

Template Matching with Deformable Diversity Similarity – Supplementary Materials

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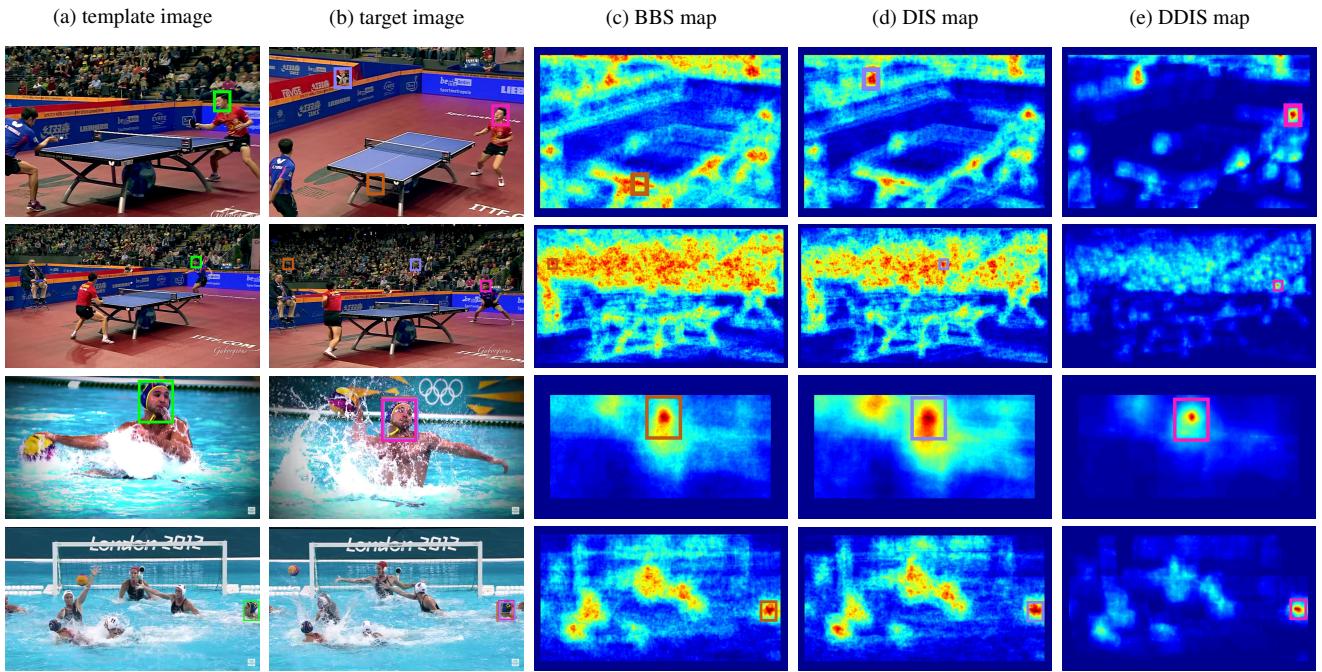
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Qualitative comparison to BBS: In the following figures, the template marked in green (a), is detected in the target image (b) using three Template Matching methods: **BBS**, **DIS** and **DDIS** (all using the RGB features). Best seen on screen.



*Authors contributed equally

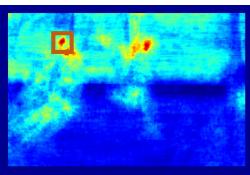
(a) template image



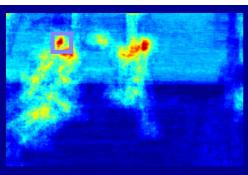
(b) target image



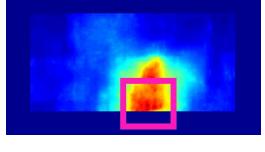
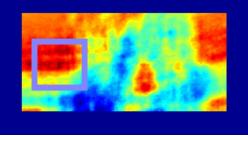
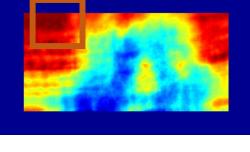
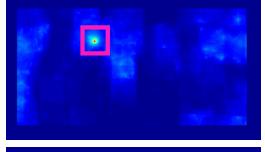
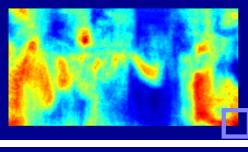
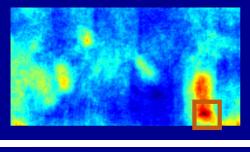
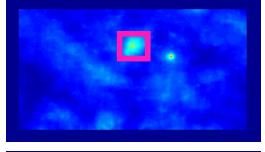
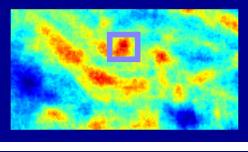
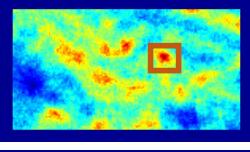
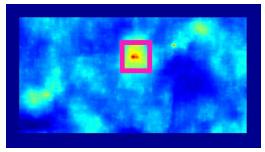
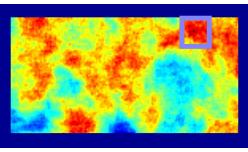
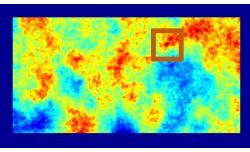
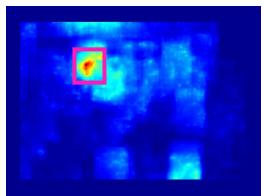
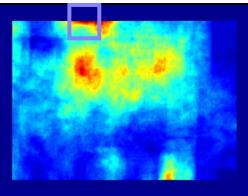
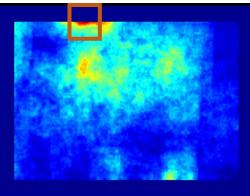
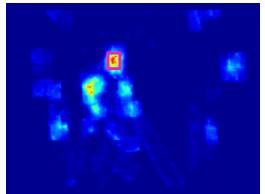
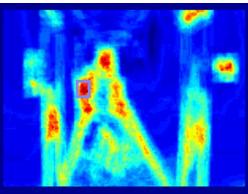
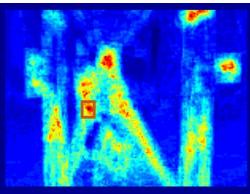
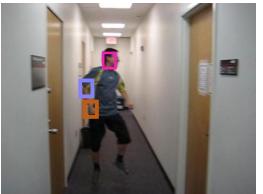
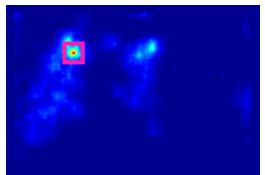
(c) BBS map



(d) DIS map



(e) DDIS map



Template Matching Results: In the following figures, the template marked in green (a), is detected in the target image (b) using DDIS with **RGB** and deep features extracted from **VGG** network. The annotated ground-truth is marked green in (b). All of these examples are taken from the benchmark of Oron et al [1], with a gap of 25 frame between template and target image.

