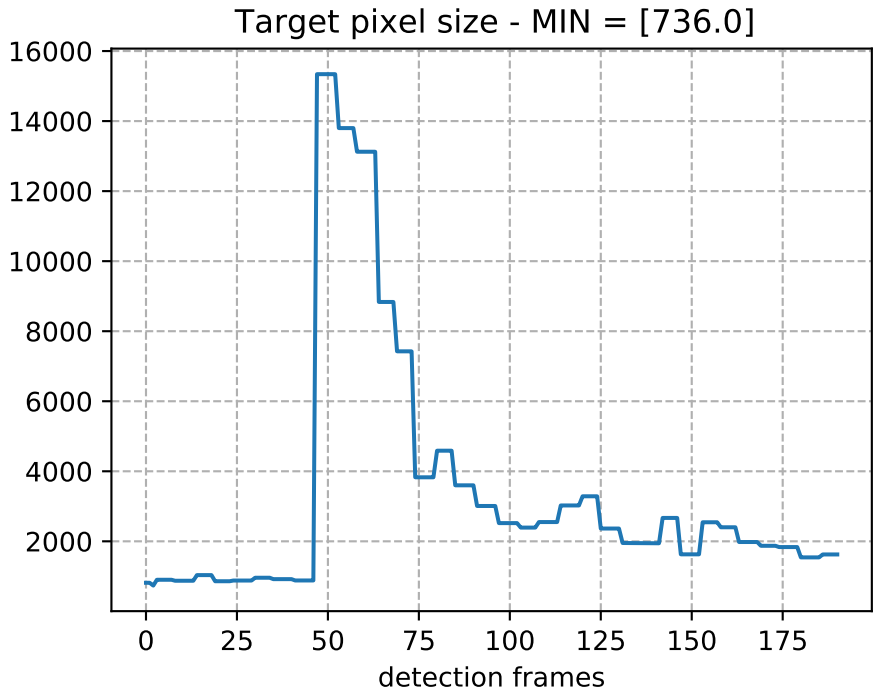


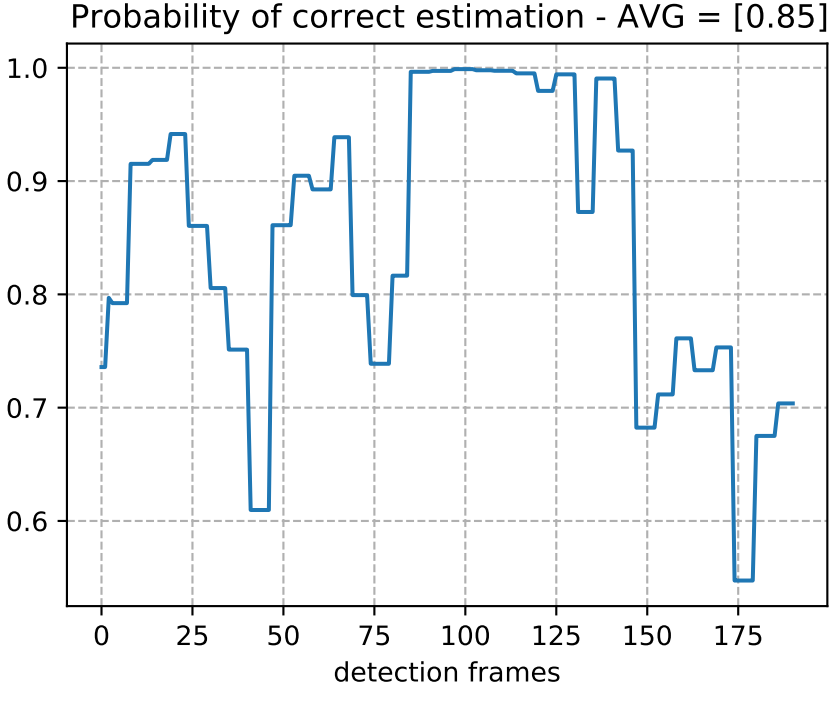


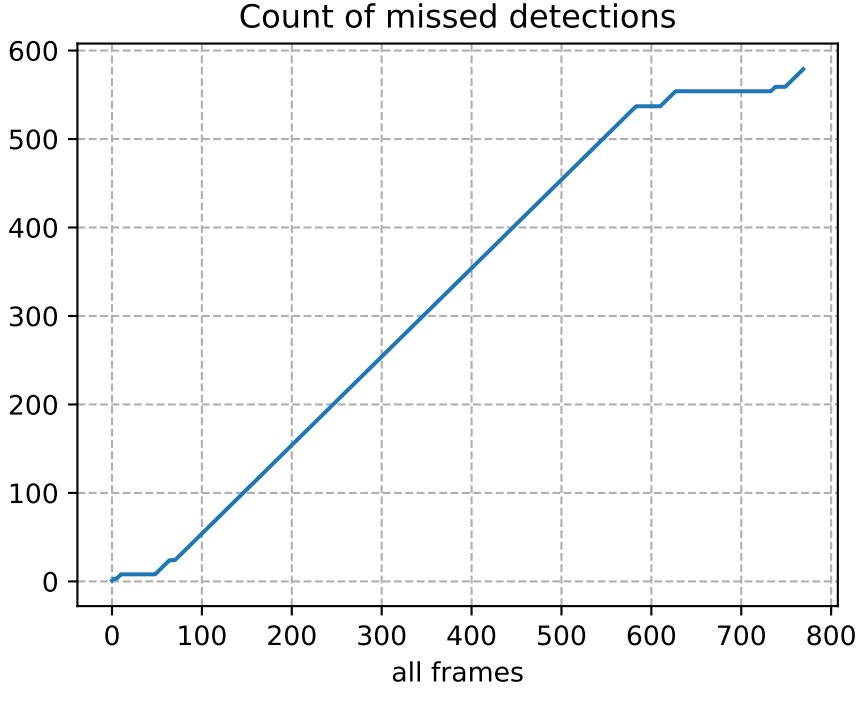


Performance Report for distance-512-10-bb.csv - ACC = [0.25%]

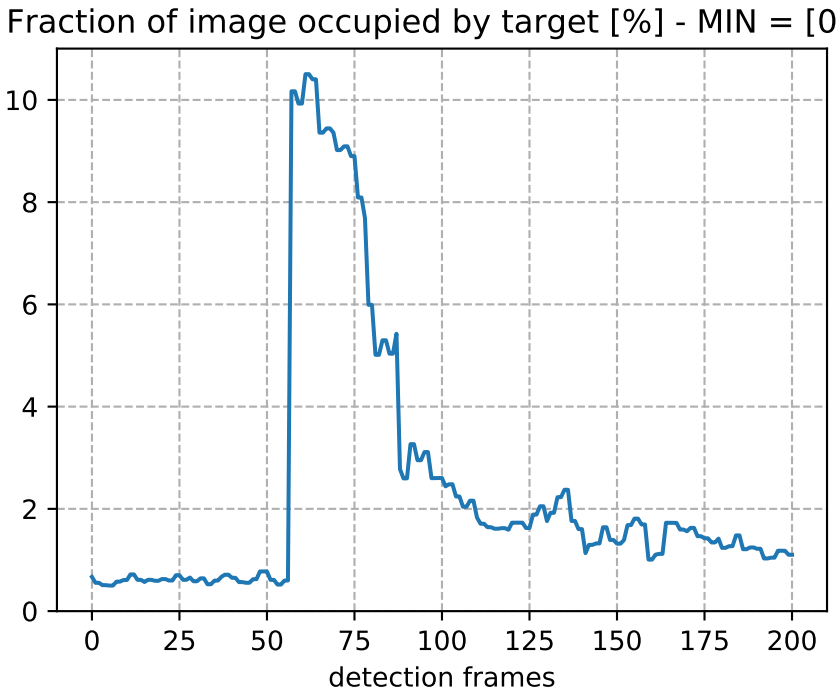


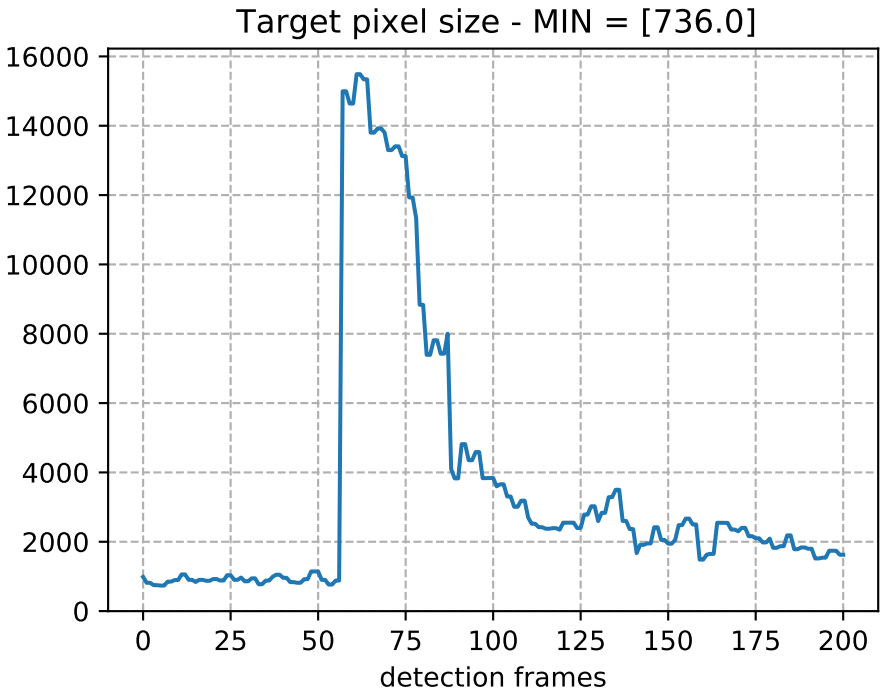


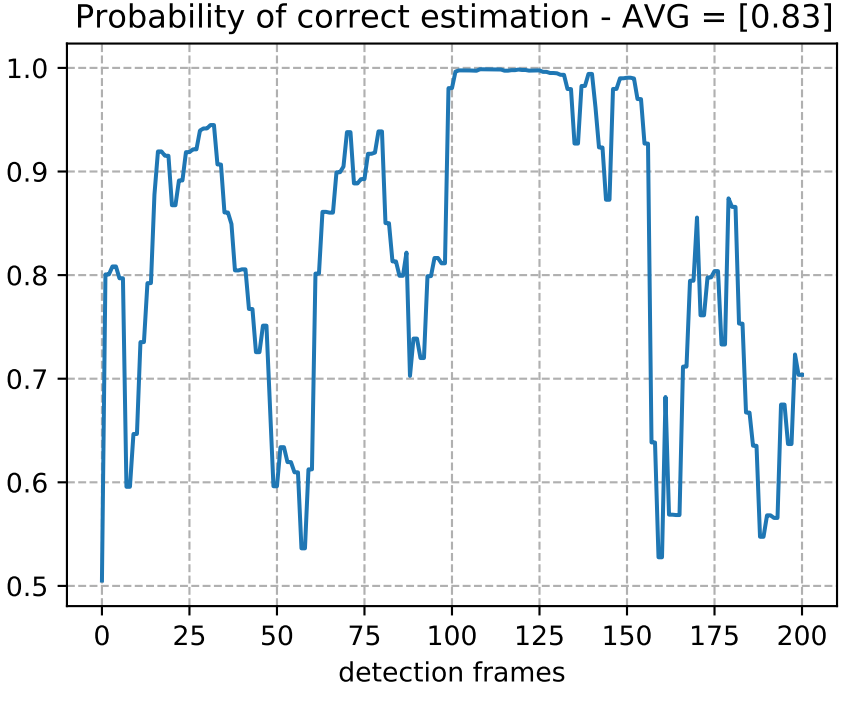


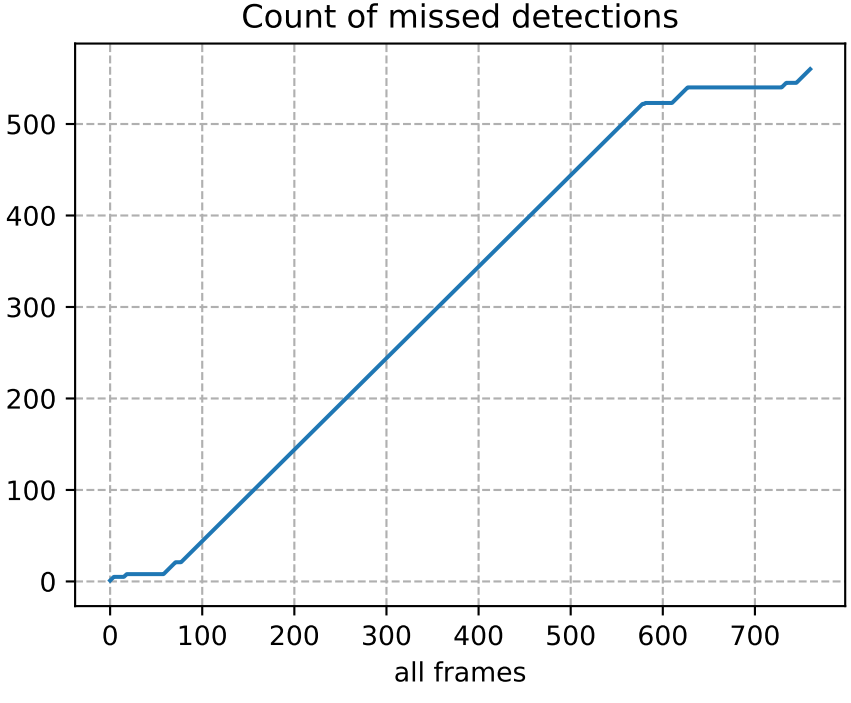


Performance Report for distance-512-30-bb.csv - ACC = [0.26%]

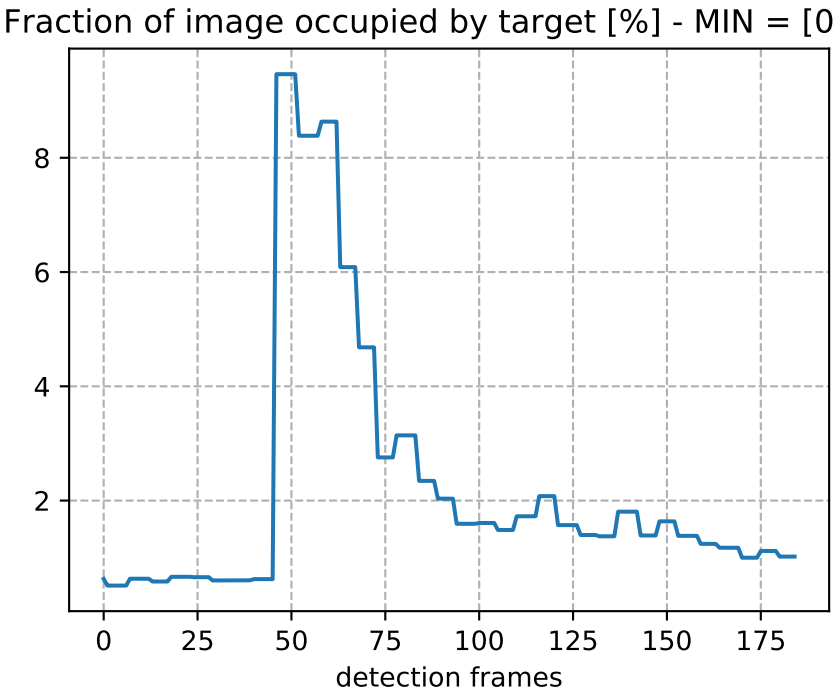


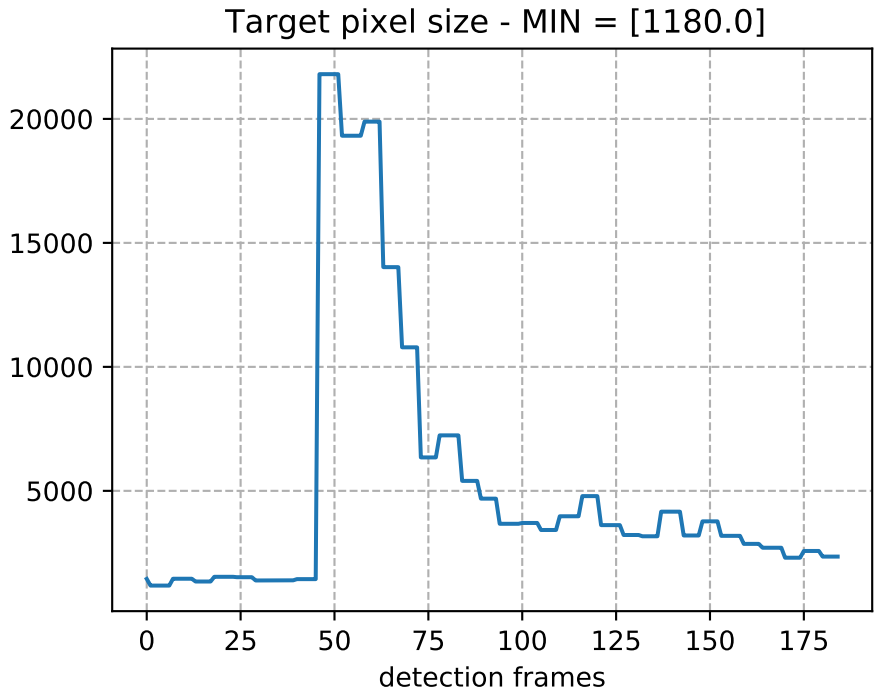


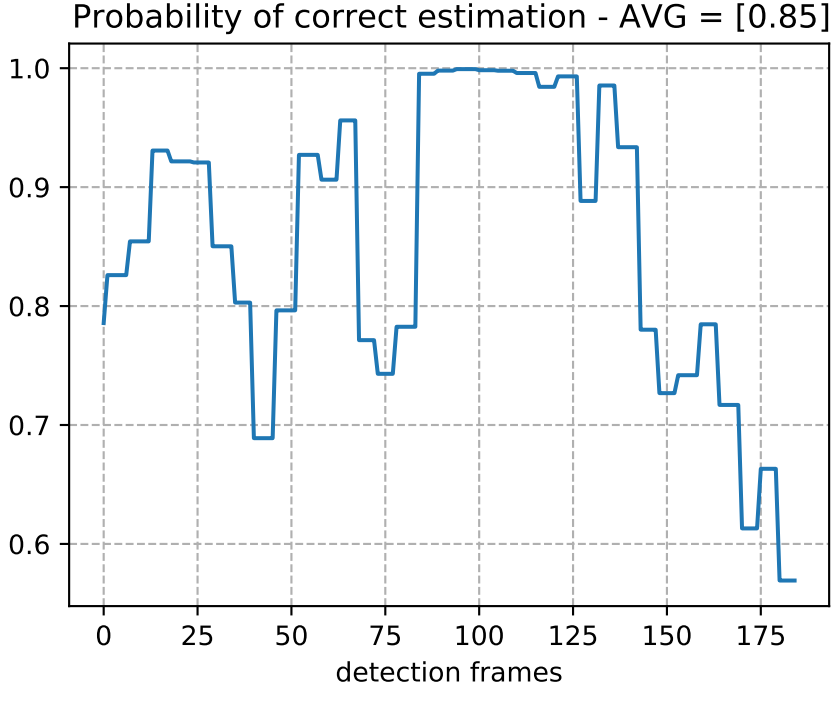


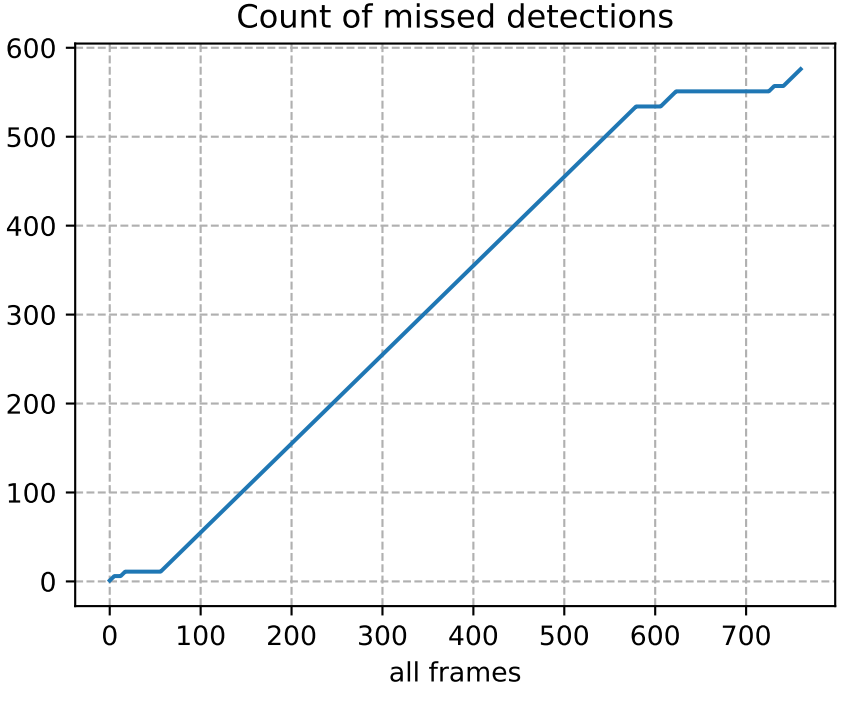


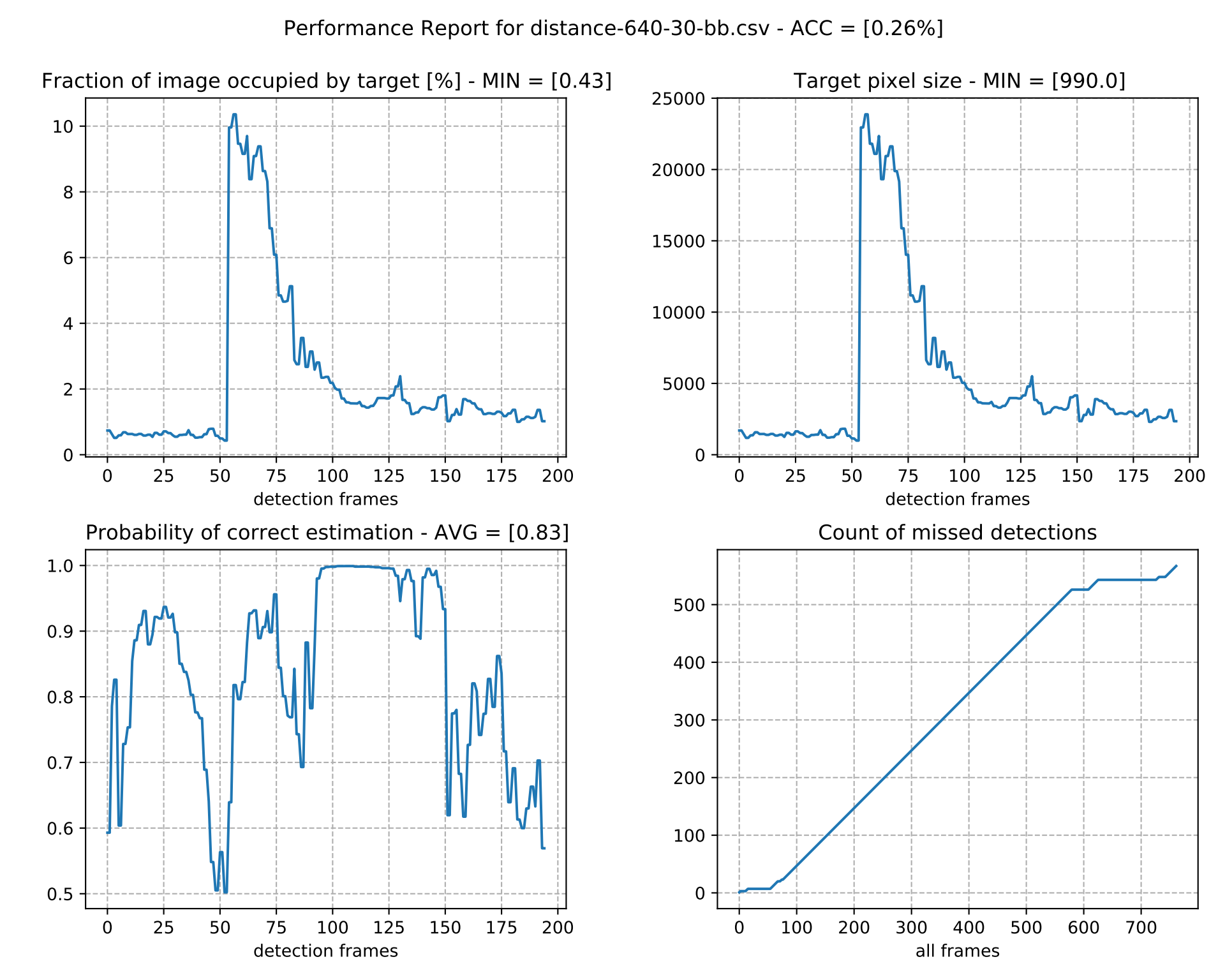
Performance Report for distance-640-10-bb.csv - ACC = [0.24%]



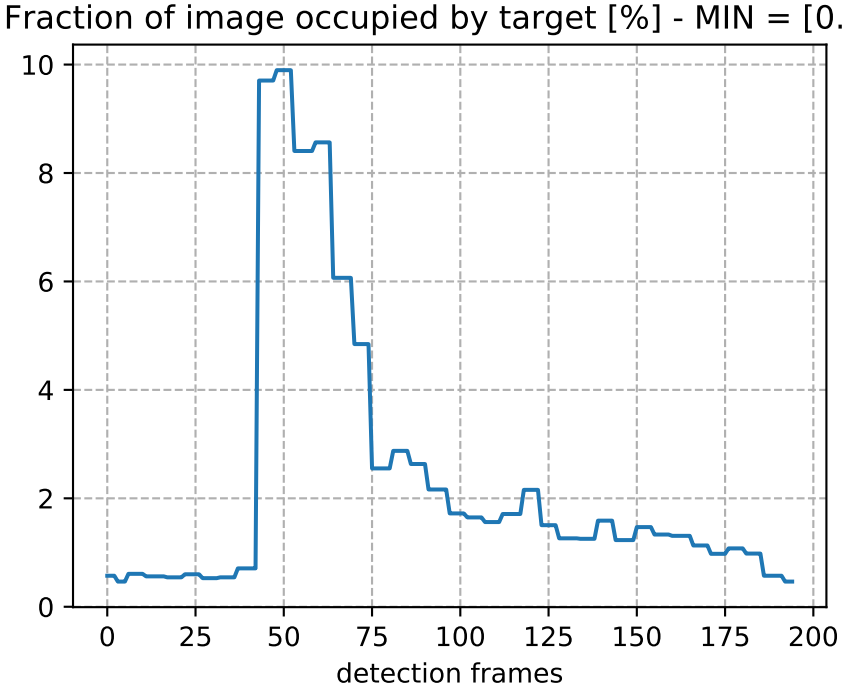


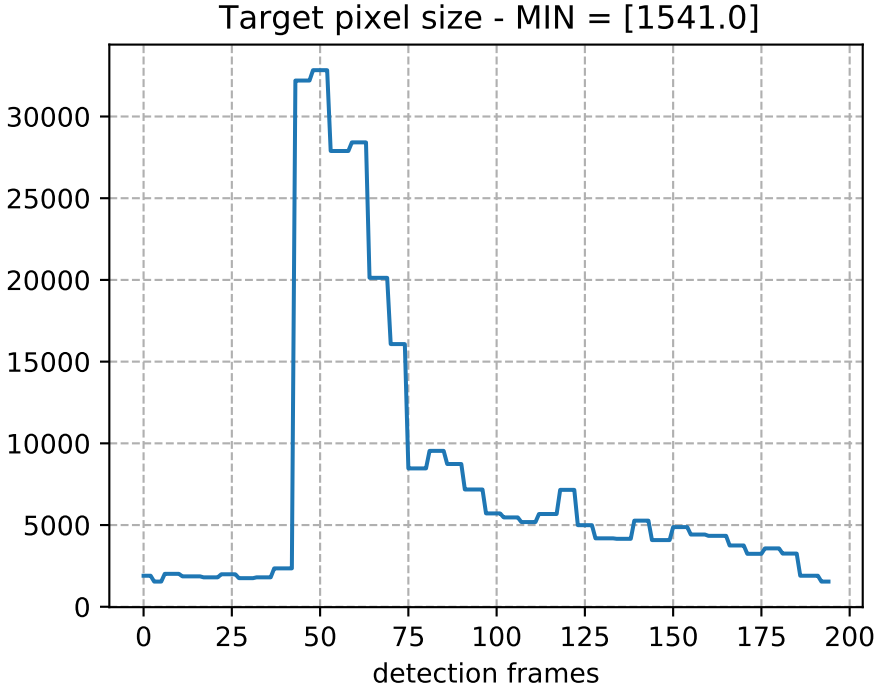


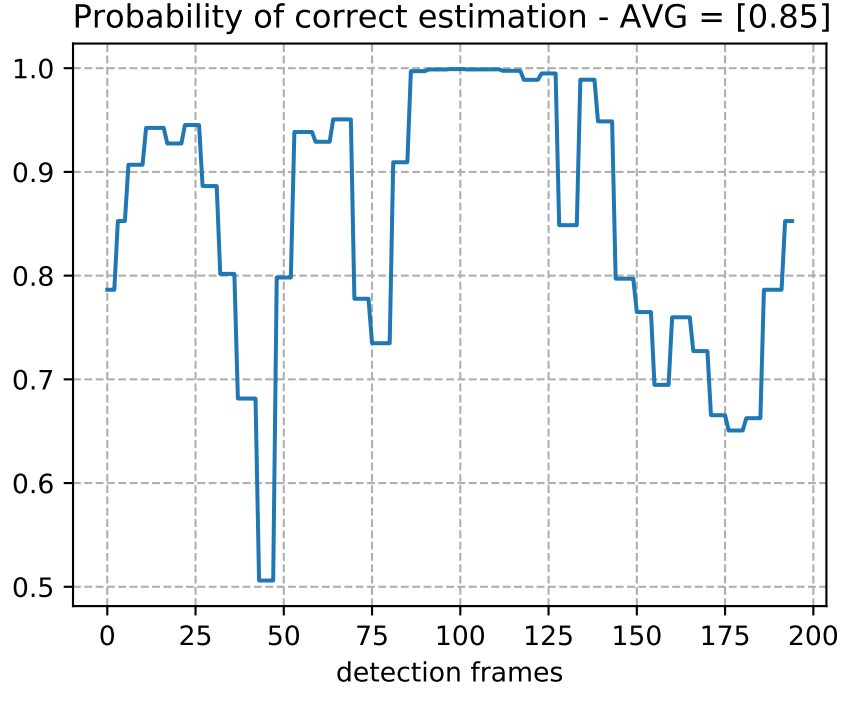


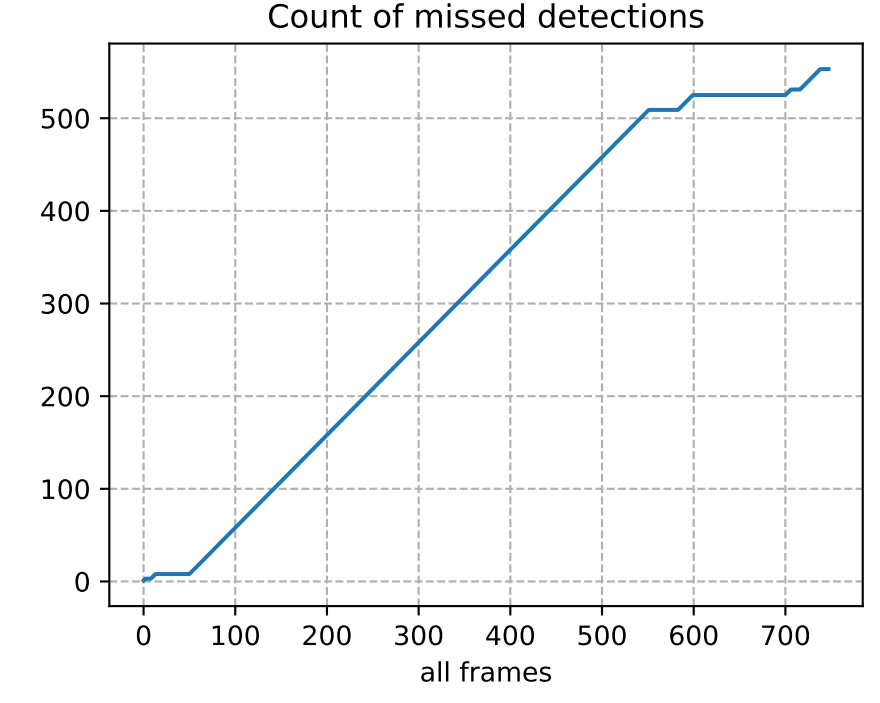

Performance Report for distance-640-30-bb.csv - ACC = [0.26%]
Fraction of image occupied by target [%] - MIN = [0.43]
Target pixel size - MIN = [990.0]
Probability of correct estimation - AVG = [0.83]
Count of missed detections
detection frames
detection frames
detection frames
all frames