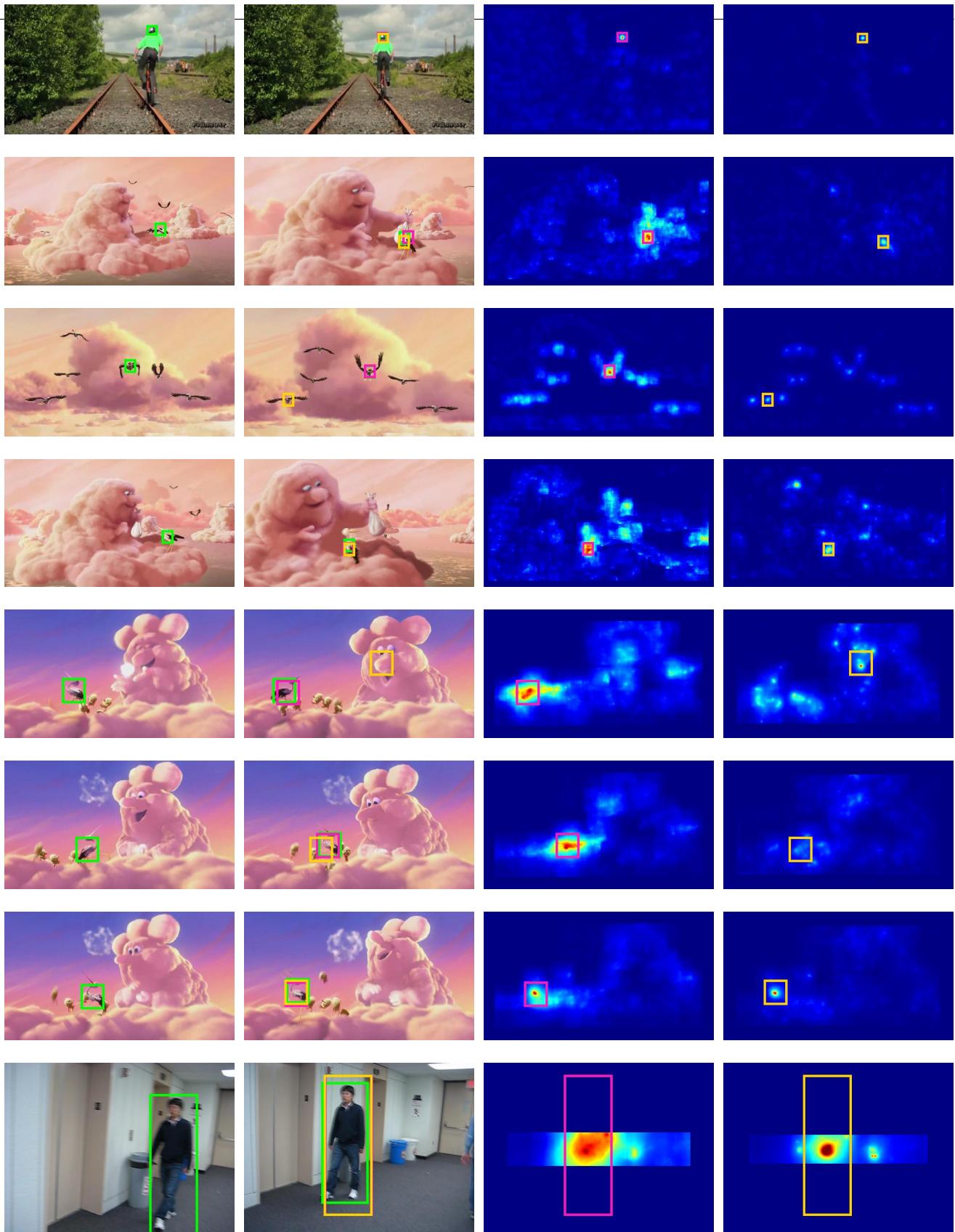


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map



(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

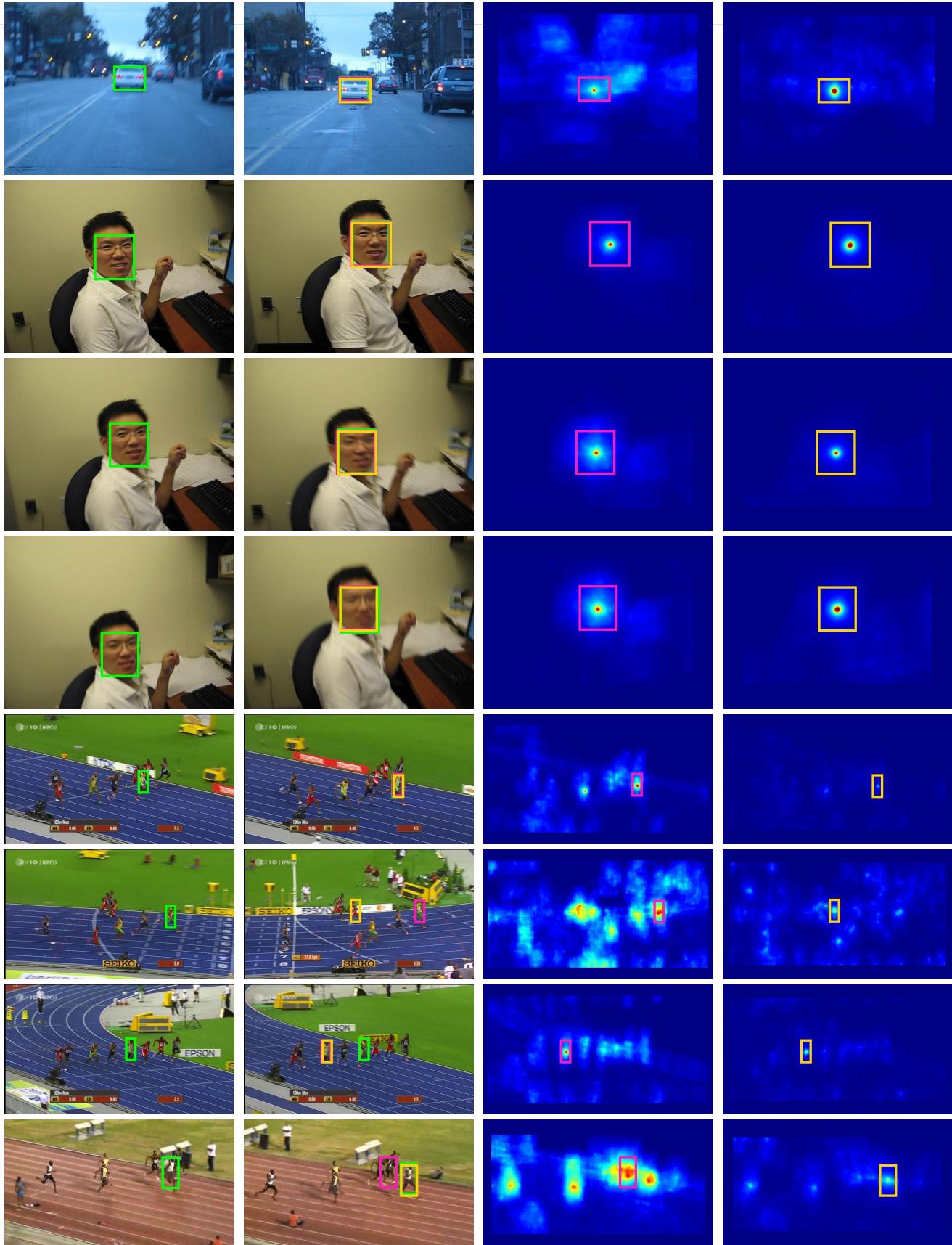


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

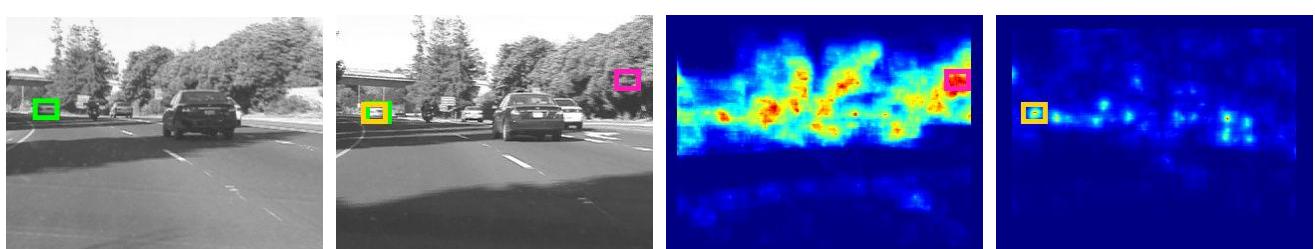
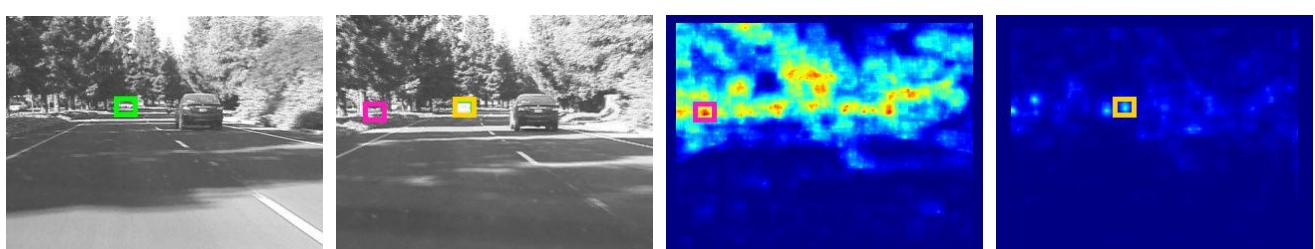
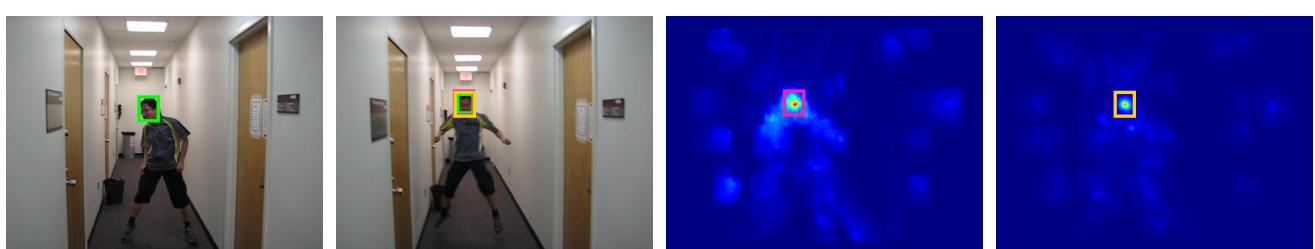
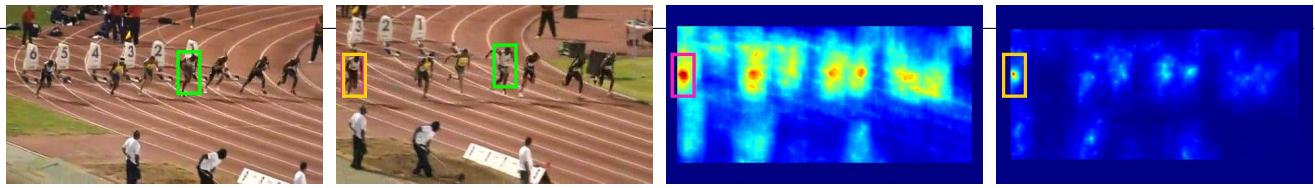