Performance Report for distance-768-10-bb.csv - ACC = [0.26%]

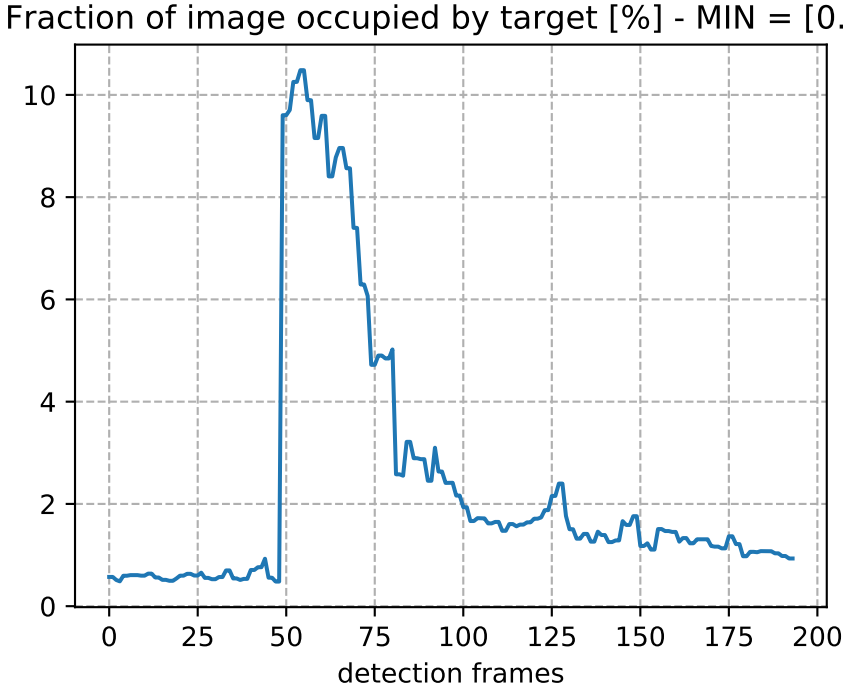


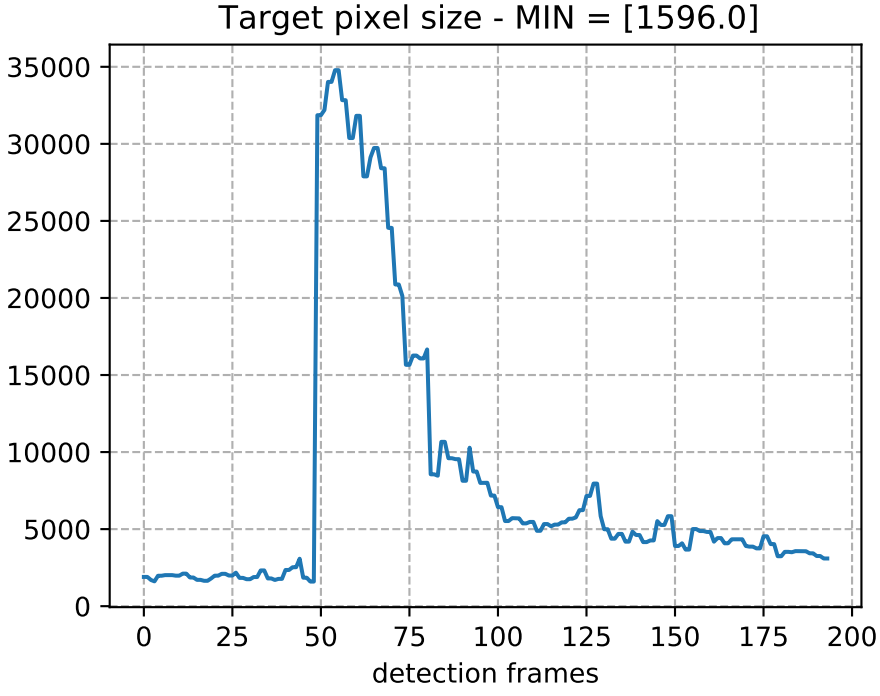


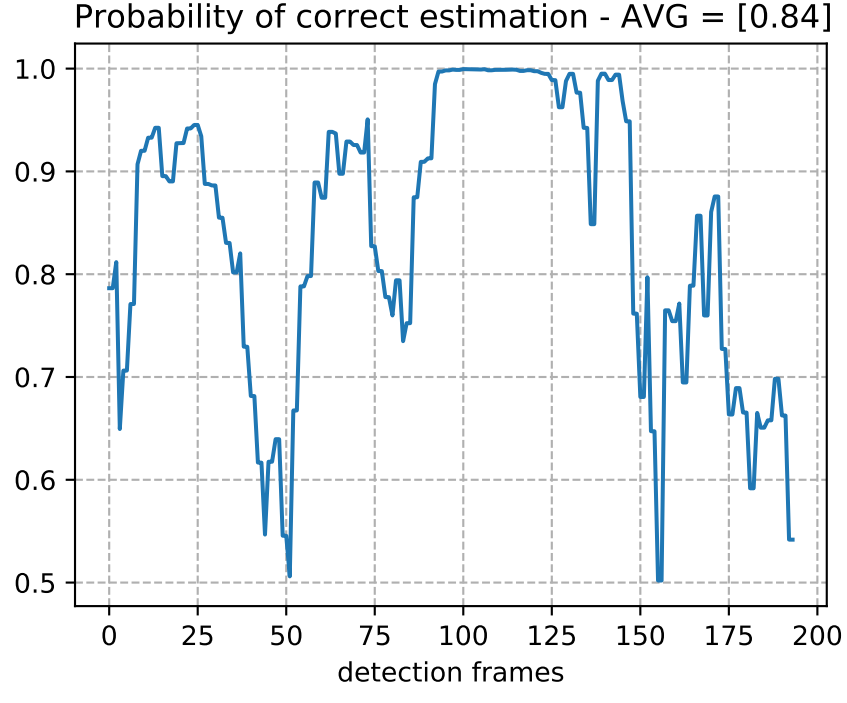


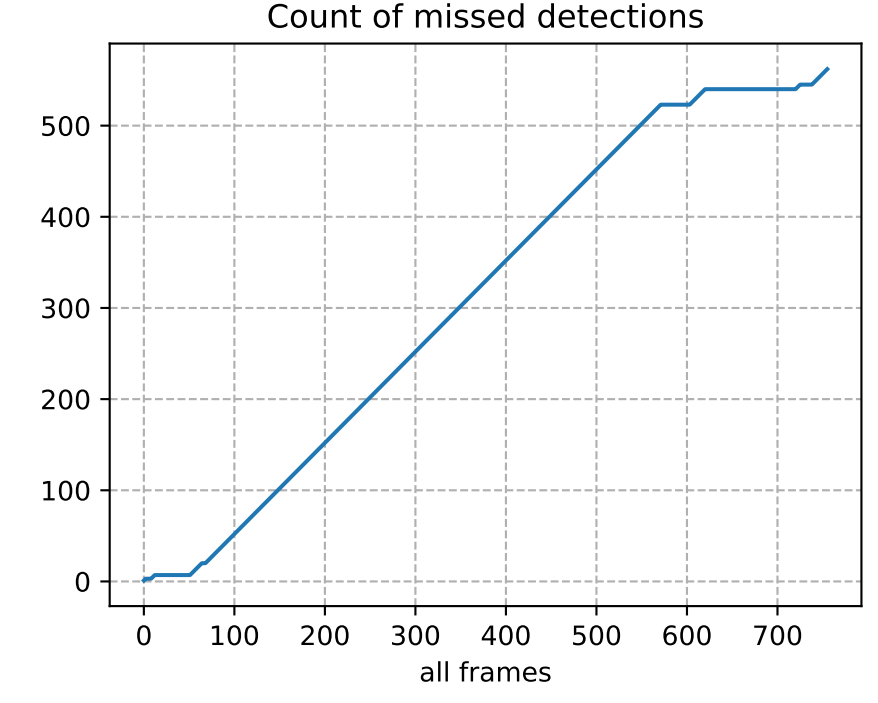


Performance Report for distance-768-30-bb.csv - ACC = [0.26%]