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

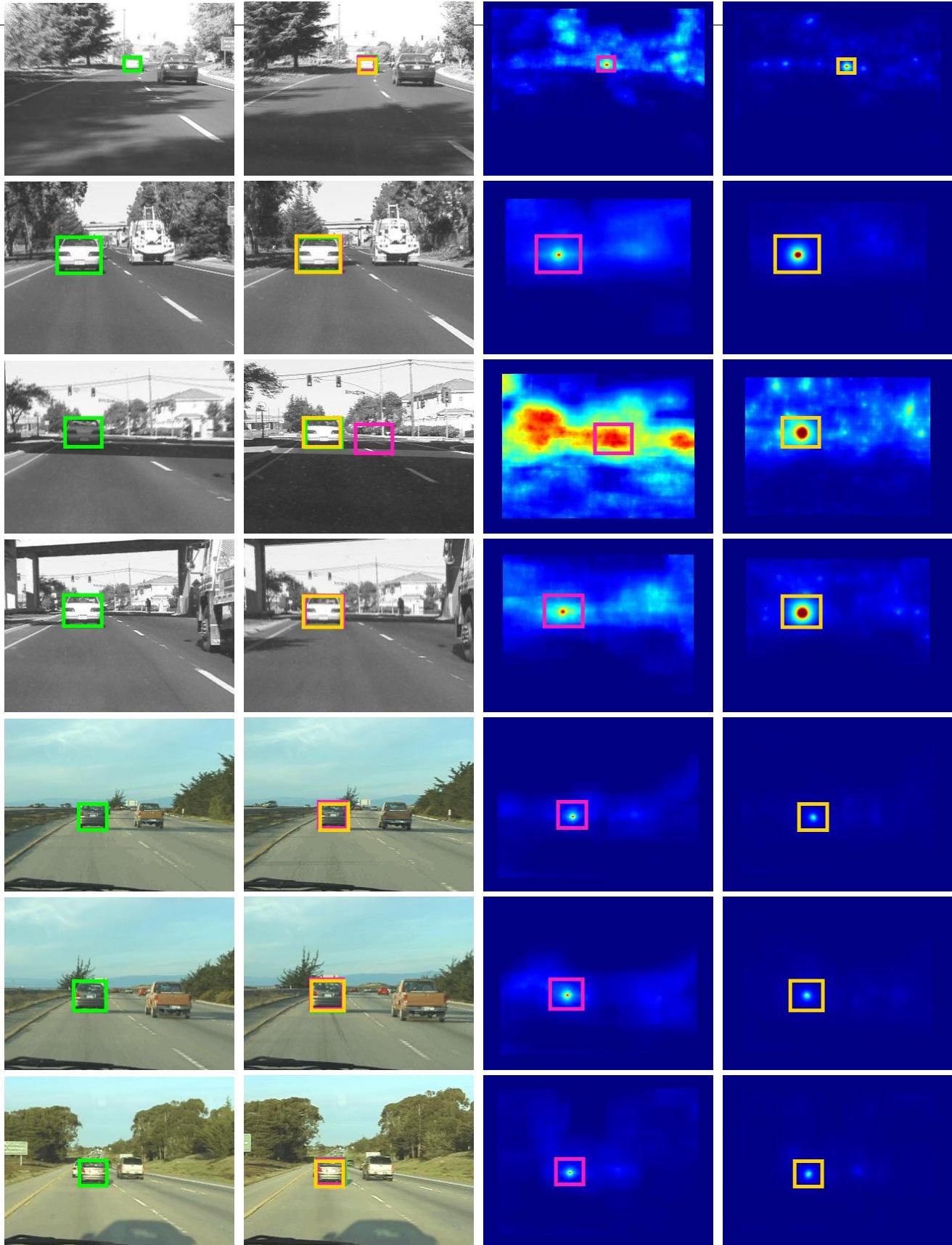


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

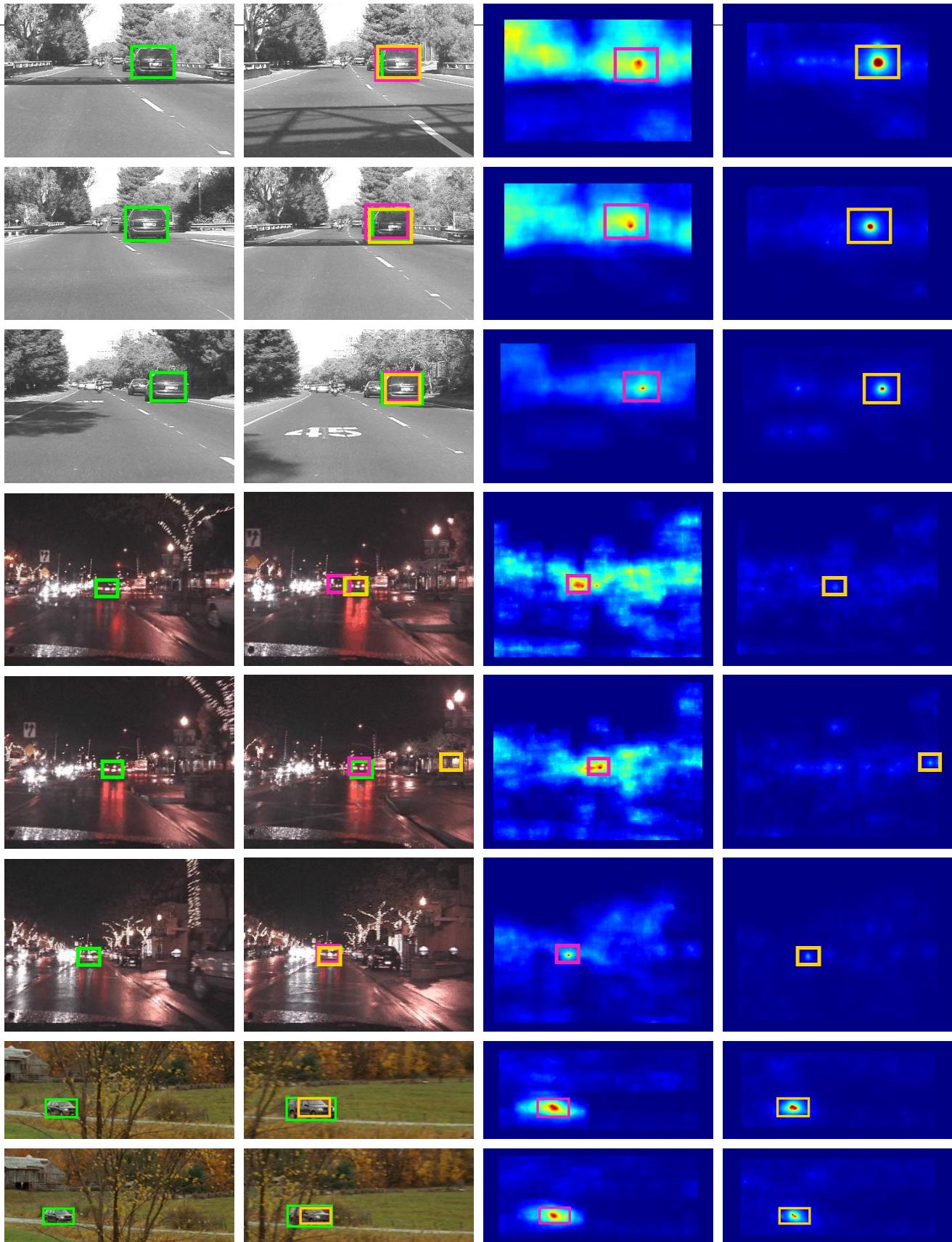


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

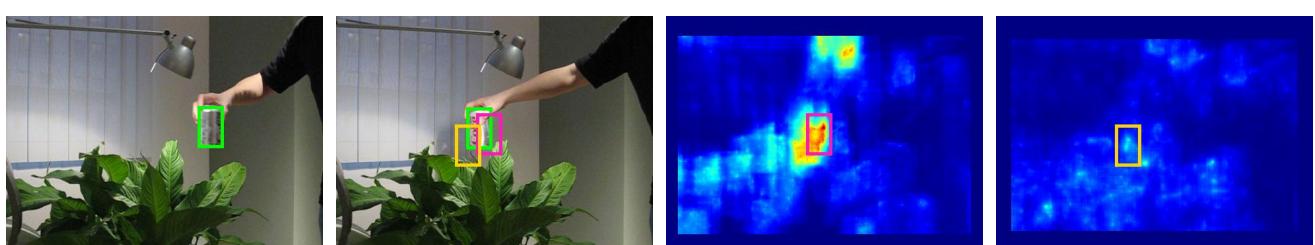
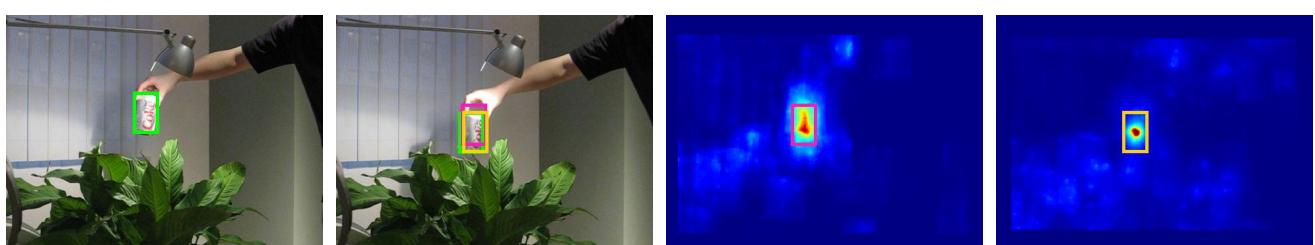
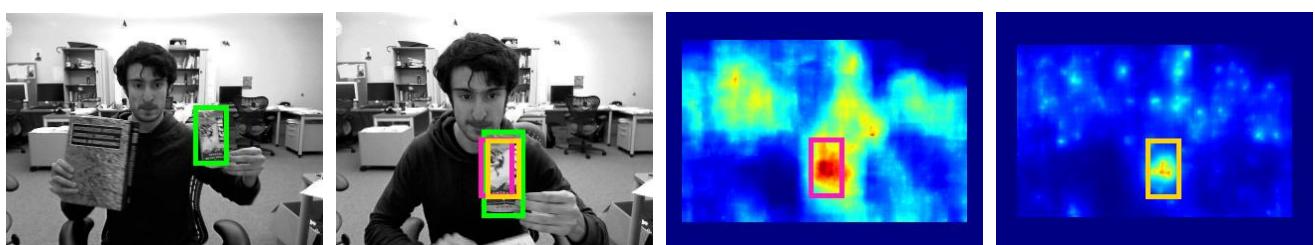
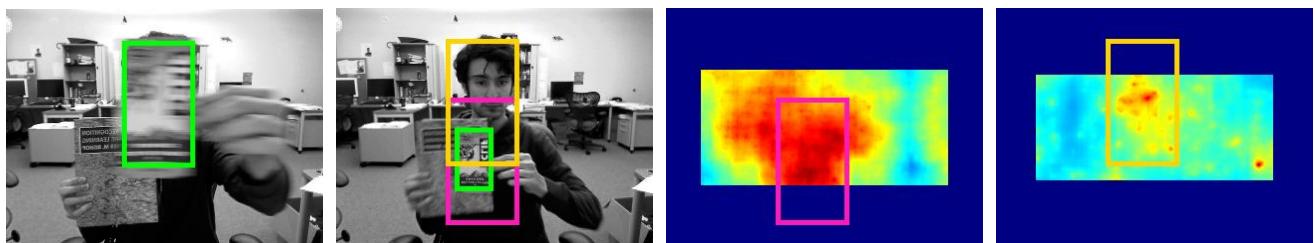
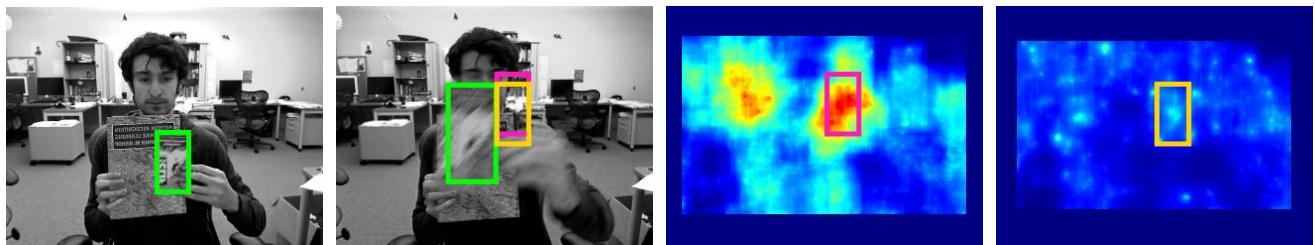
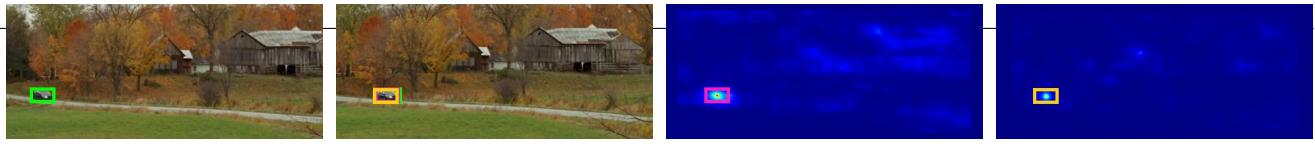


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

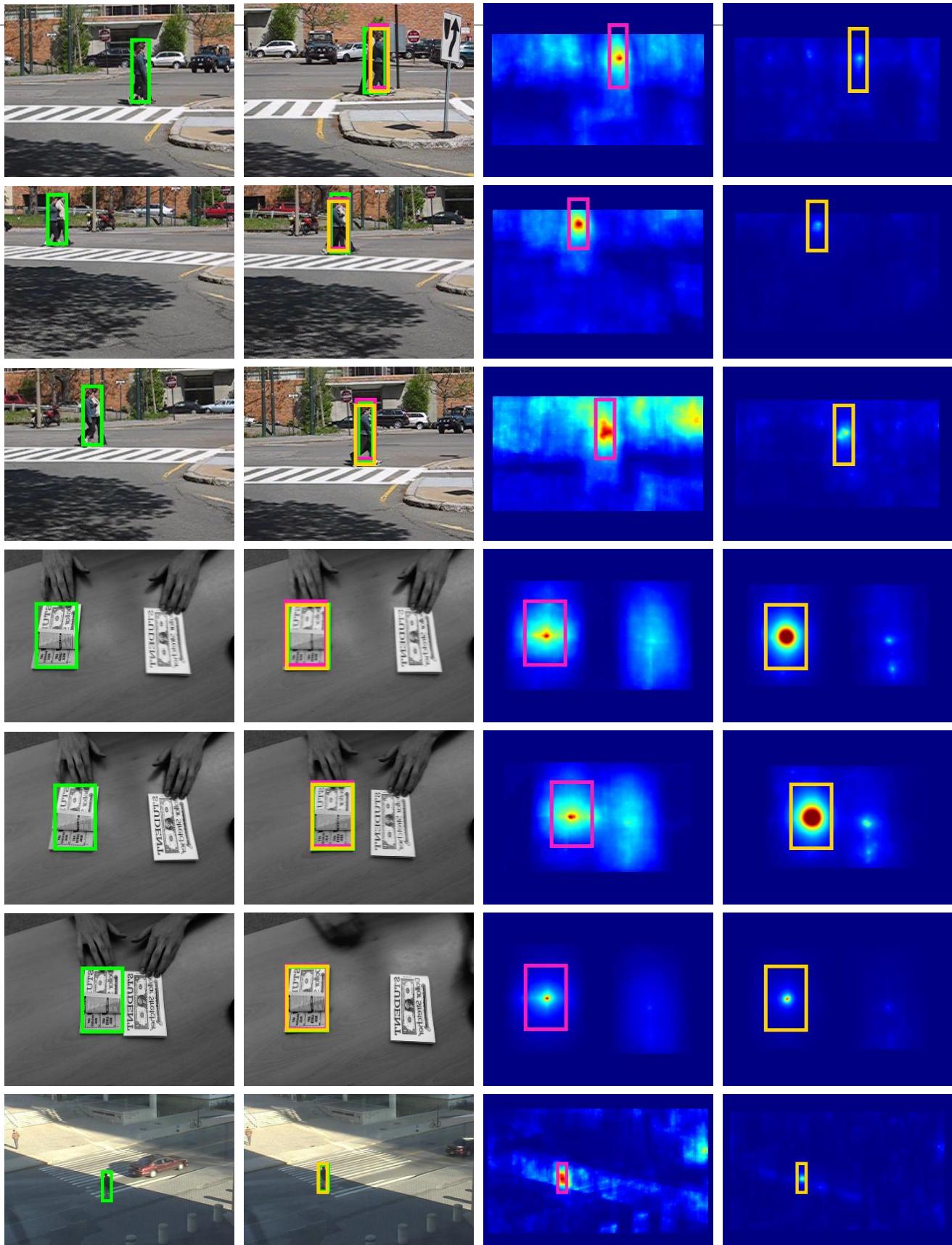


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

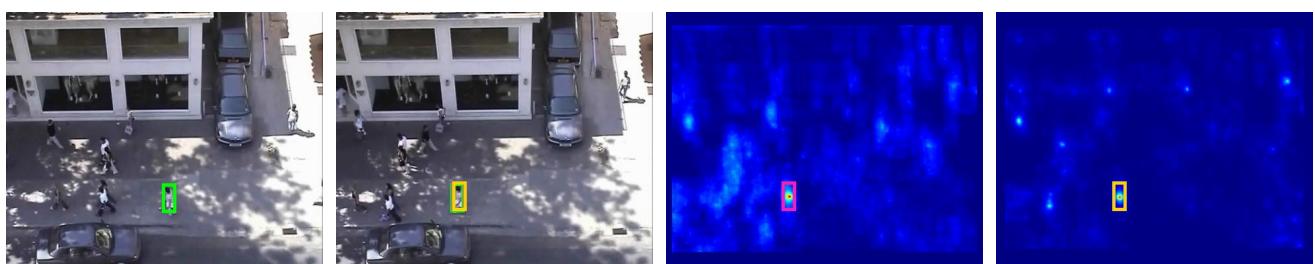


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

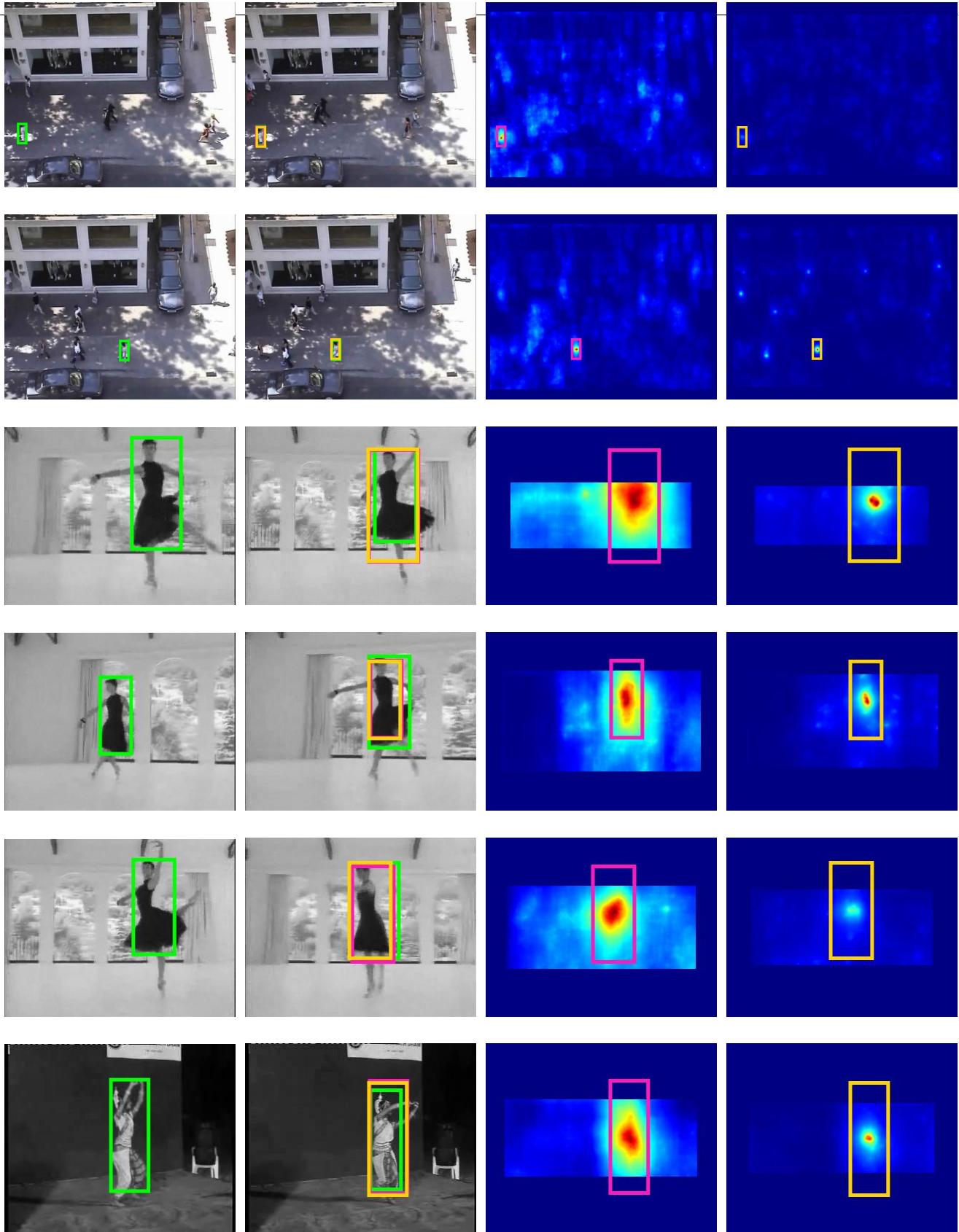


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

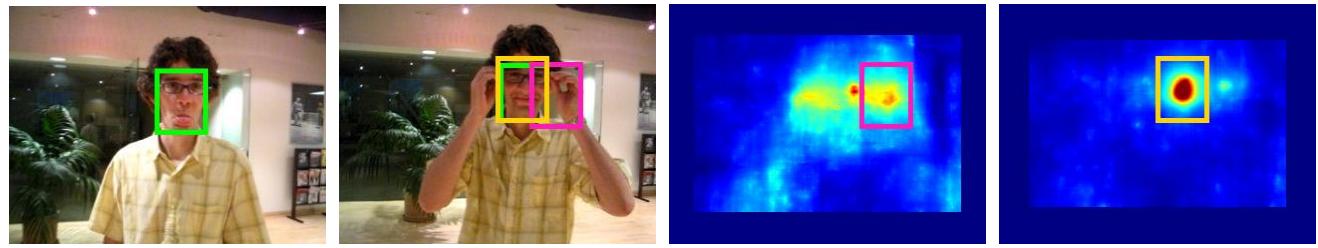
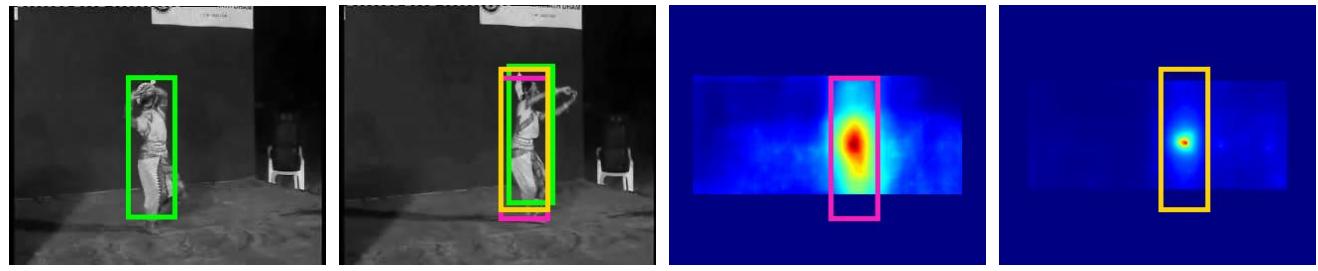
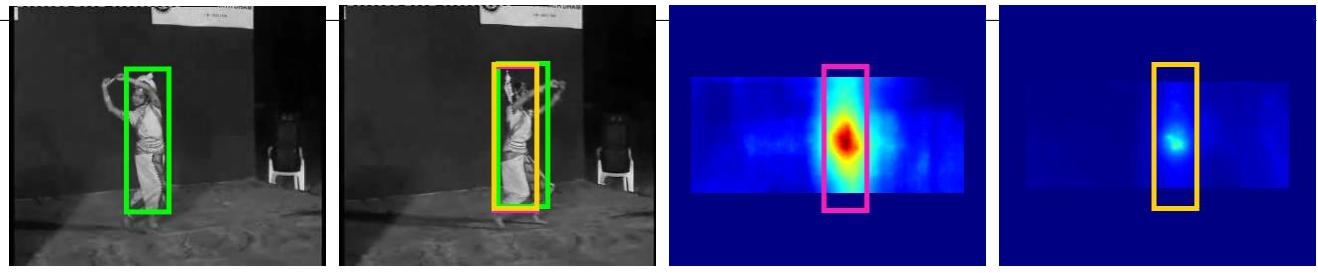