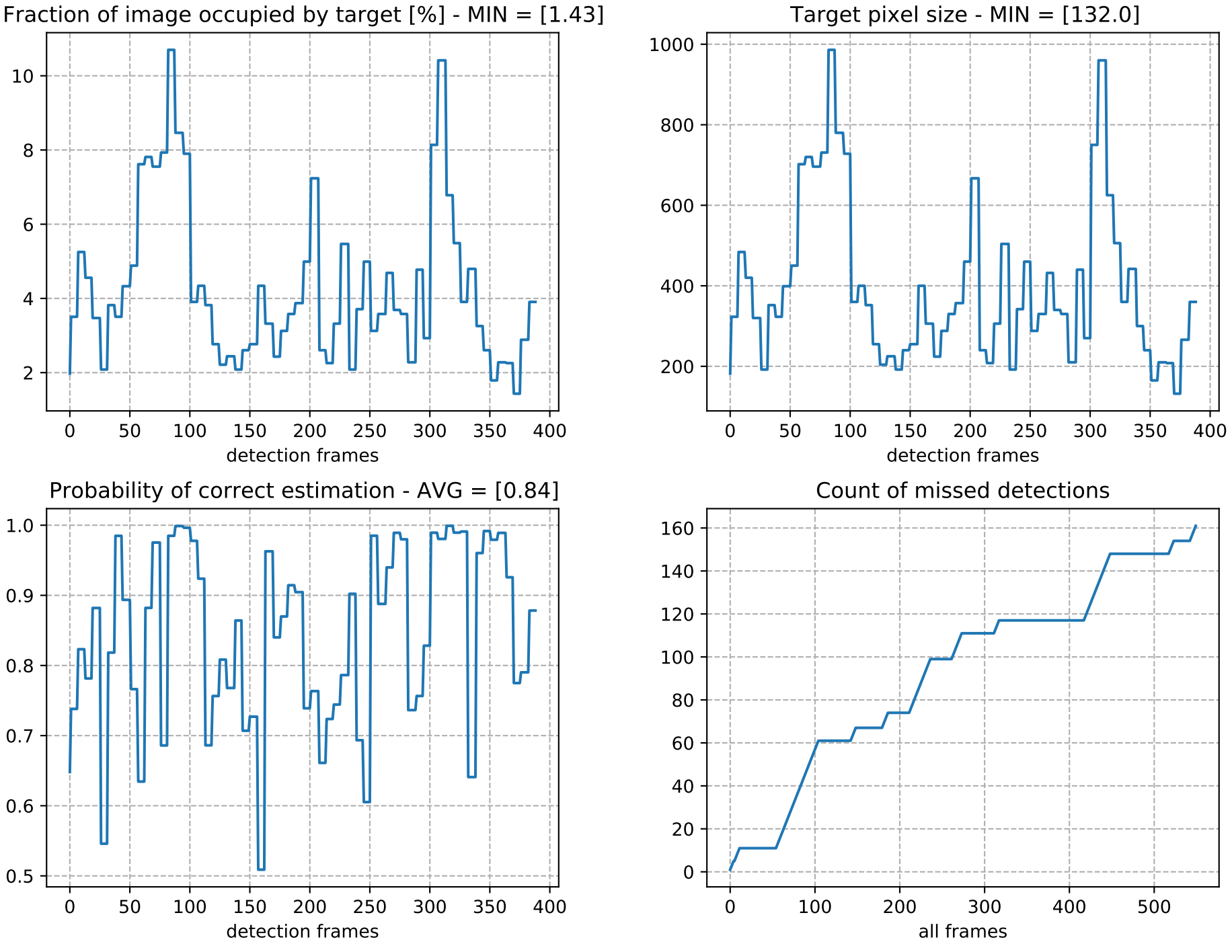


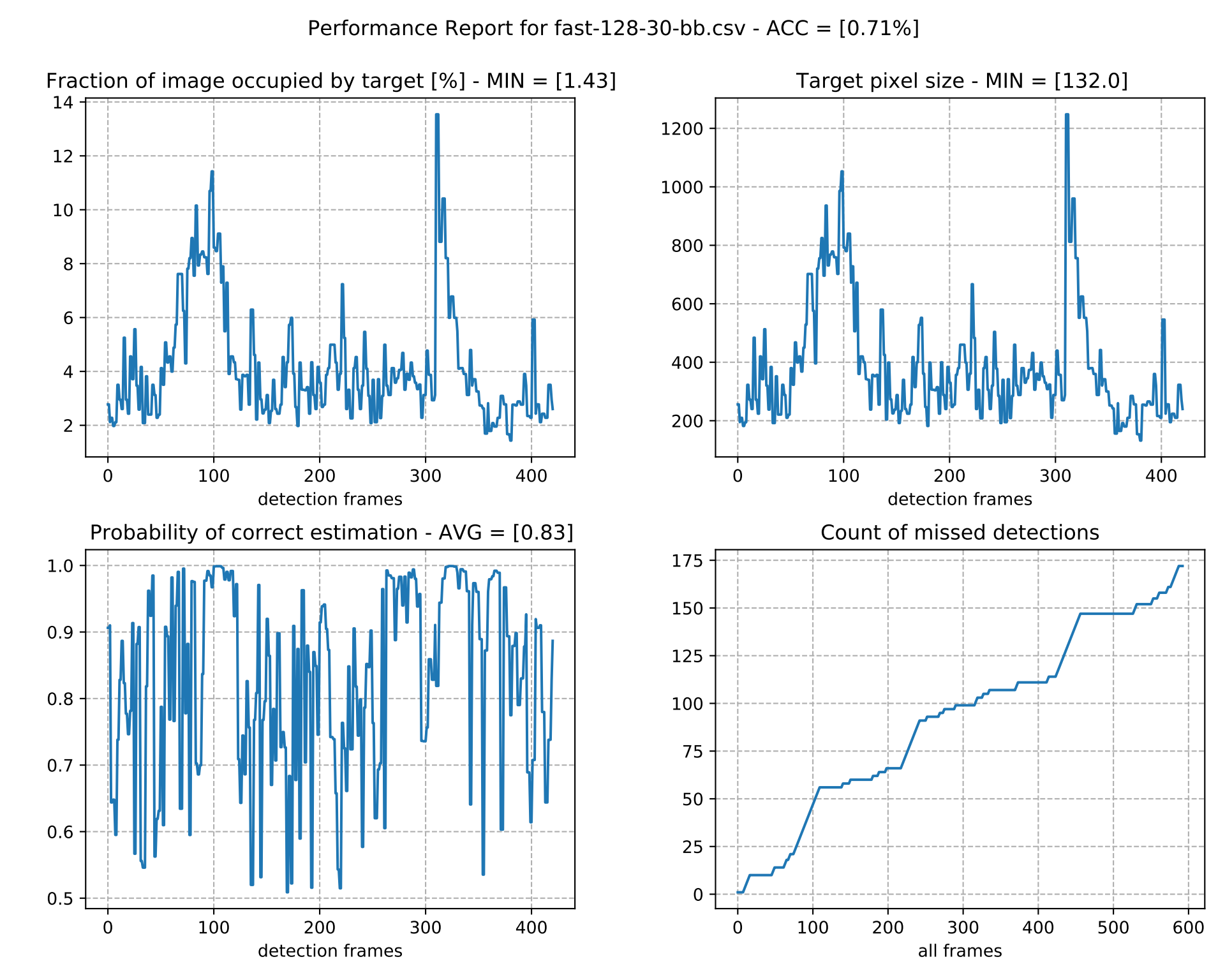




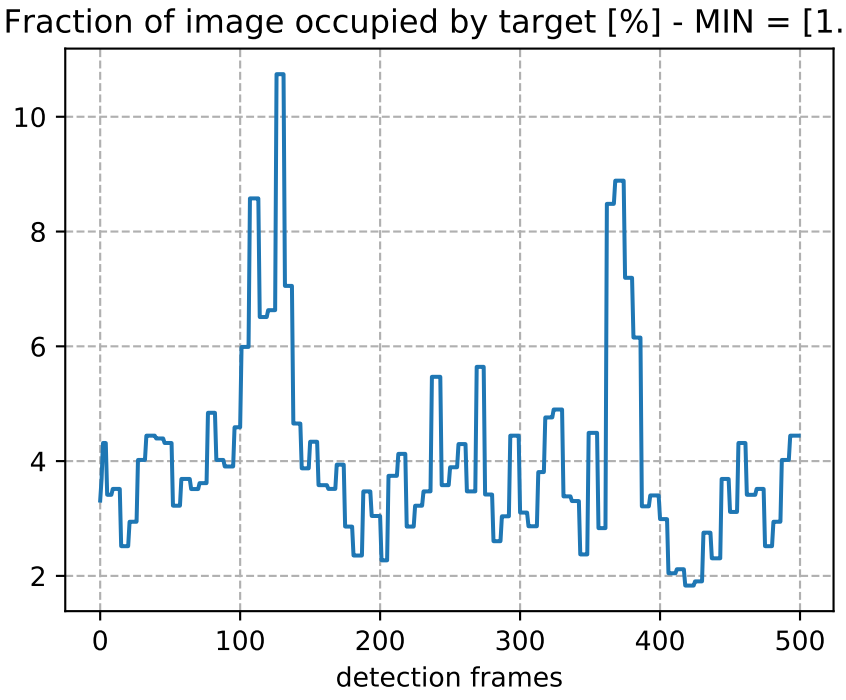


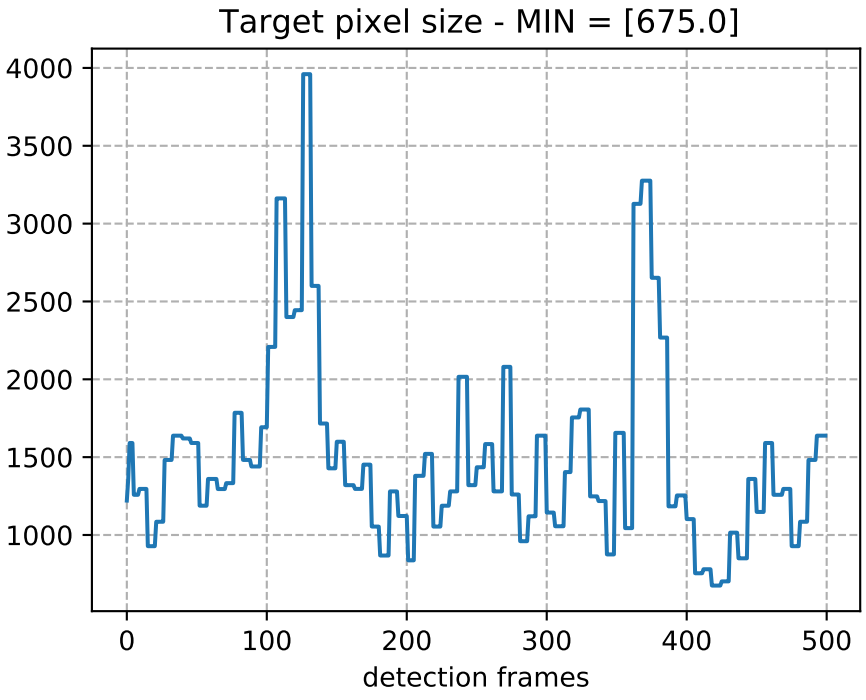
Performance Report for fast-128-10-bb.csv - ACC = [0.71%]

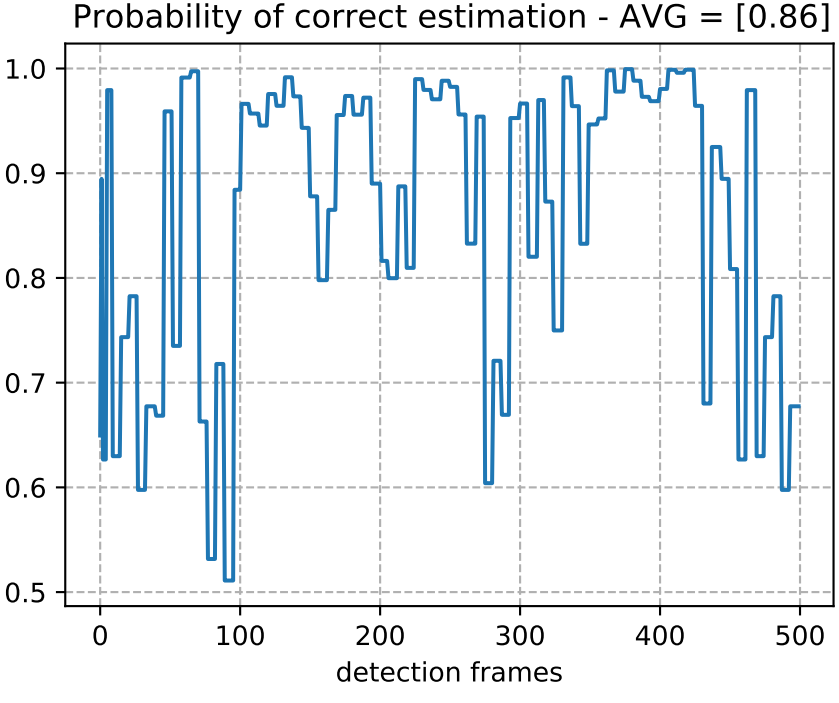


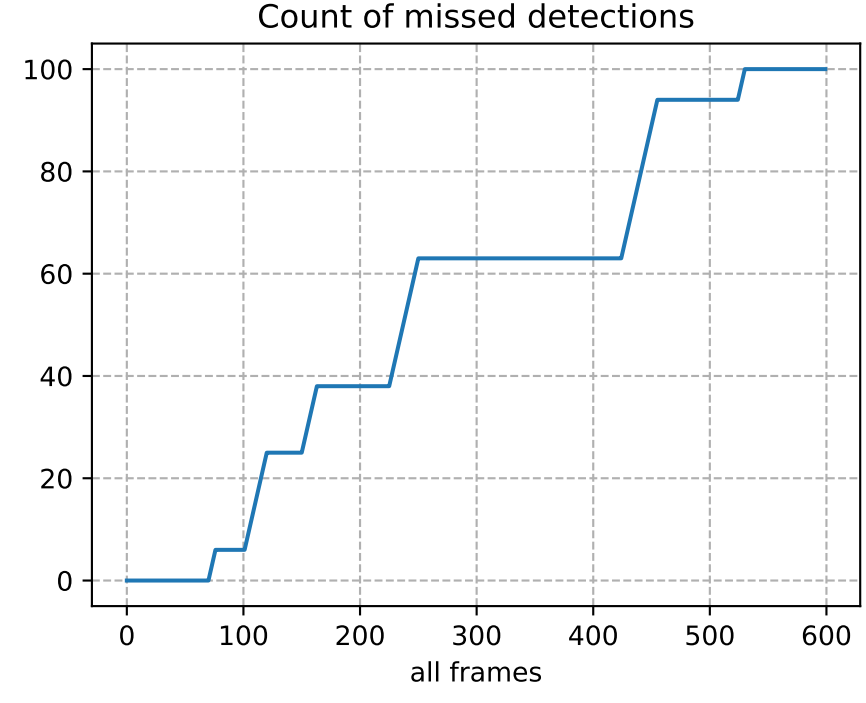

Performance Report for fast-128-30-bb.csv - ACC = [0.71%]
Fraction of image occupied by target [%] - MIN = [1.43]
detection frames
Target pixel size - MIN = [132.0]
detection frames
Probability of correct estimation - AVG = [0.83]
detection frames
Count of missed detections
all frames

Performance Report for fast-256-10-bb.csv - ACC = [0.83%]

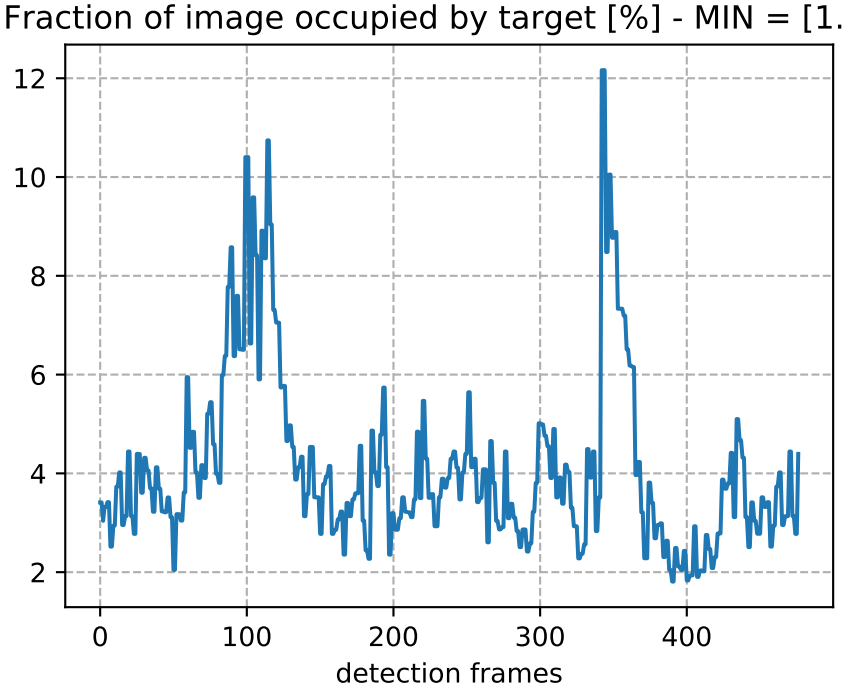


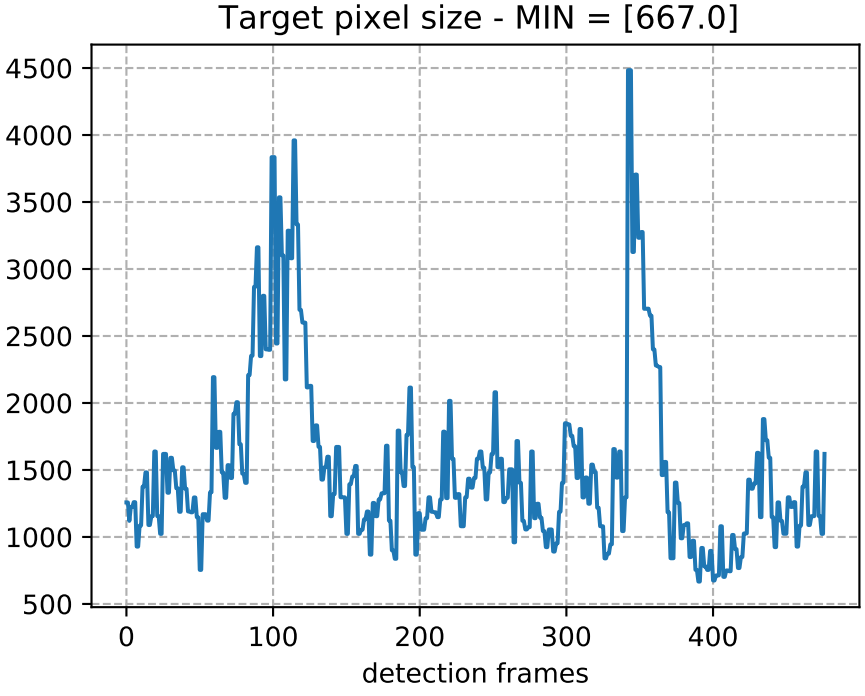


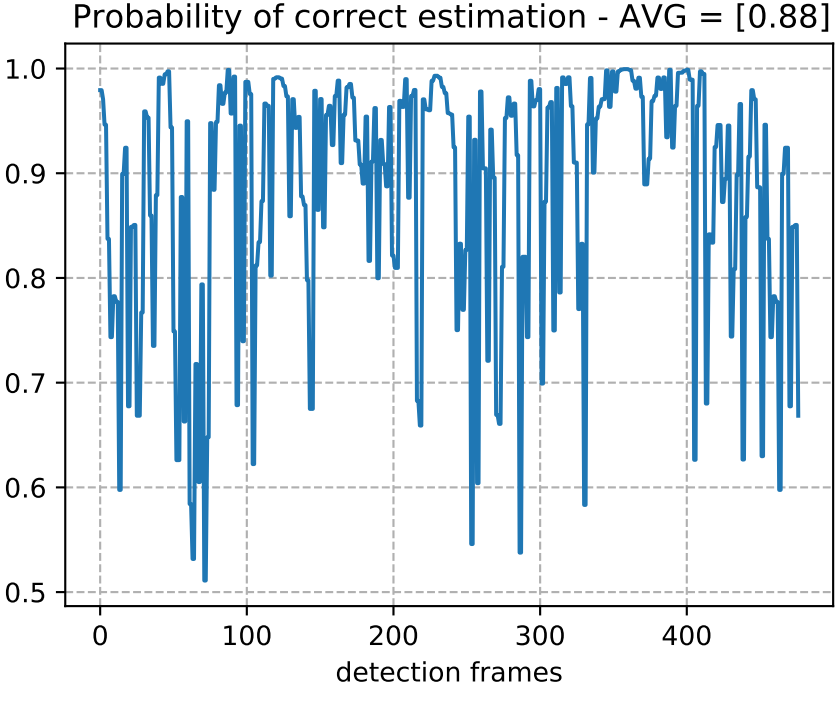


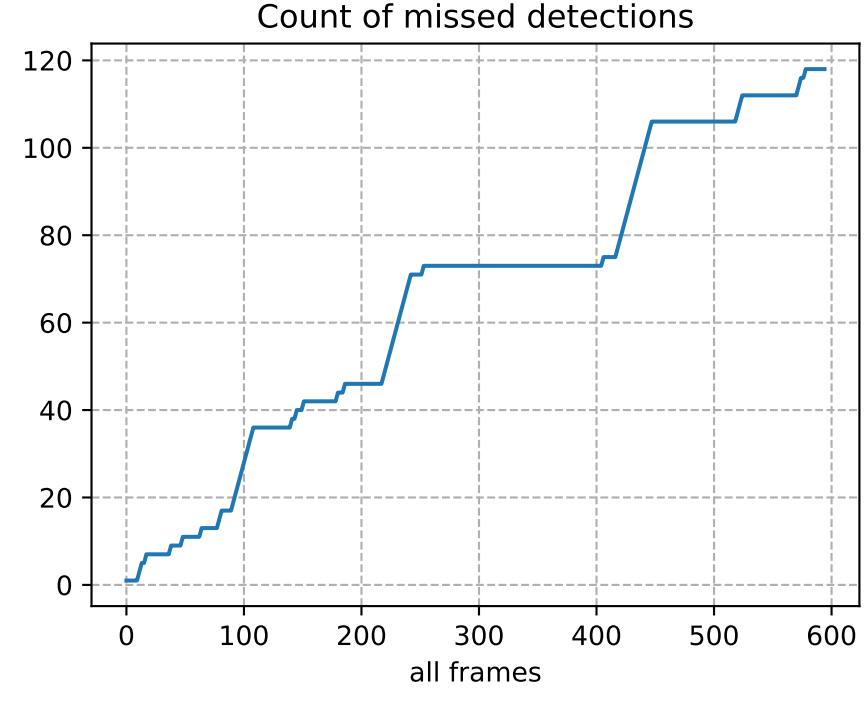


Performance Report for fast-256-30-bb.csv - ACC = [0.8%]