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

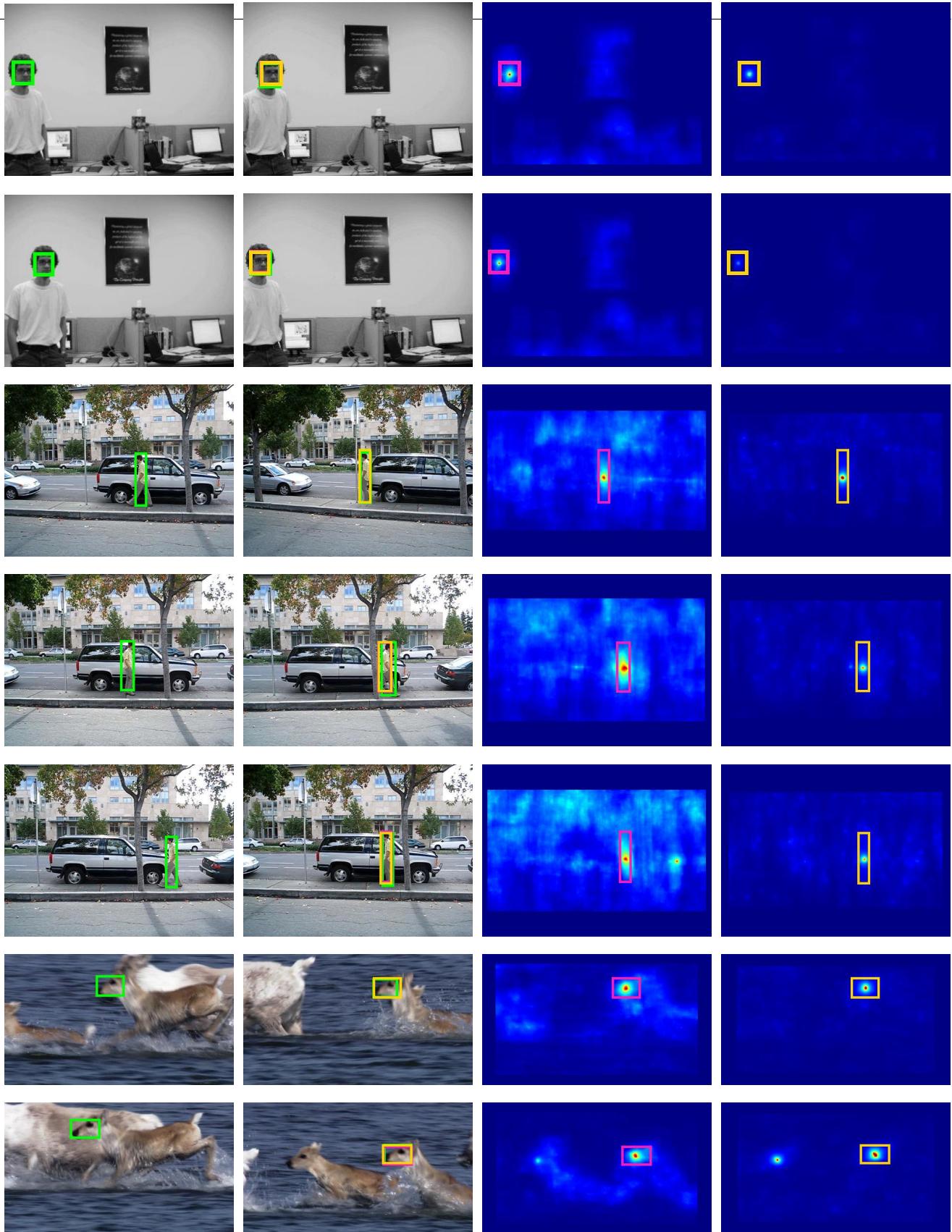


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

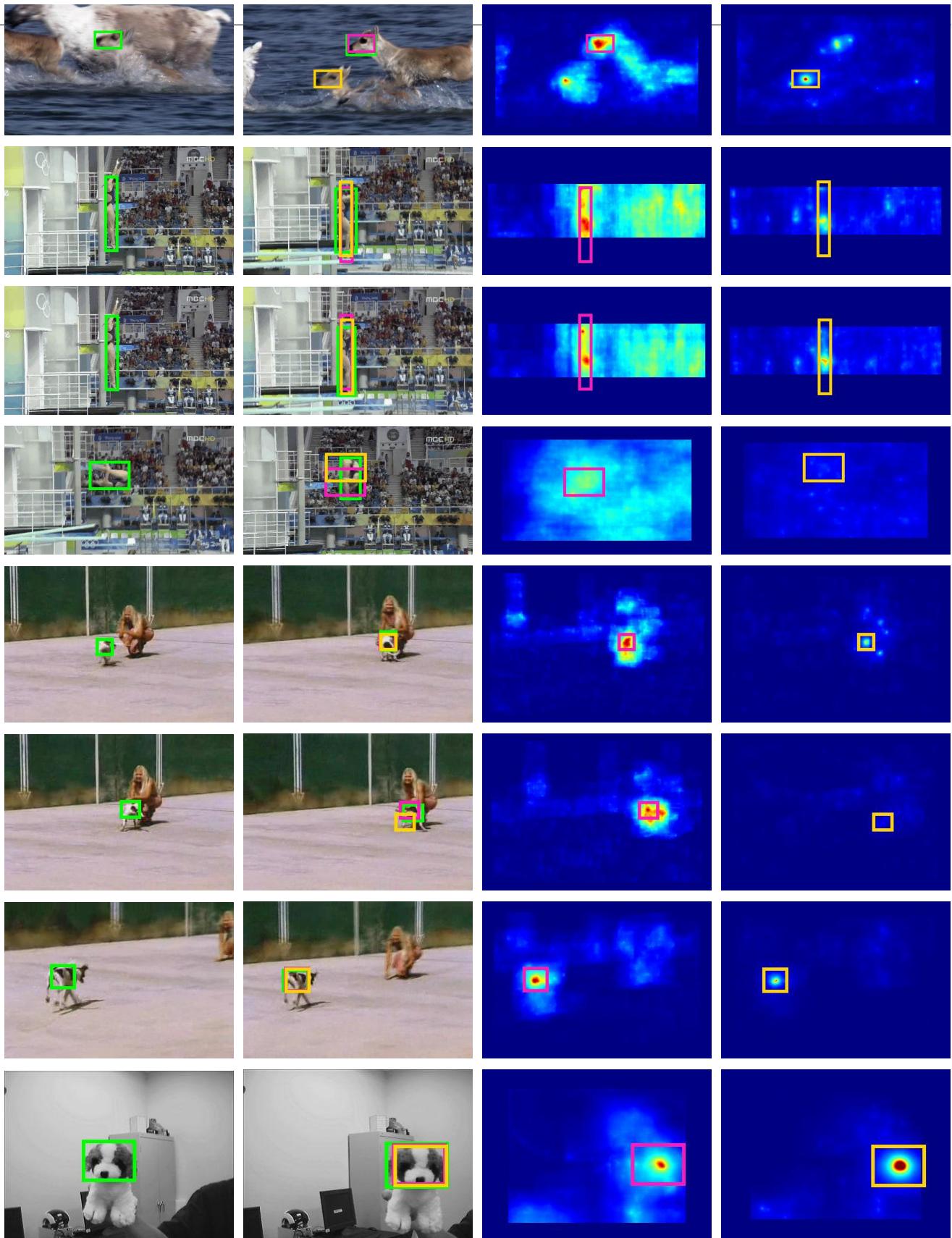


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

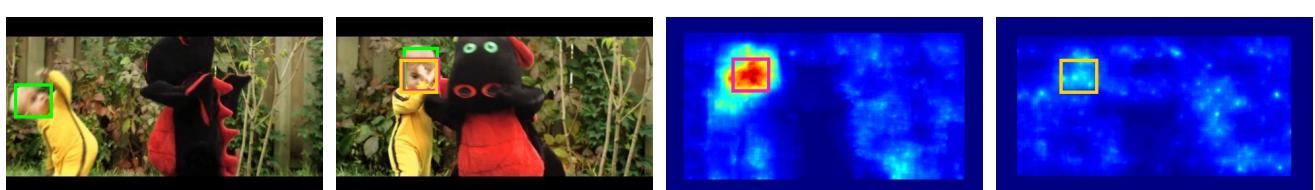
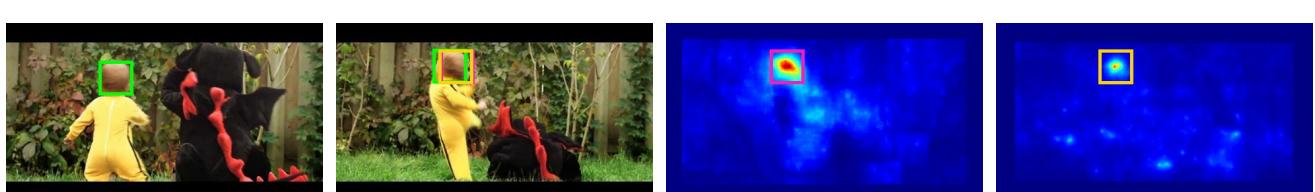
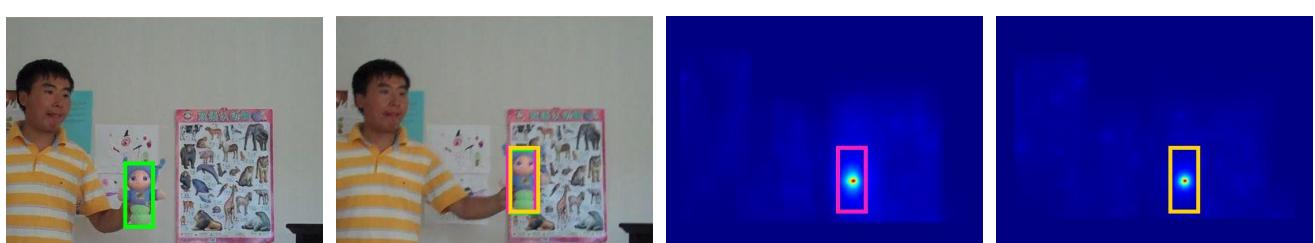
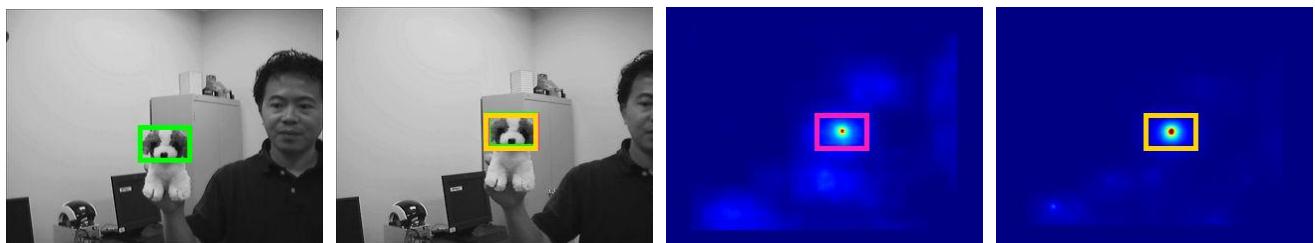
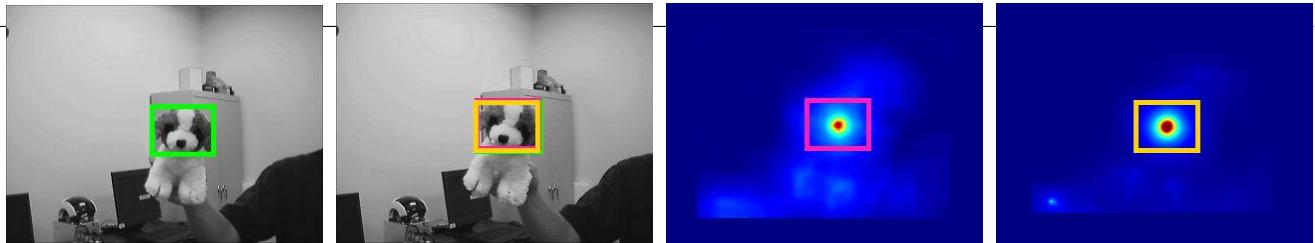