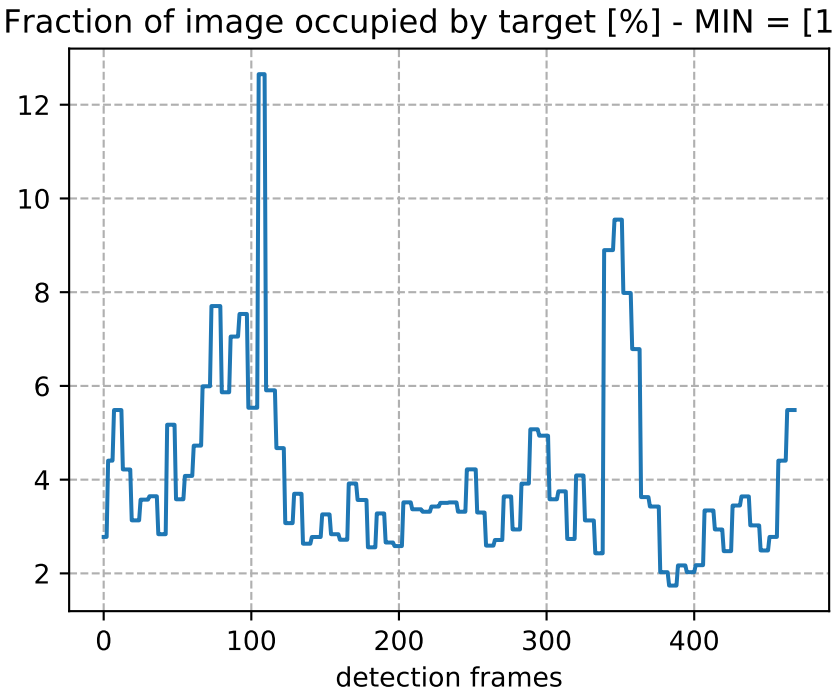


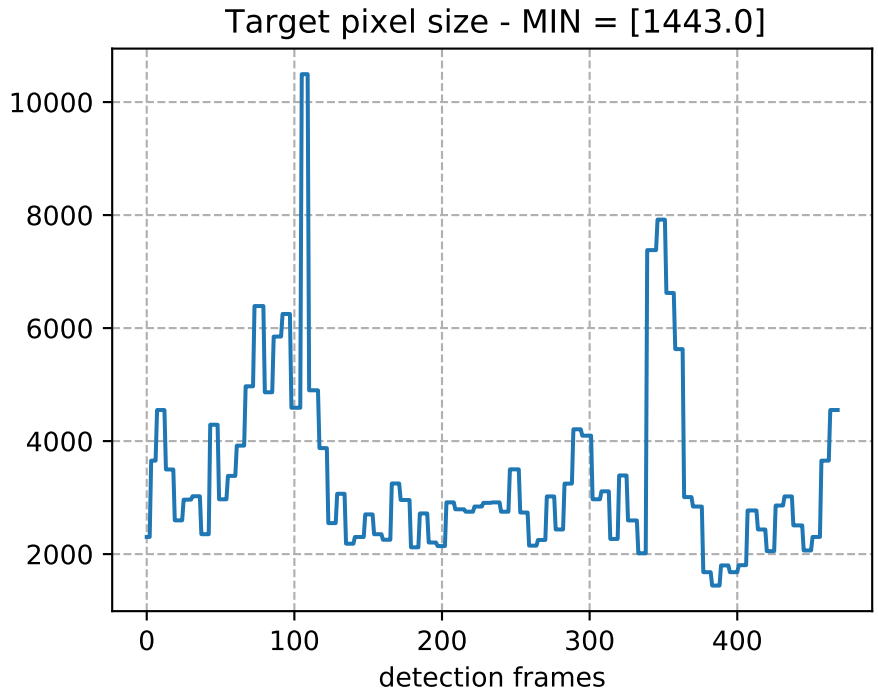


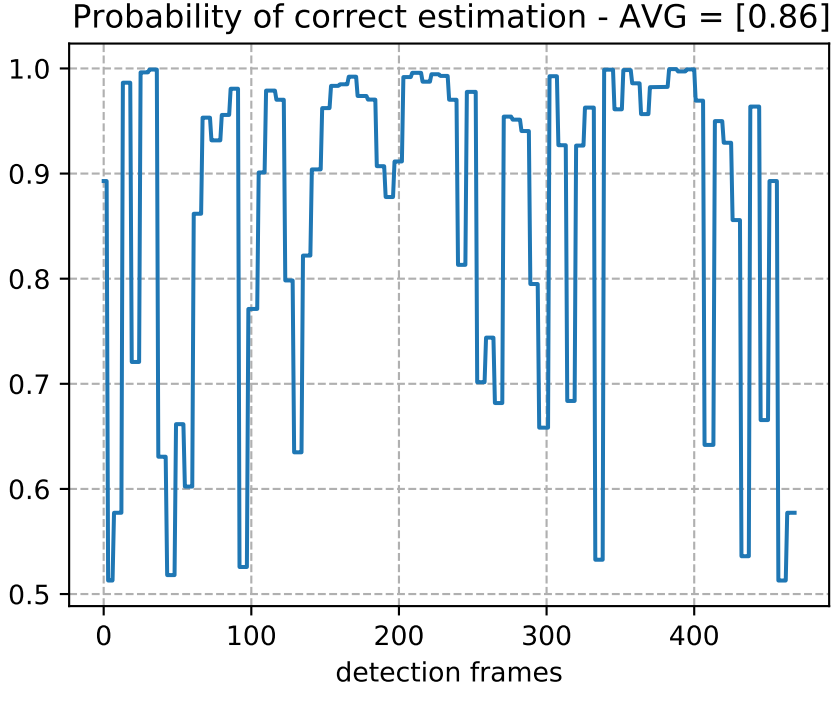




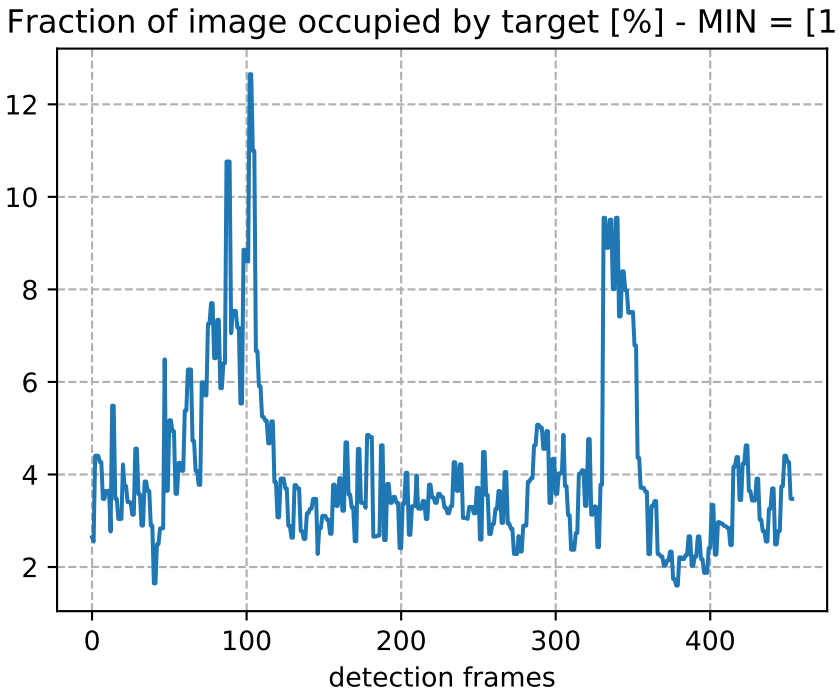
Performance Report for fast-384-10-bb.csv - ACC = [0.82%]

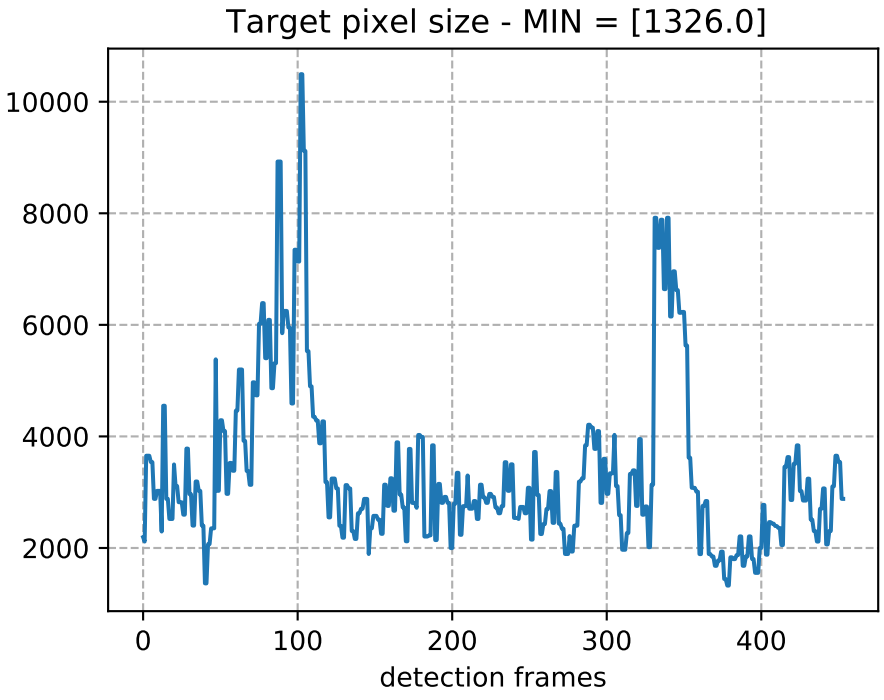


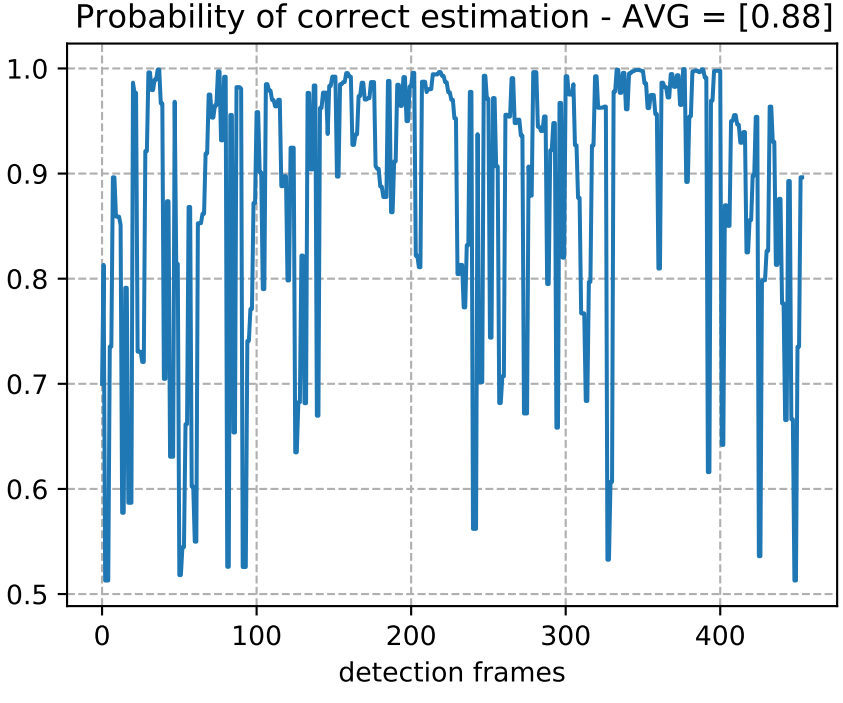


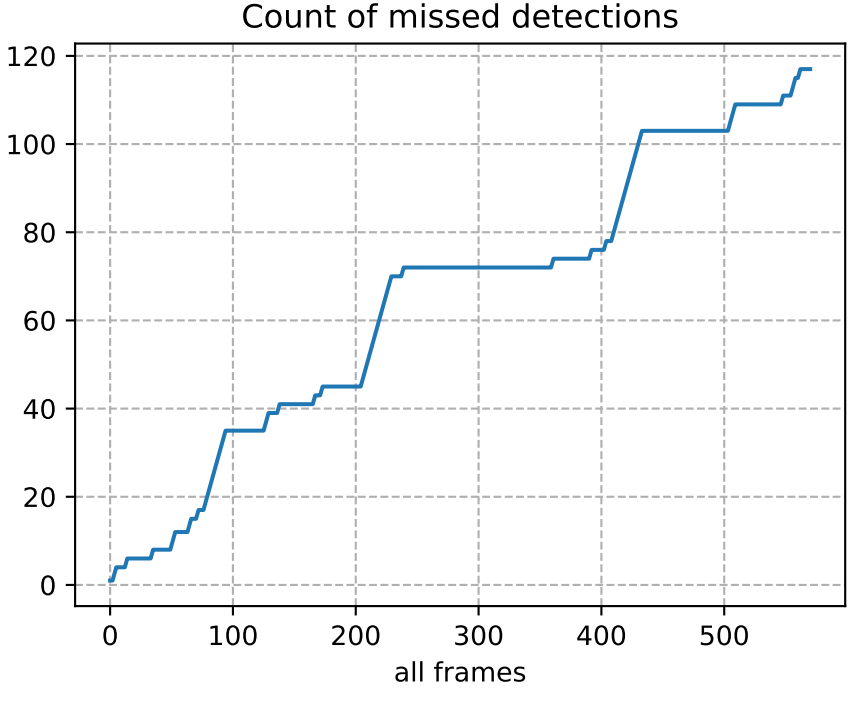


Performance Report for fast-384-30-bb.csv - ACC = [0.8%]