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

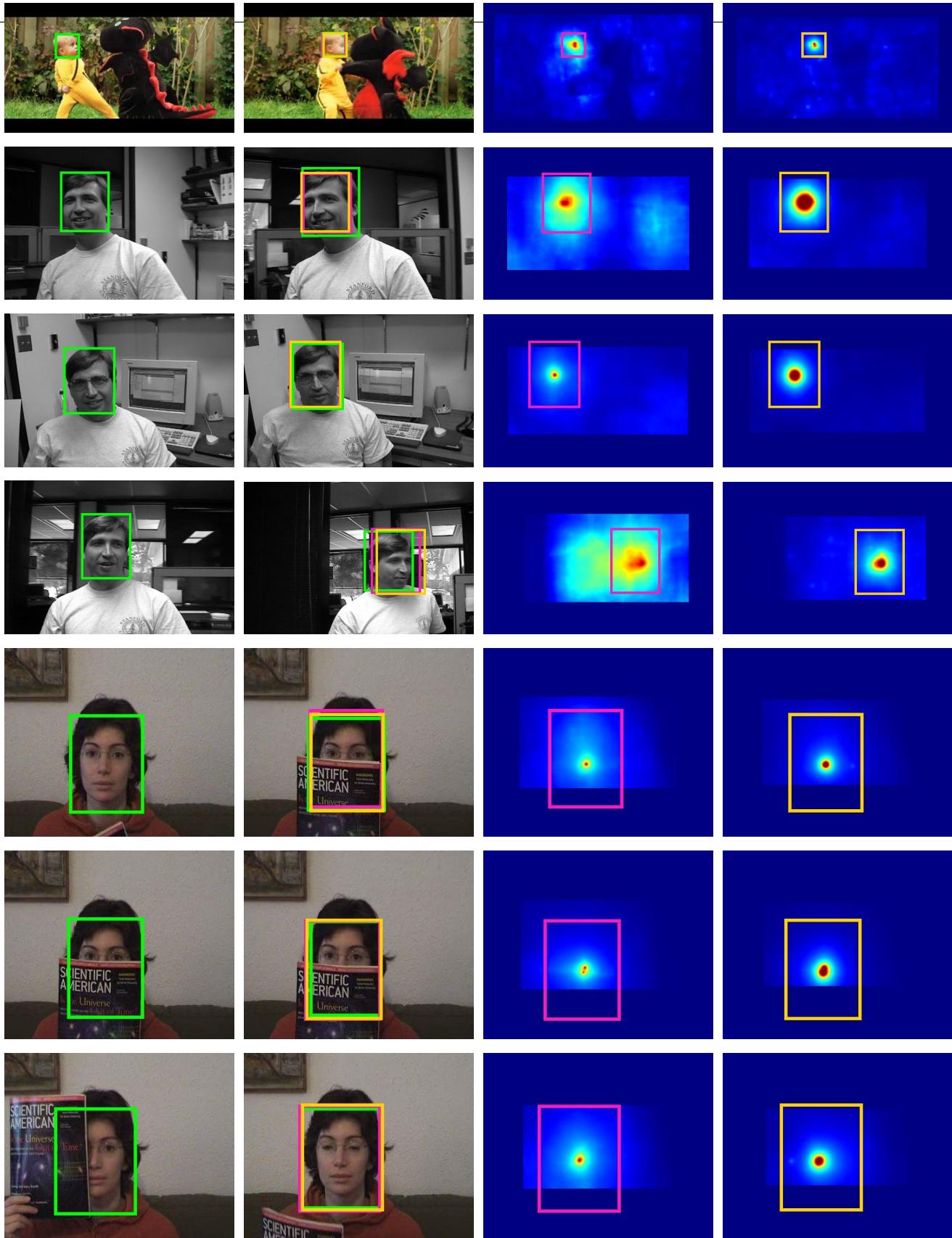


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

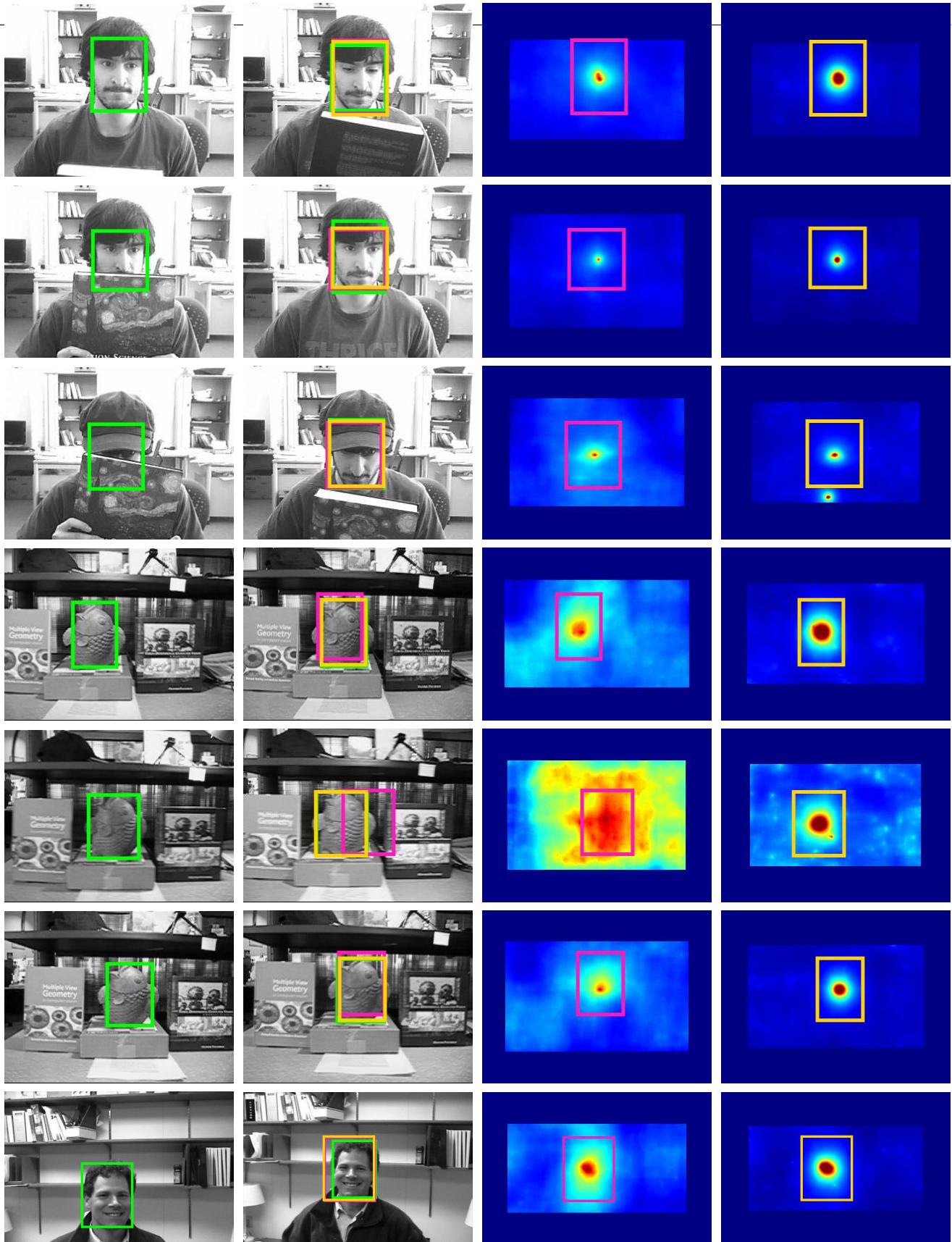


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

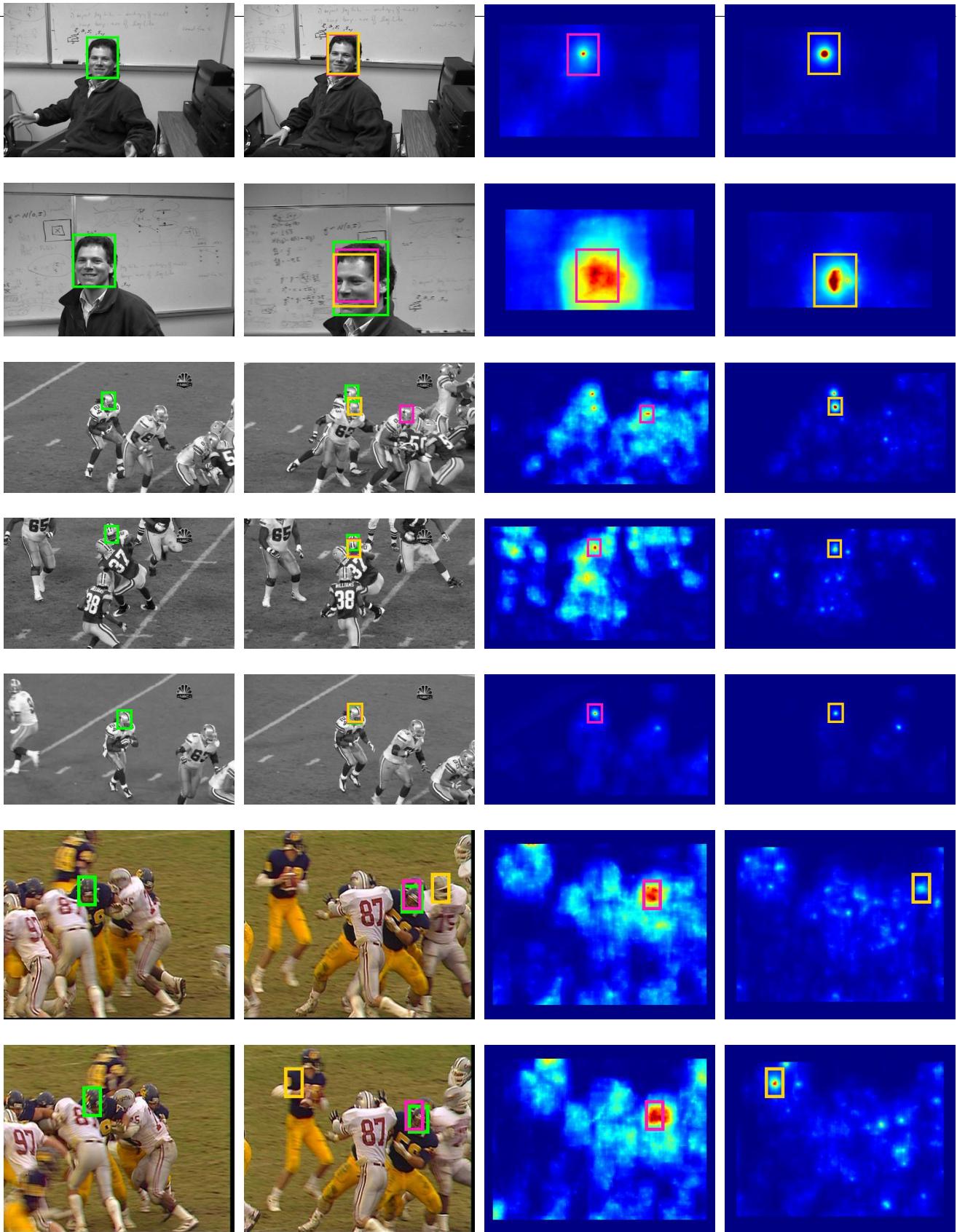


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

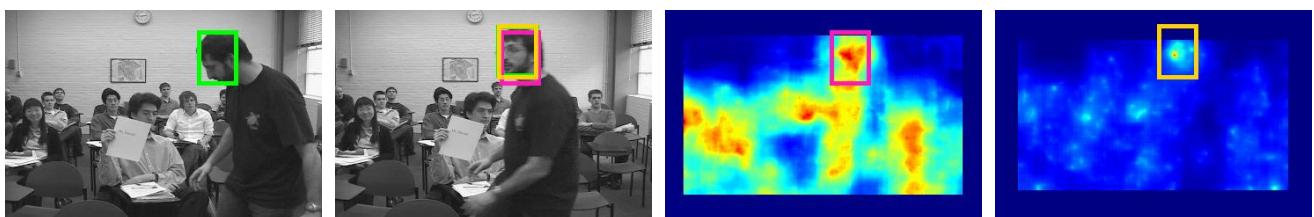
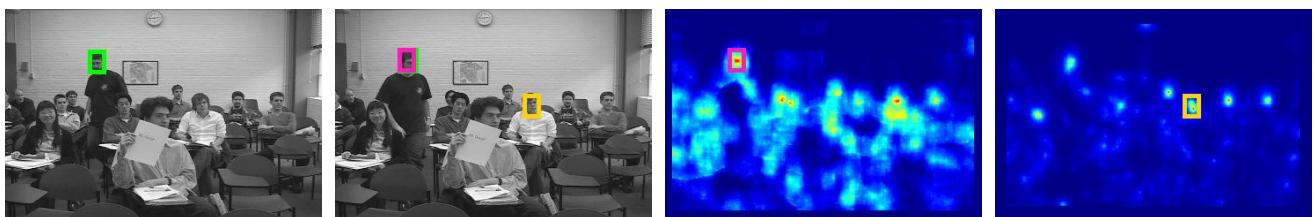
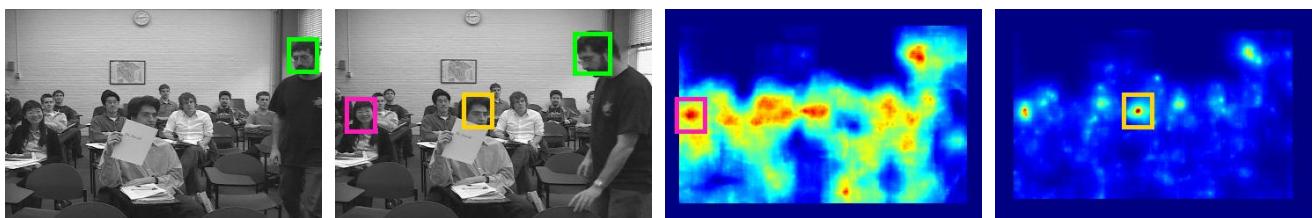
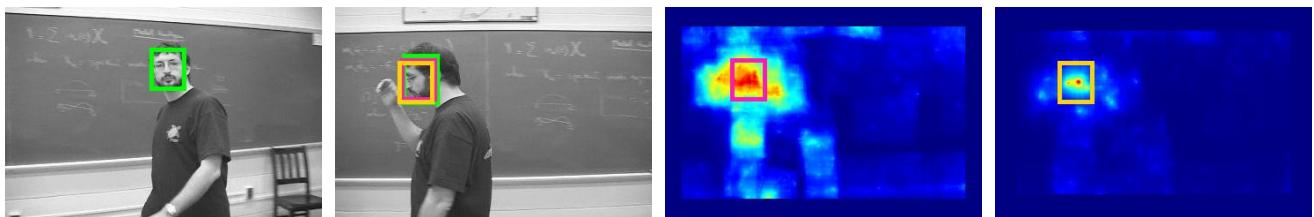
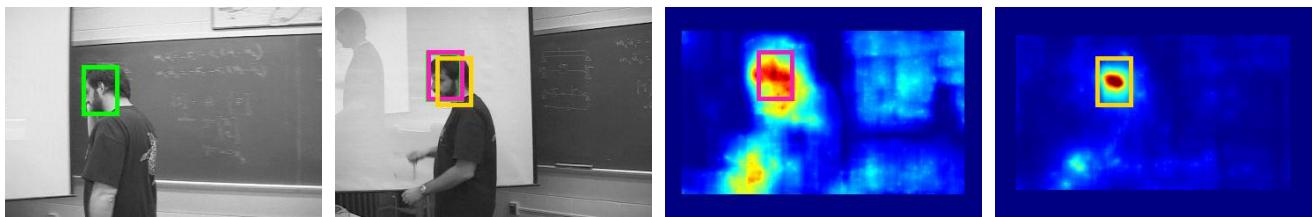
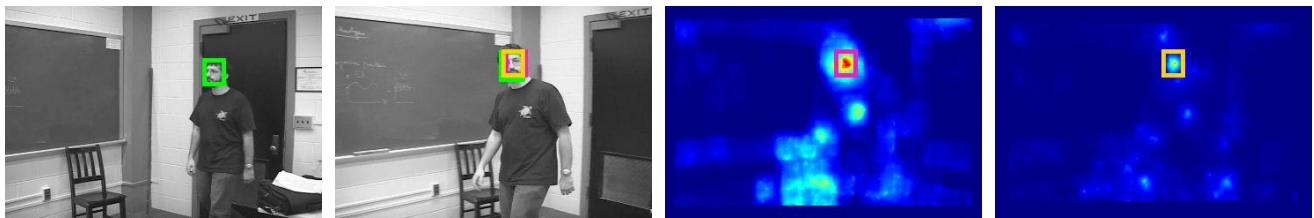
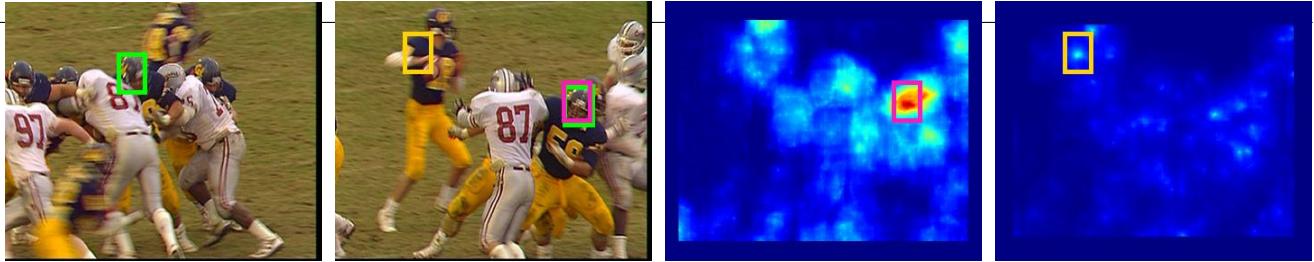


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

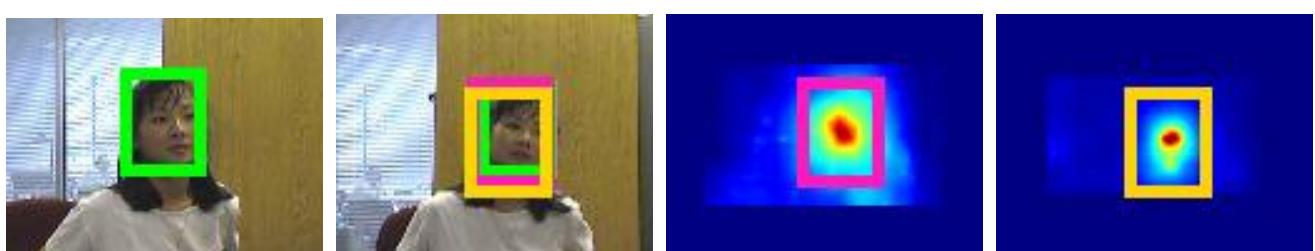
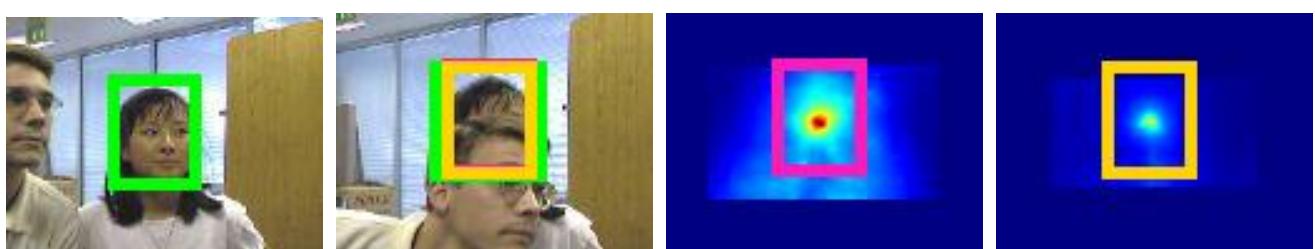
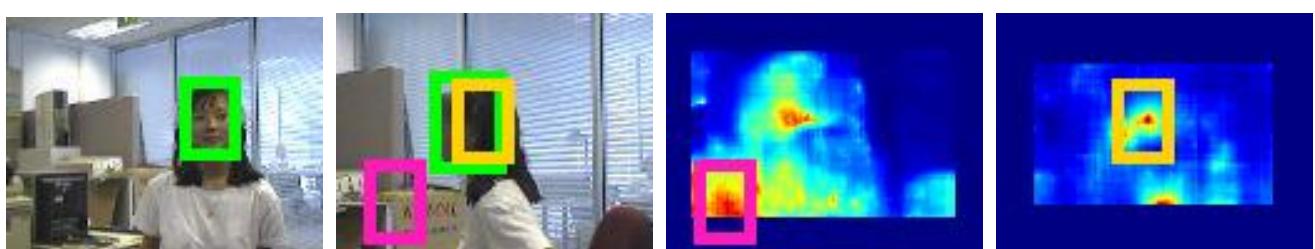
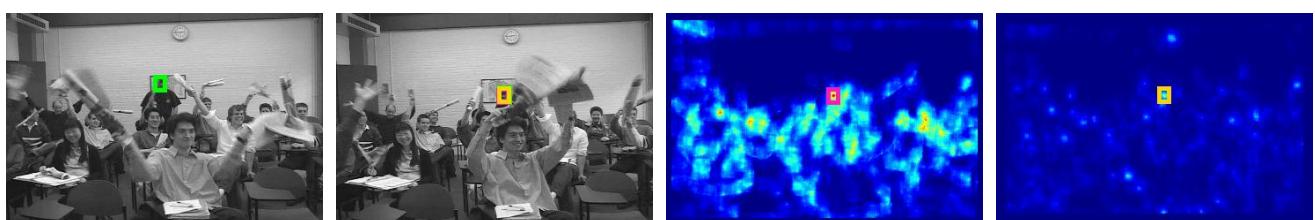
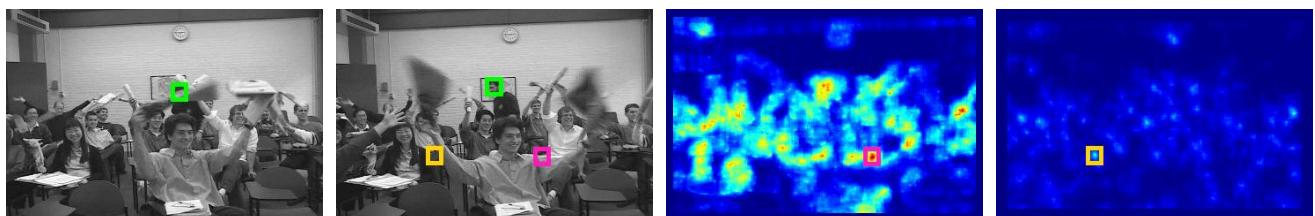
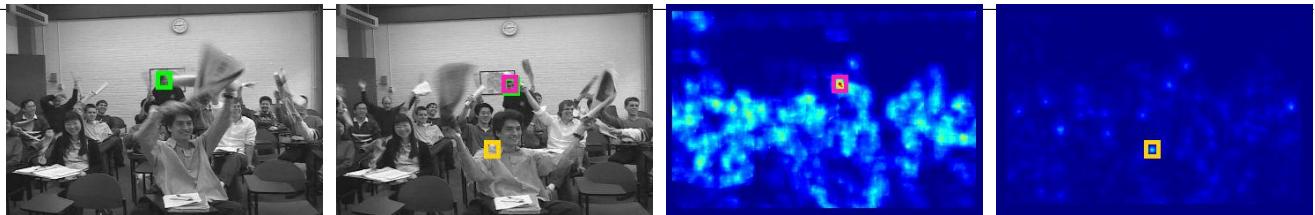