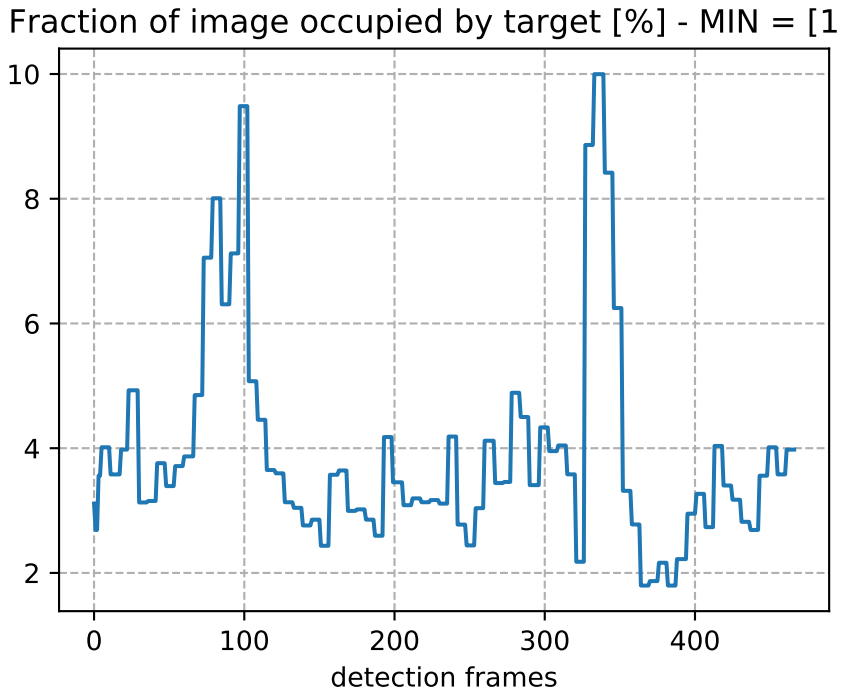


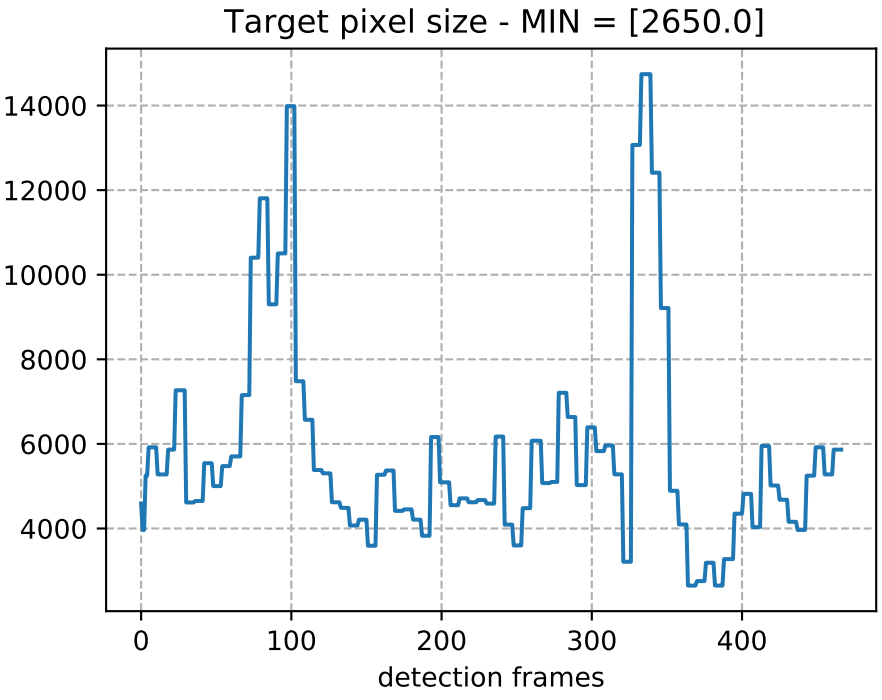


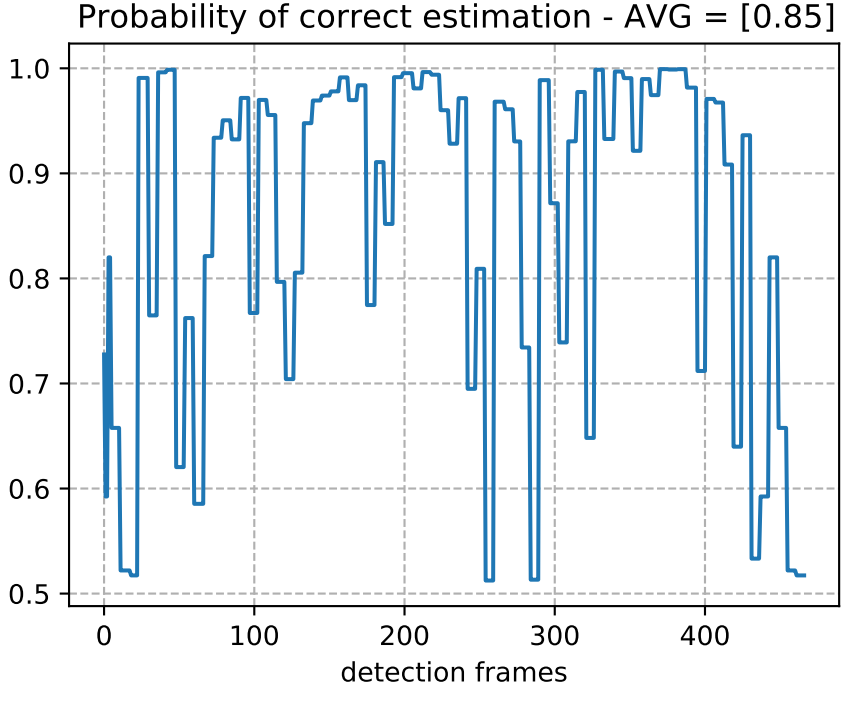


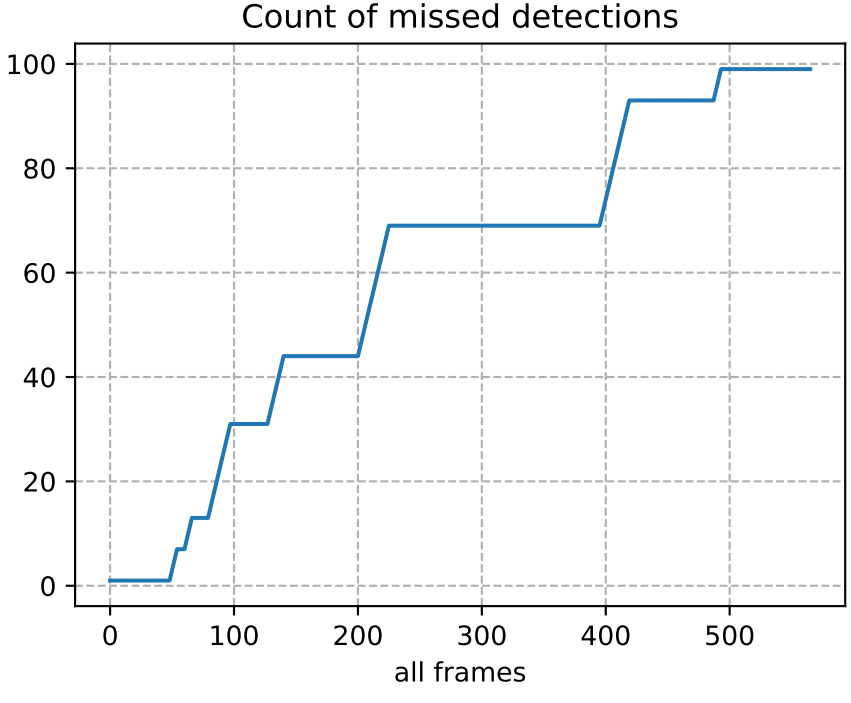


Performance Report for fast-512-10-bb.csv - ACC = [0.83%]

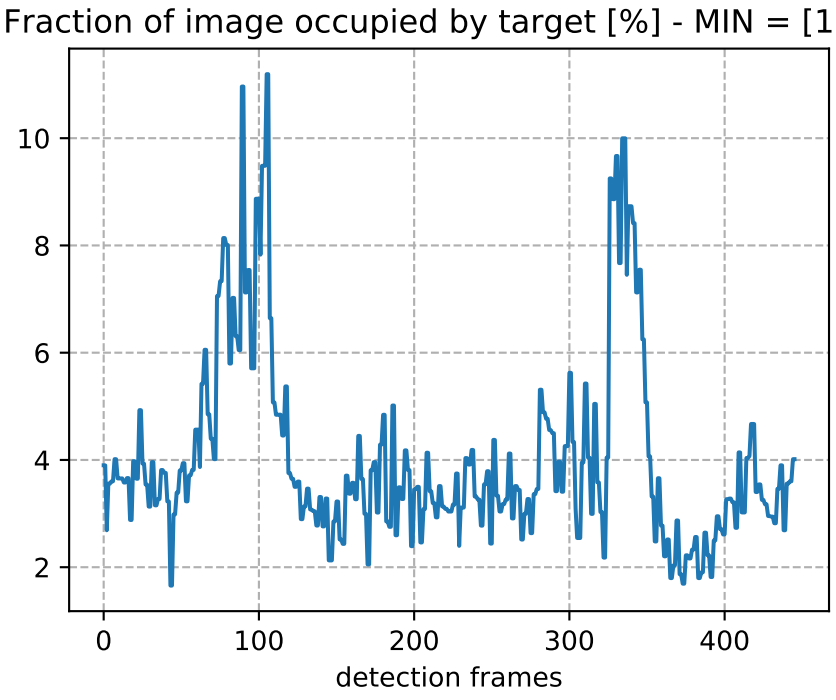


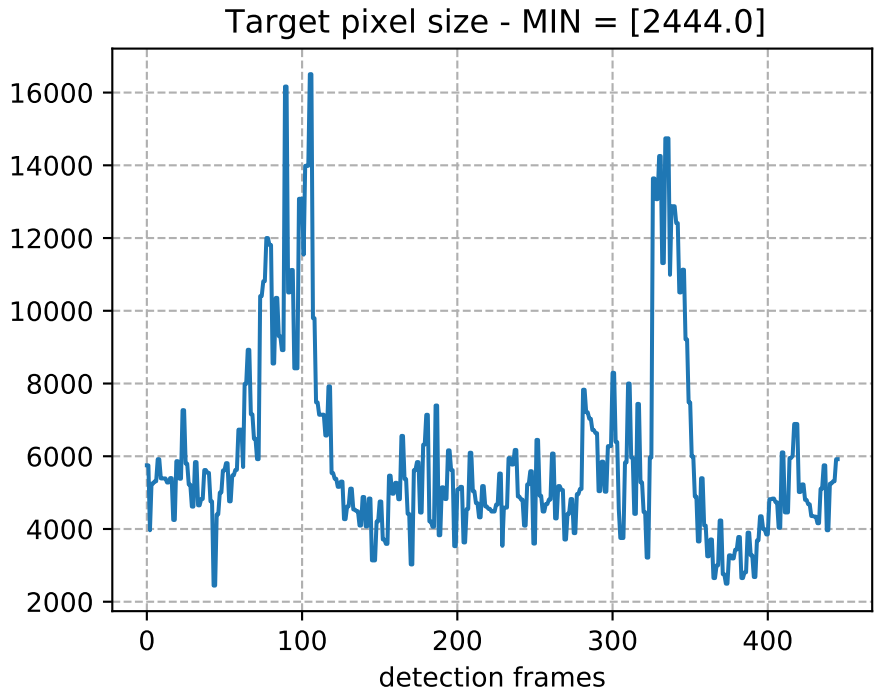


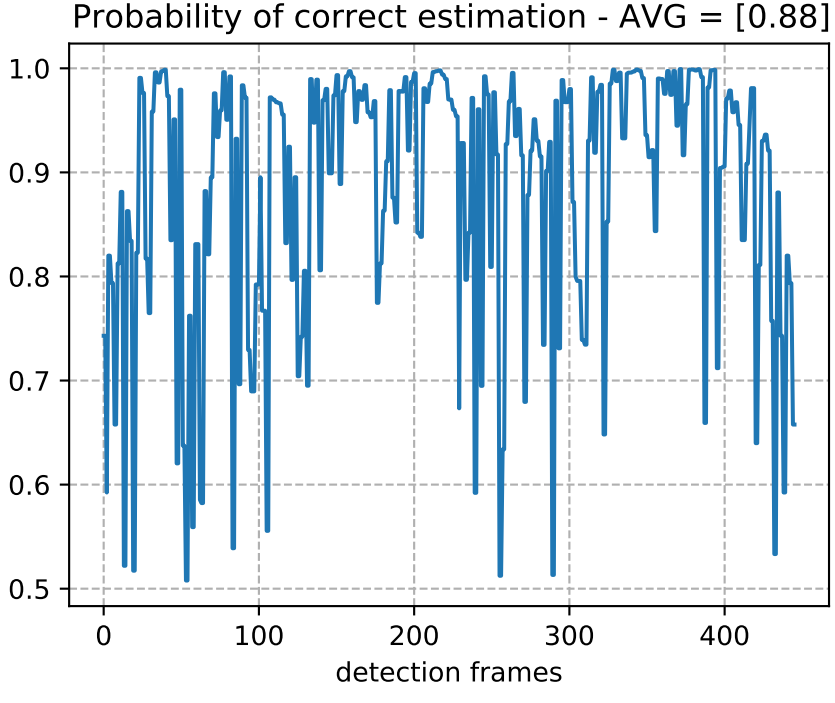


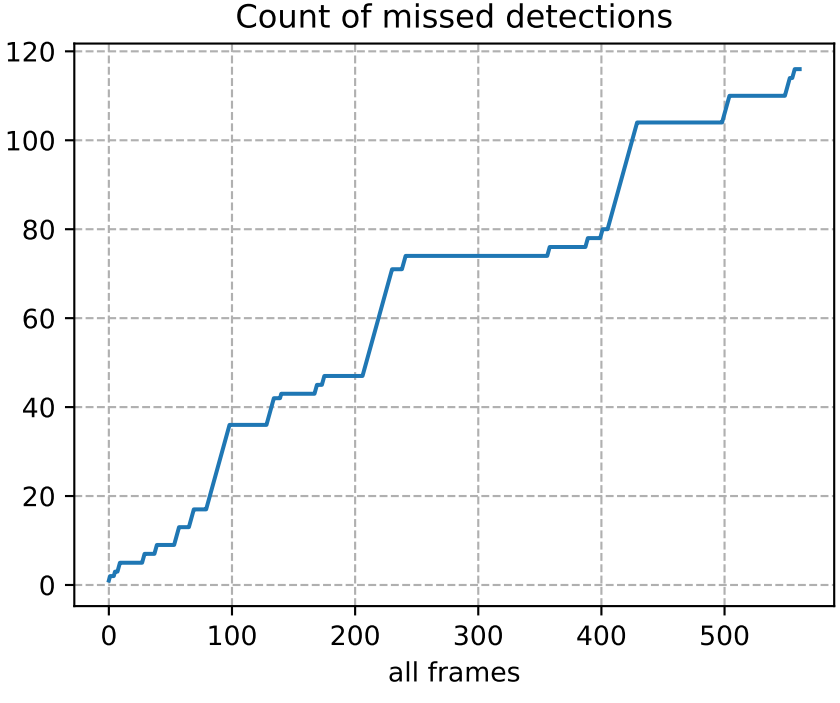


Performance Report for fast-512-30-bb.csv - ACC = [0.79%]

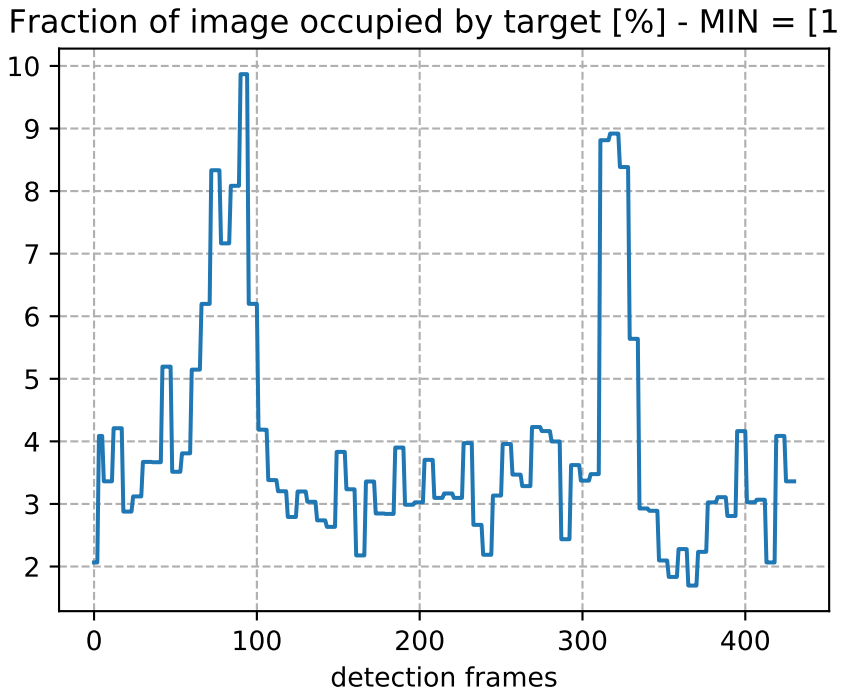


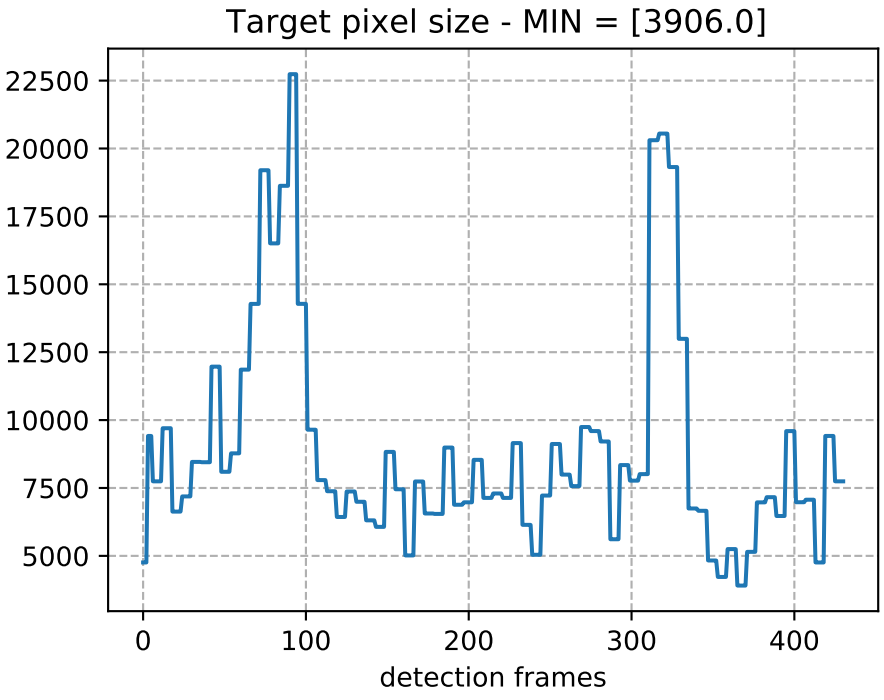


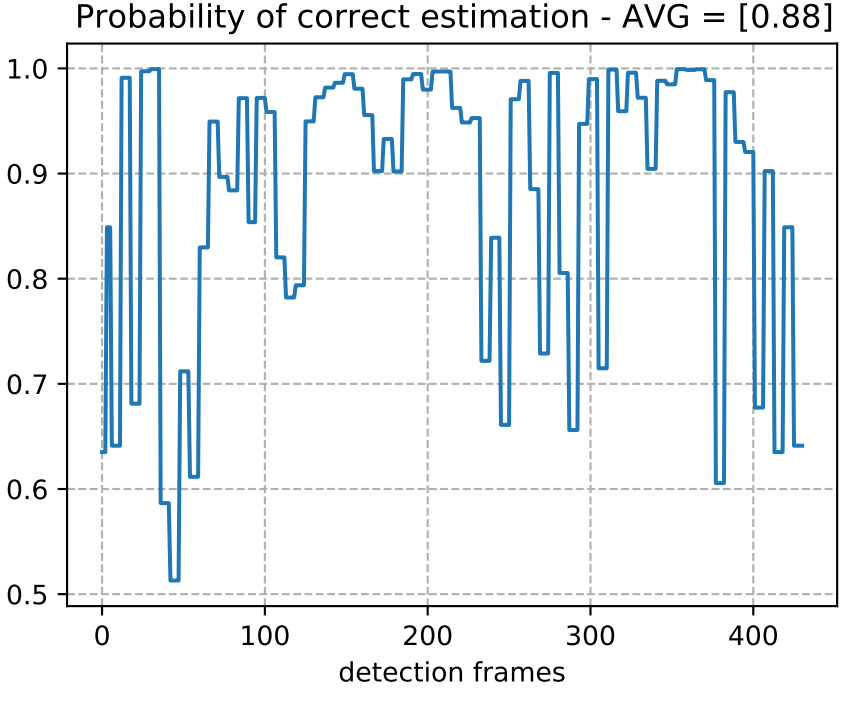


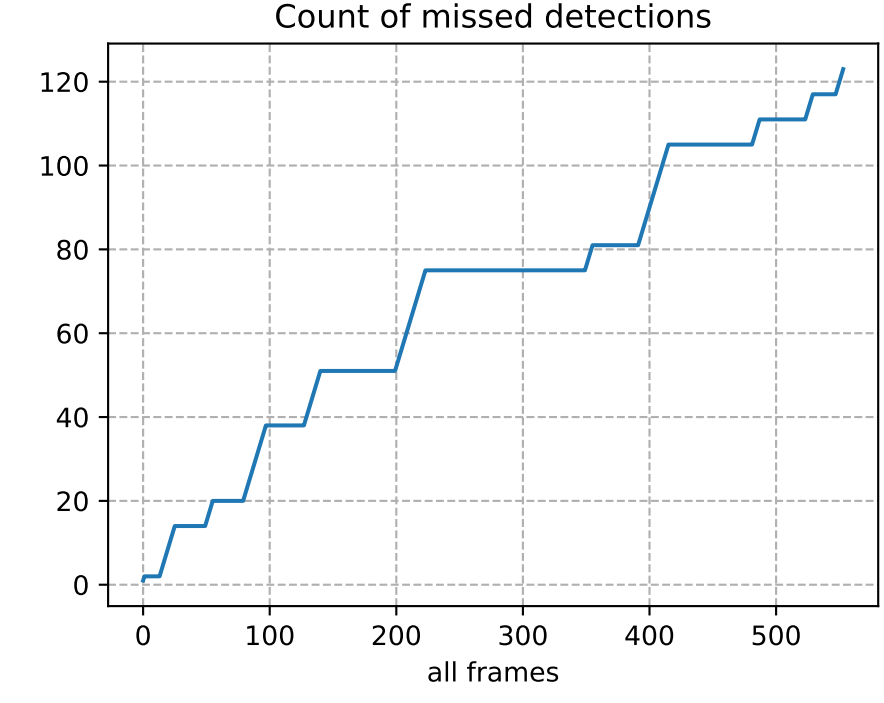


Performance Report for fast-640-10-bb.csv - ACC = [0.78%]

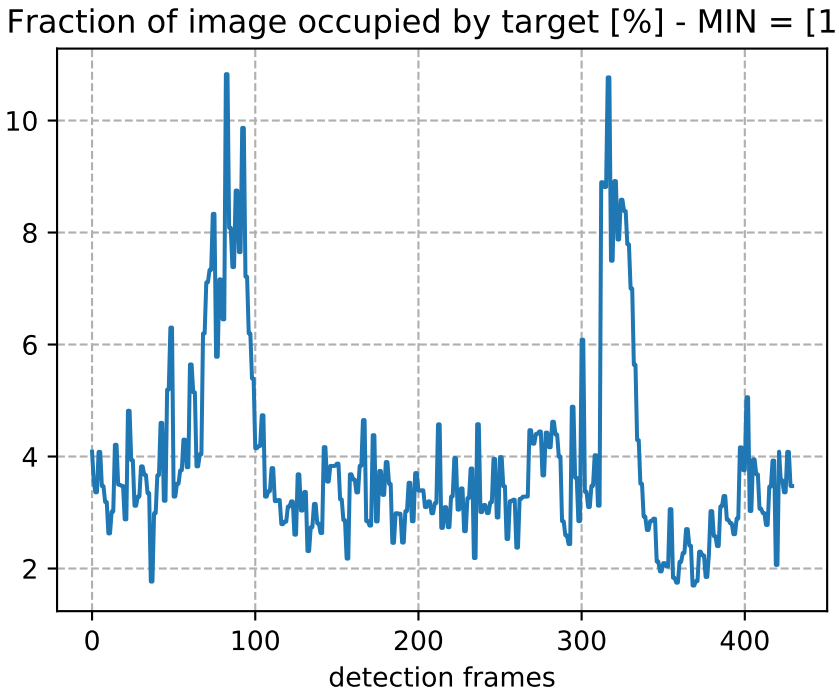


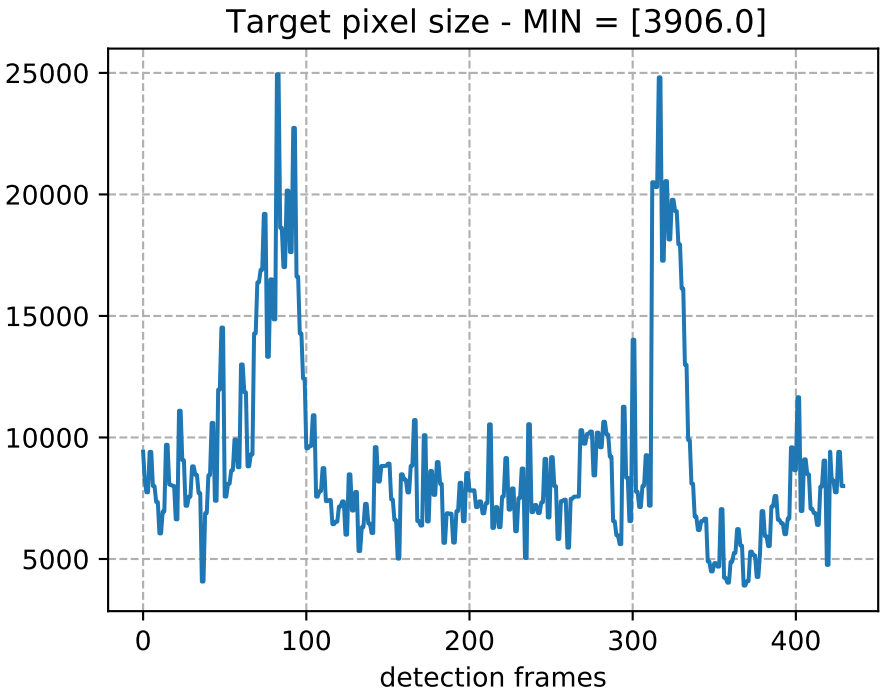


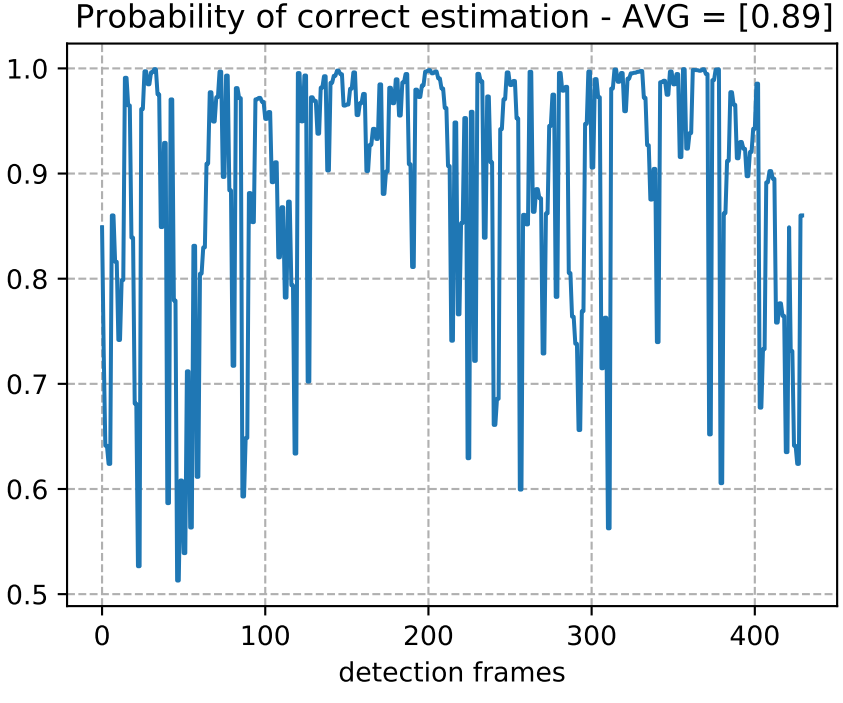


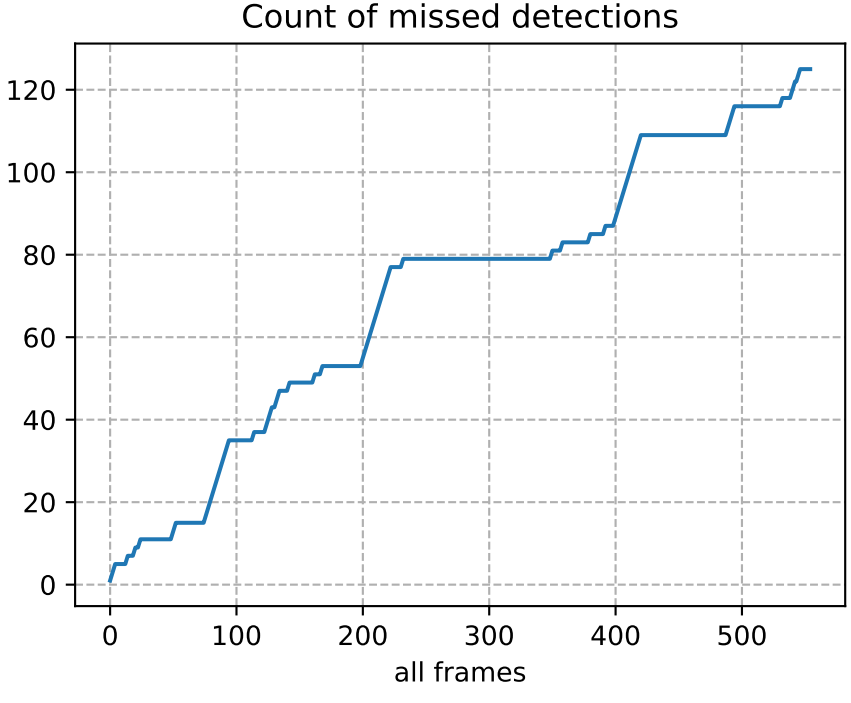


Performance Report for fast-640-30-bb.csv - ACC = [0.77%]