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

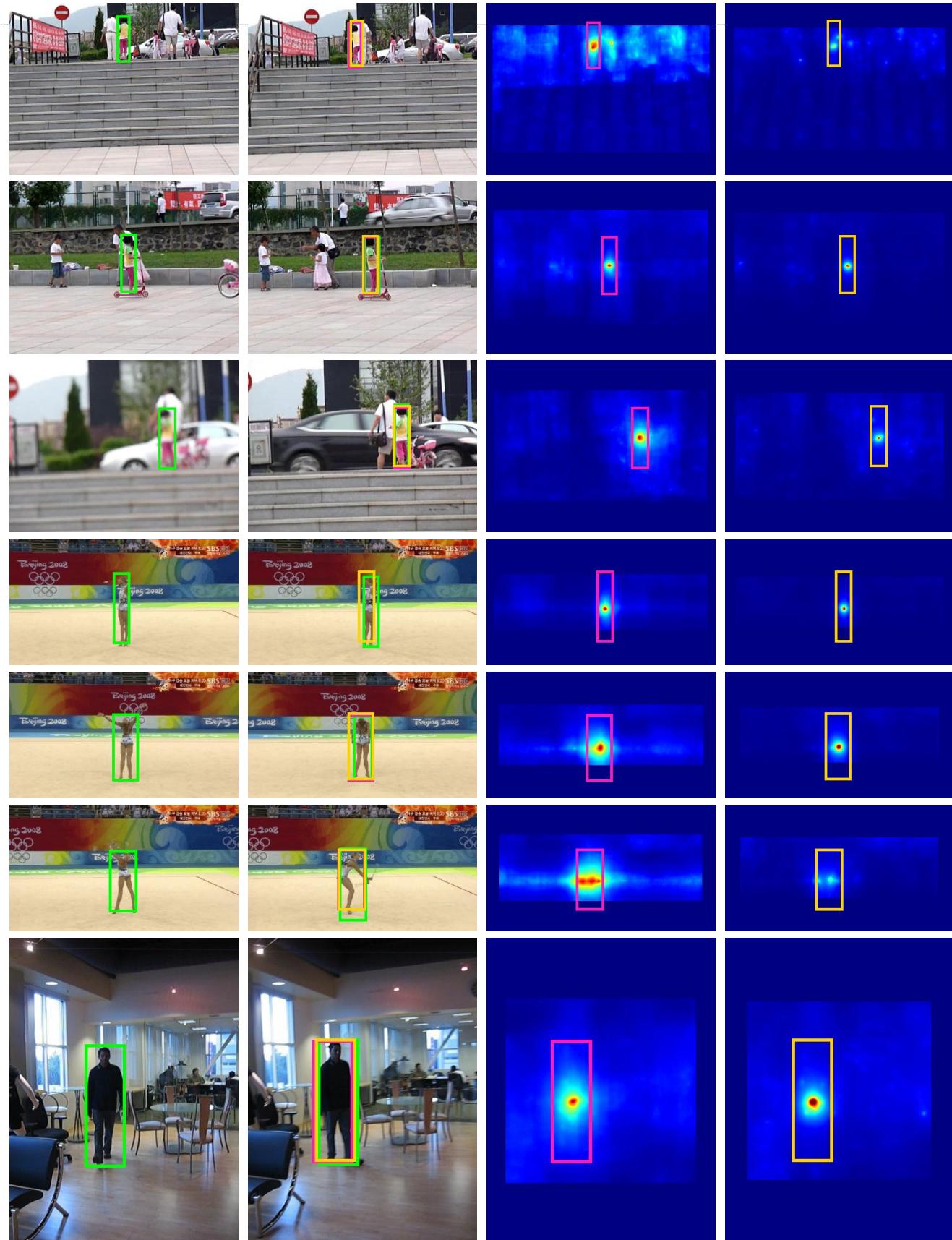


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

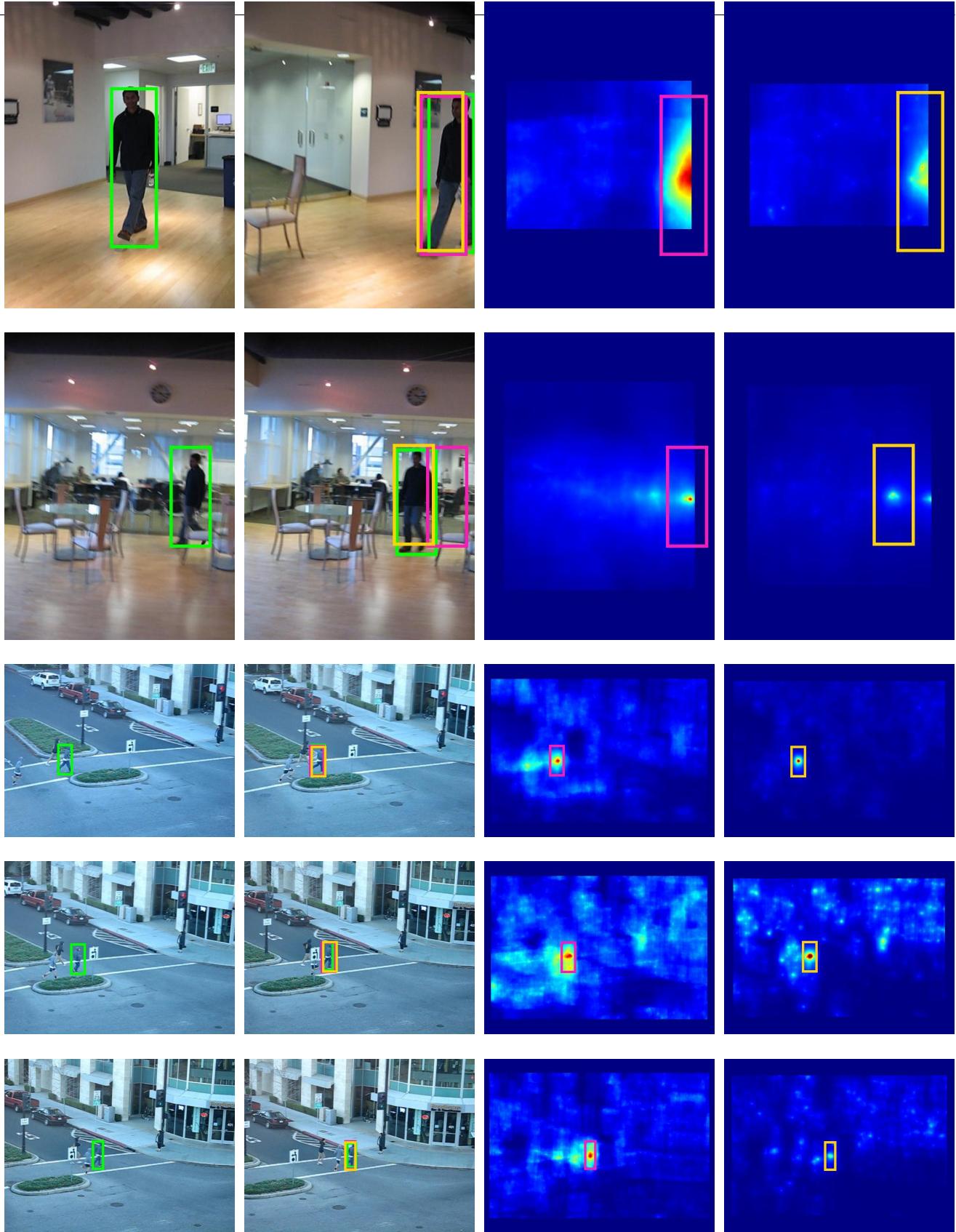


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

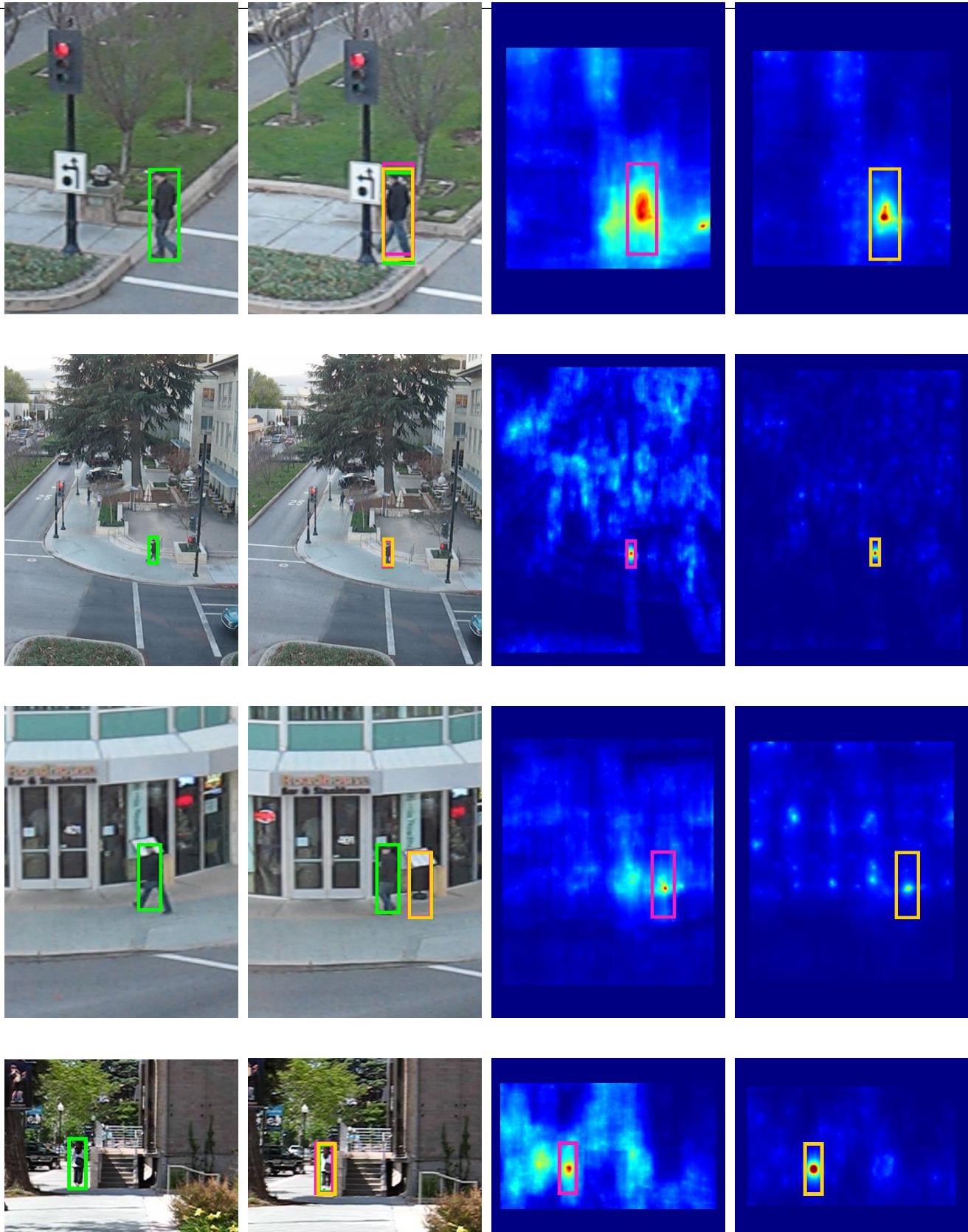


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

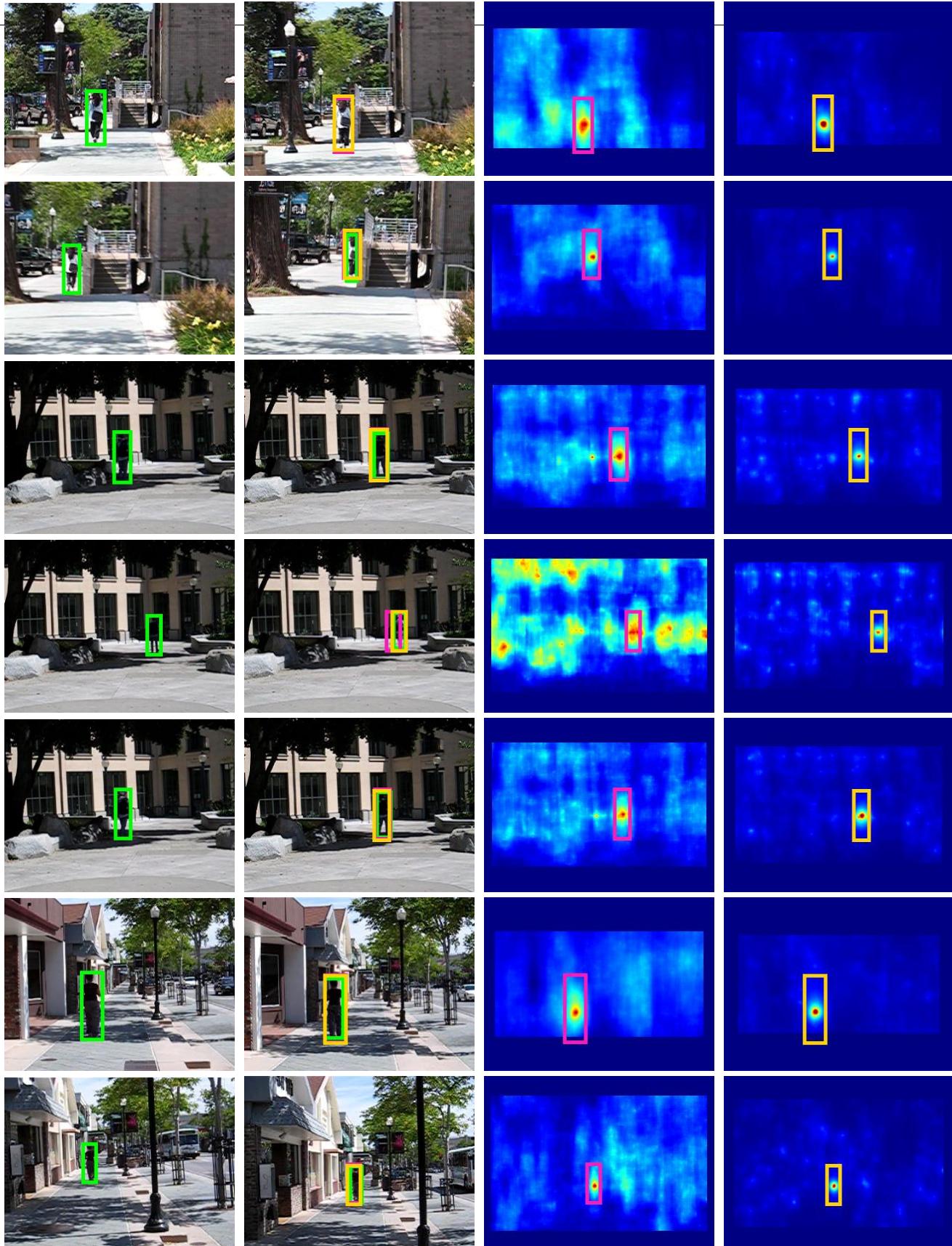


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map



(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

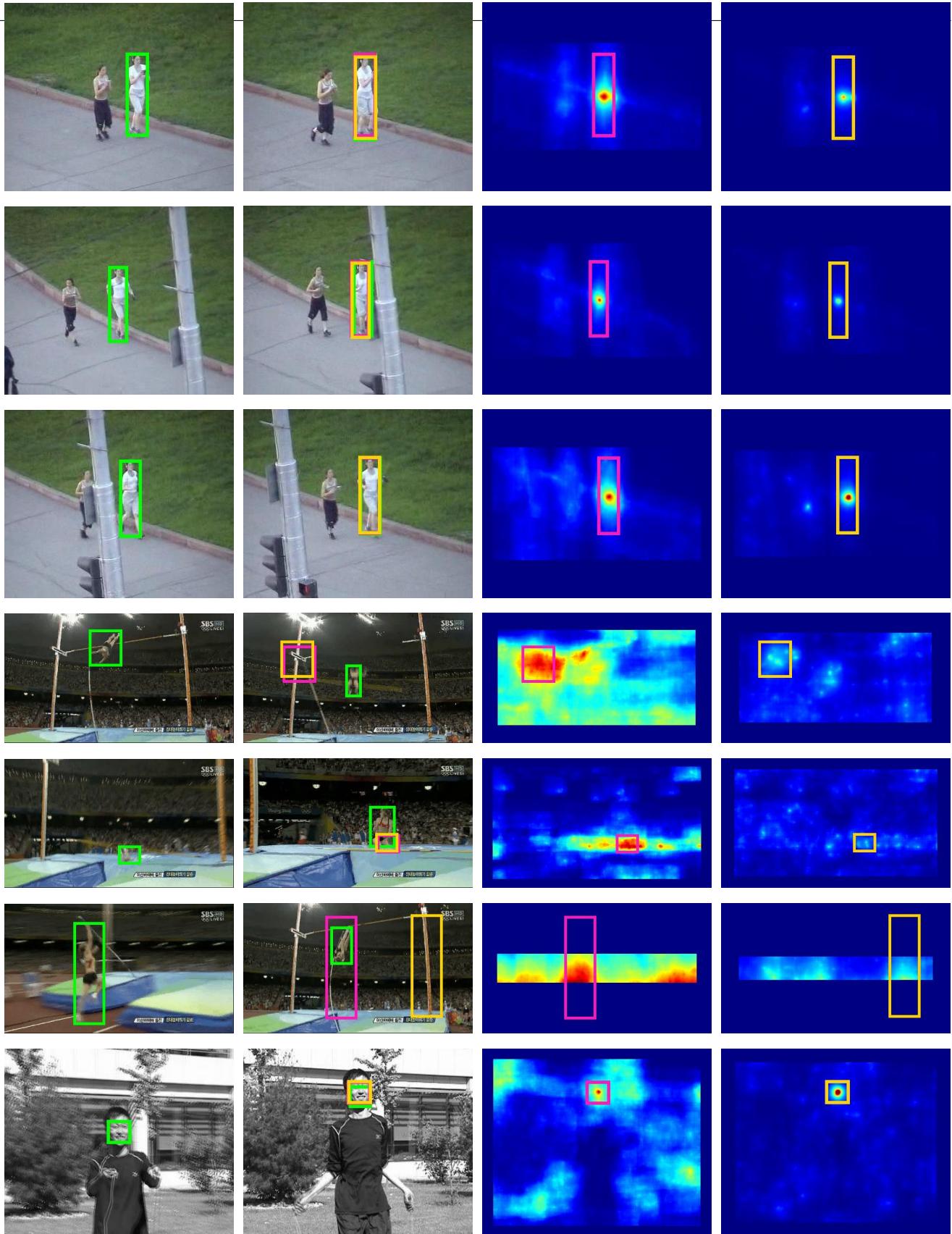