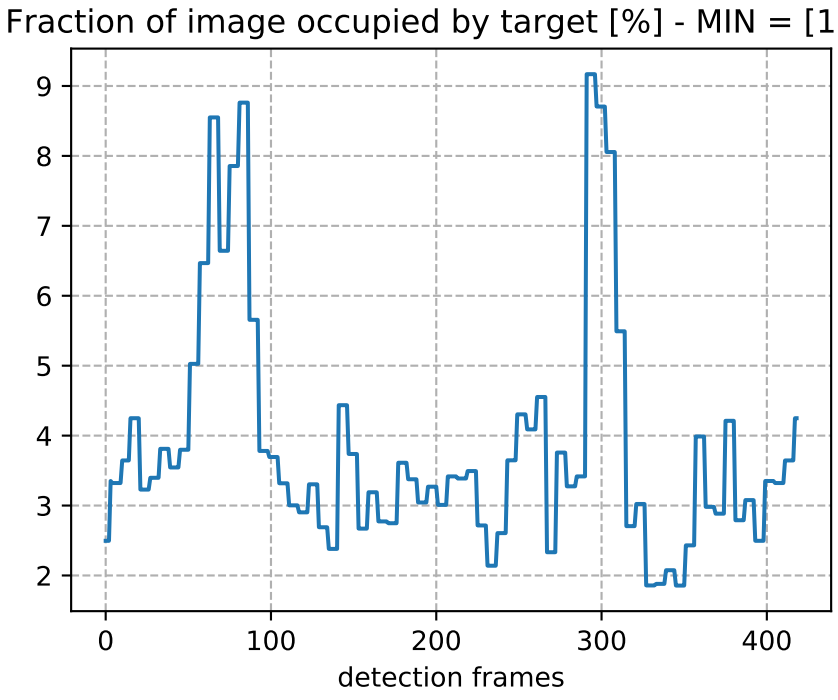


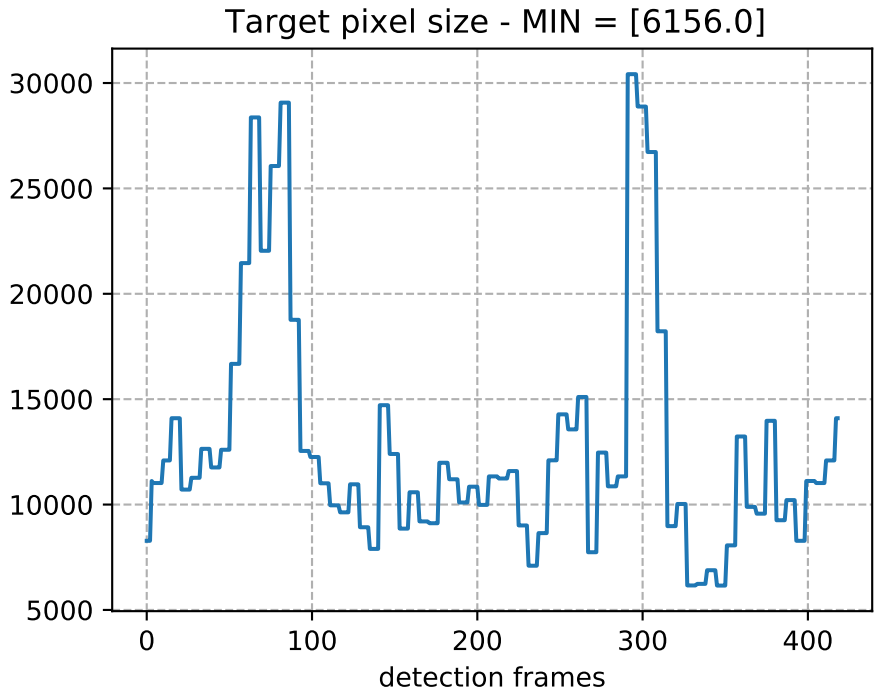


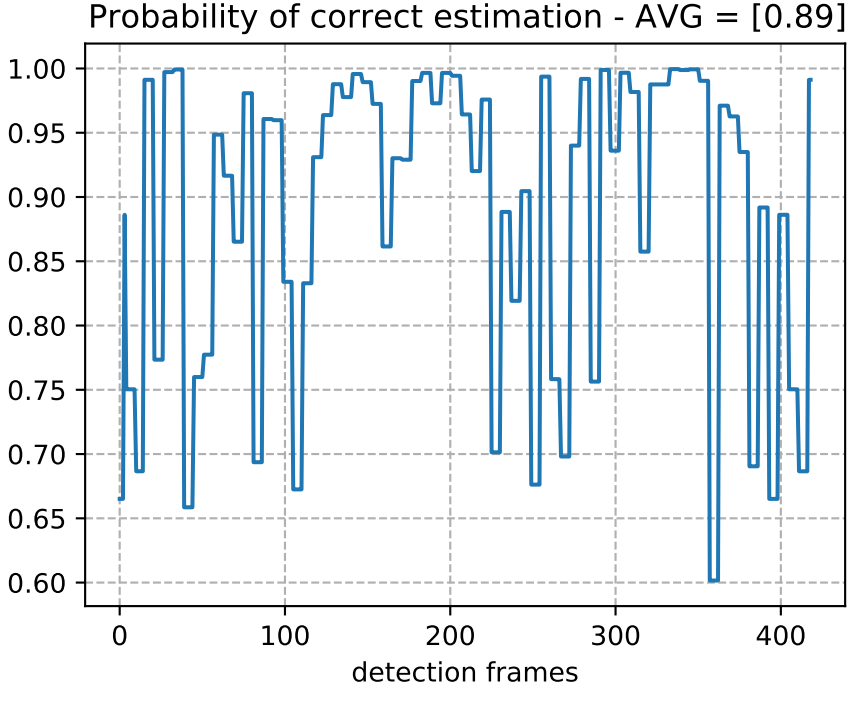


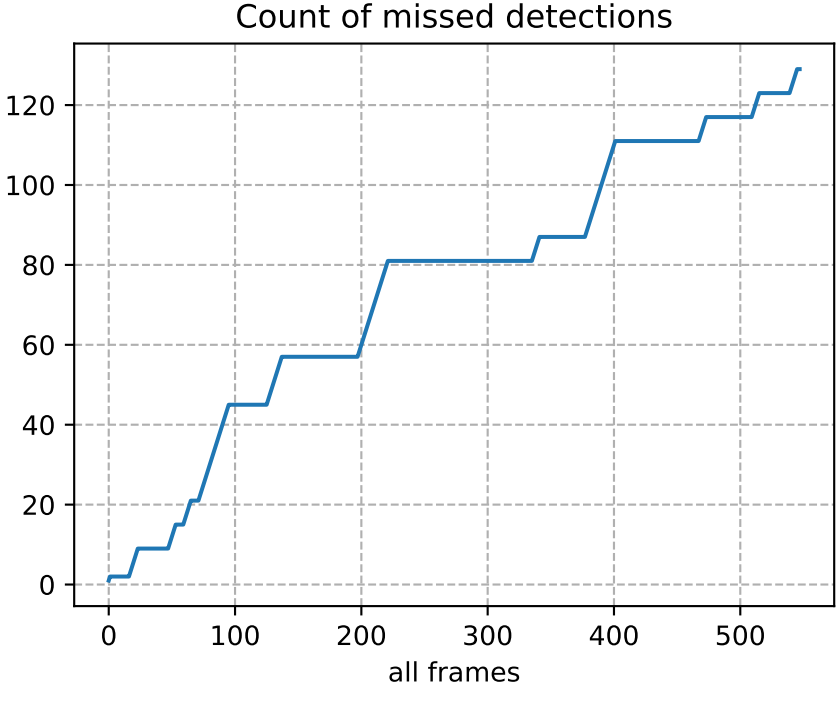
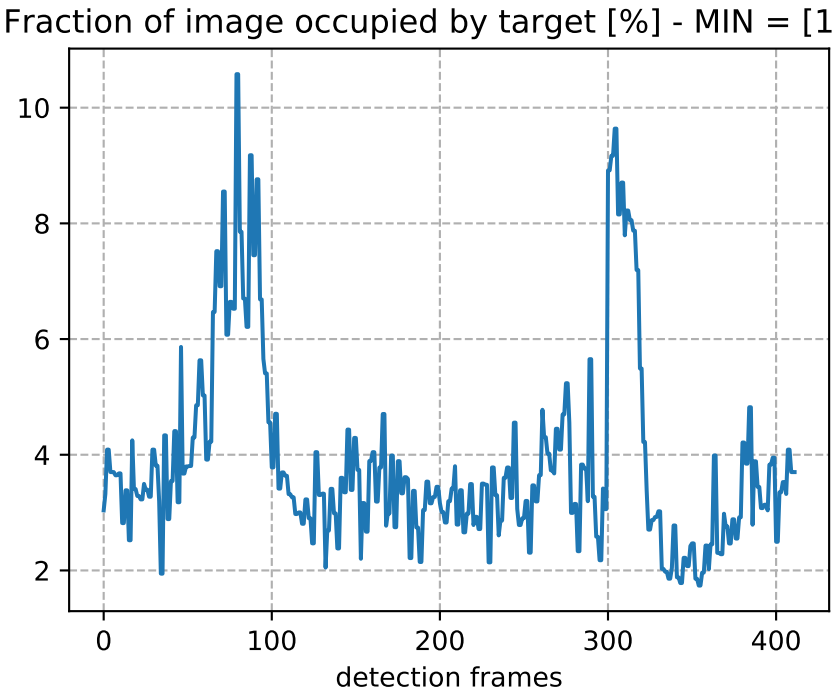
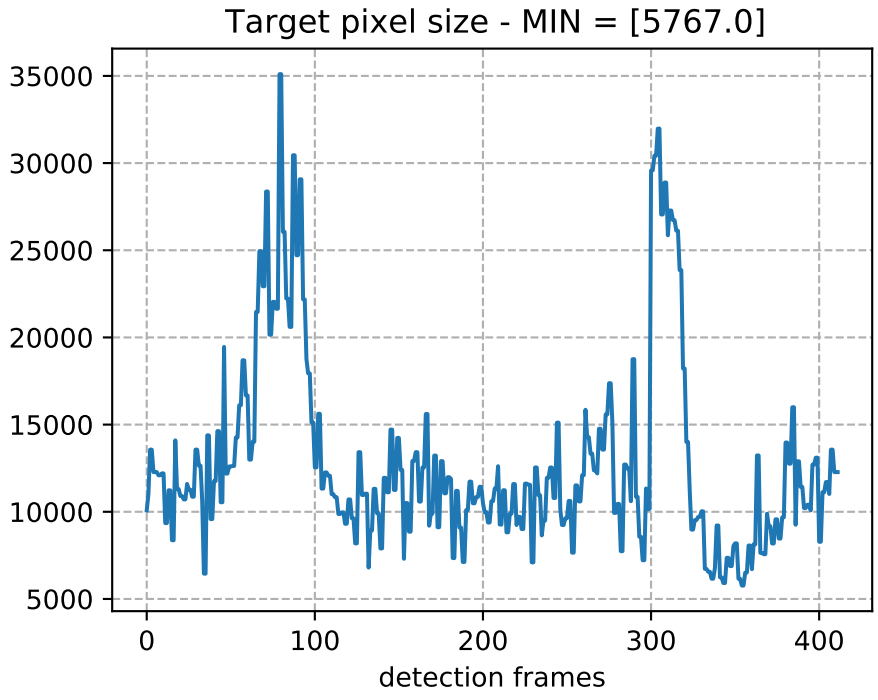
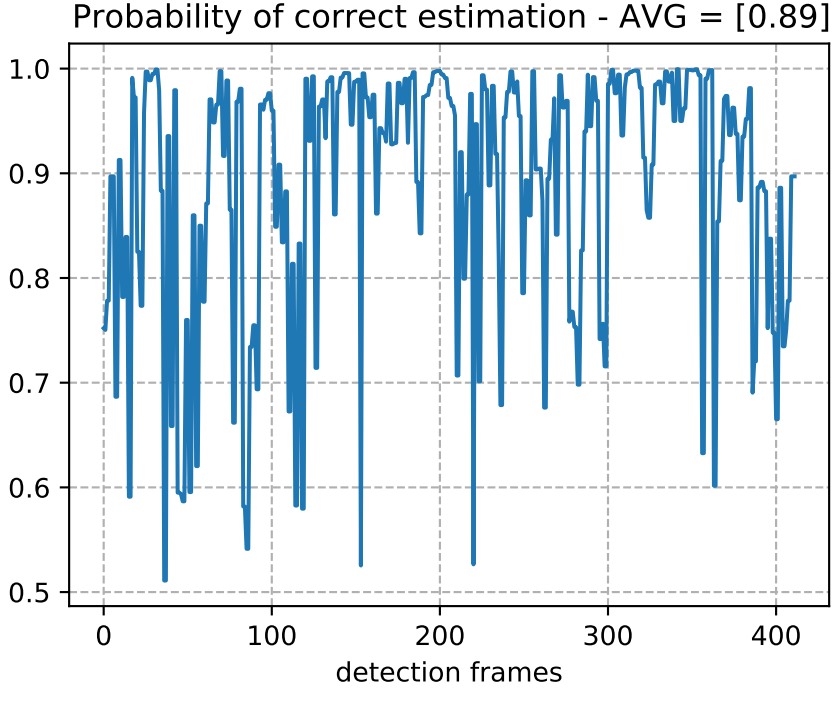
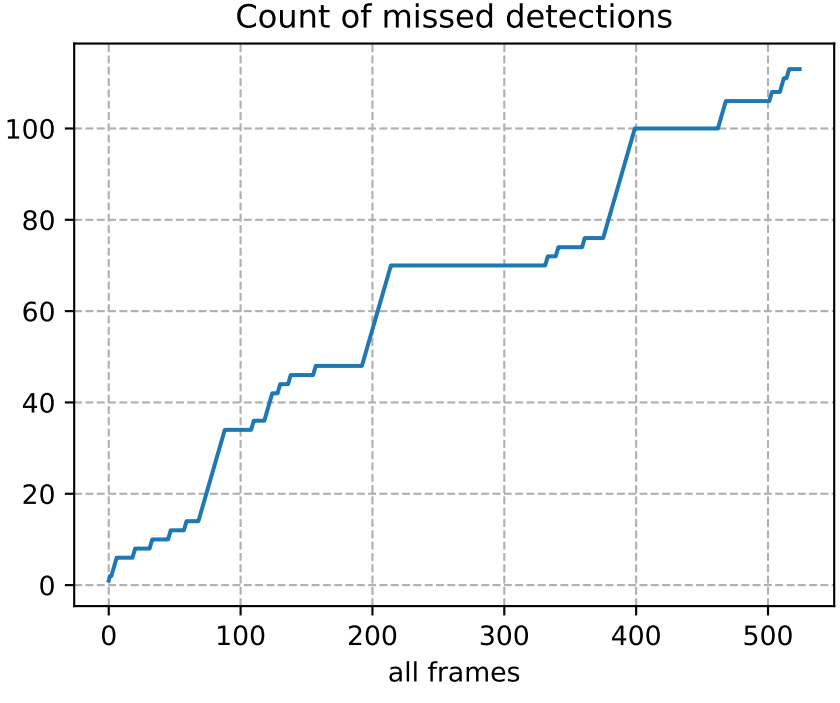


Performance Report for fast-768-10-bb.csv - ACC = [0.76%]









Performance Report for fast-768-30-bb.csv - ACC = [0.78%]