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map



(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

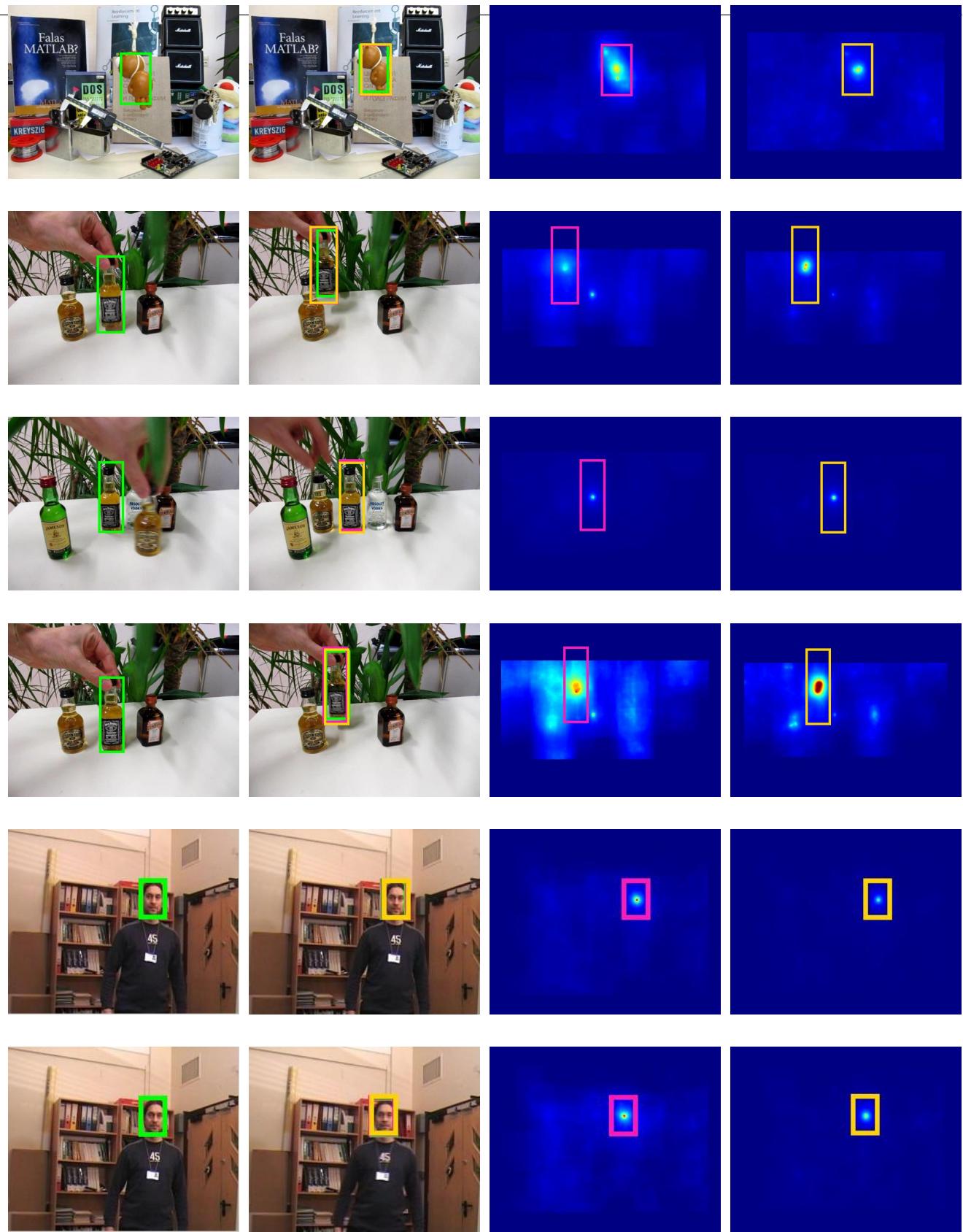


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

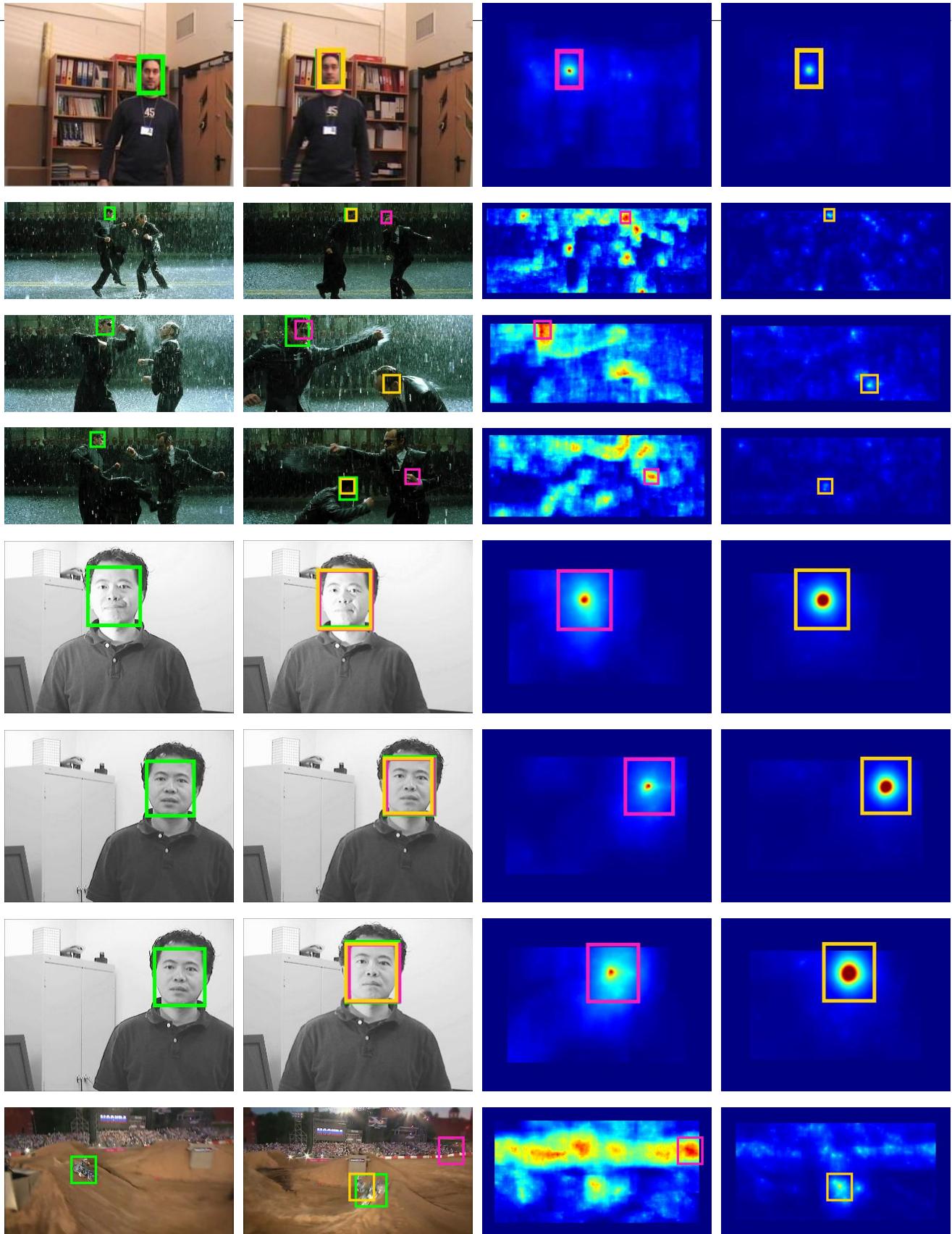


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

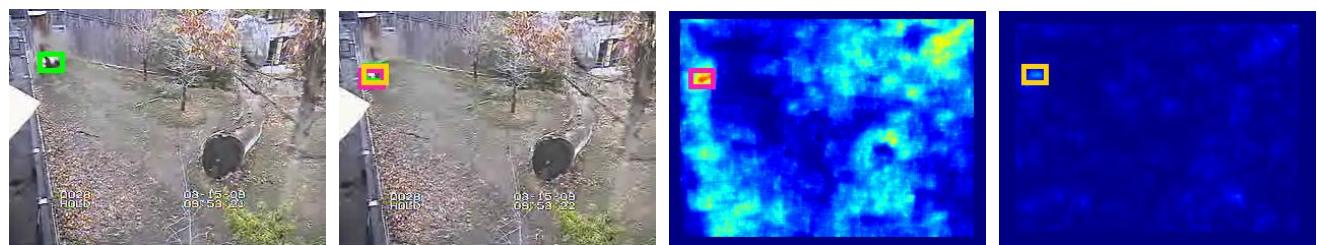
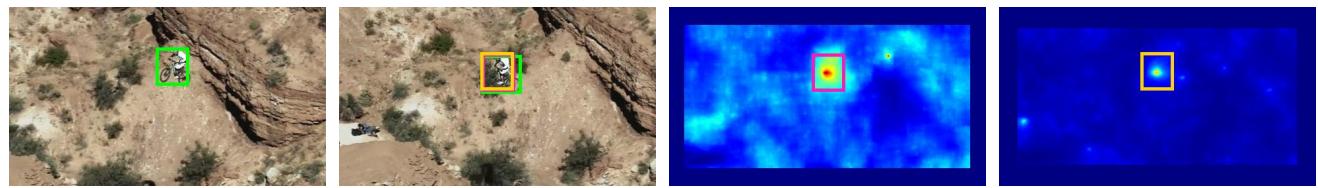
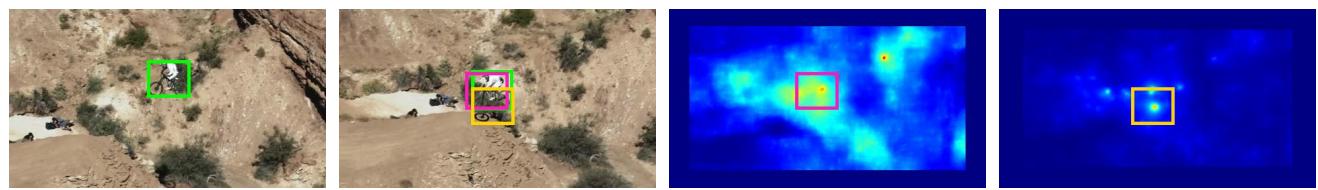
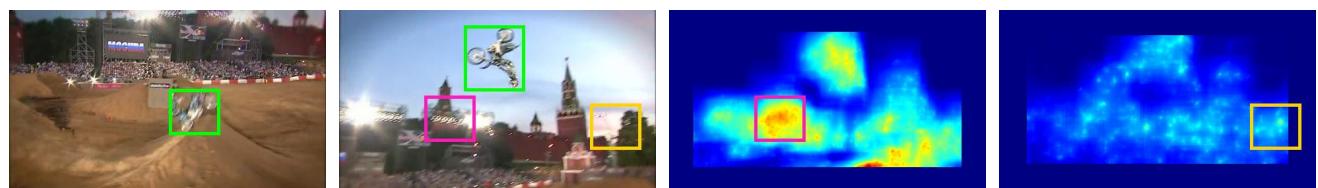


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

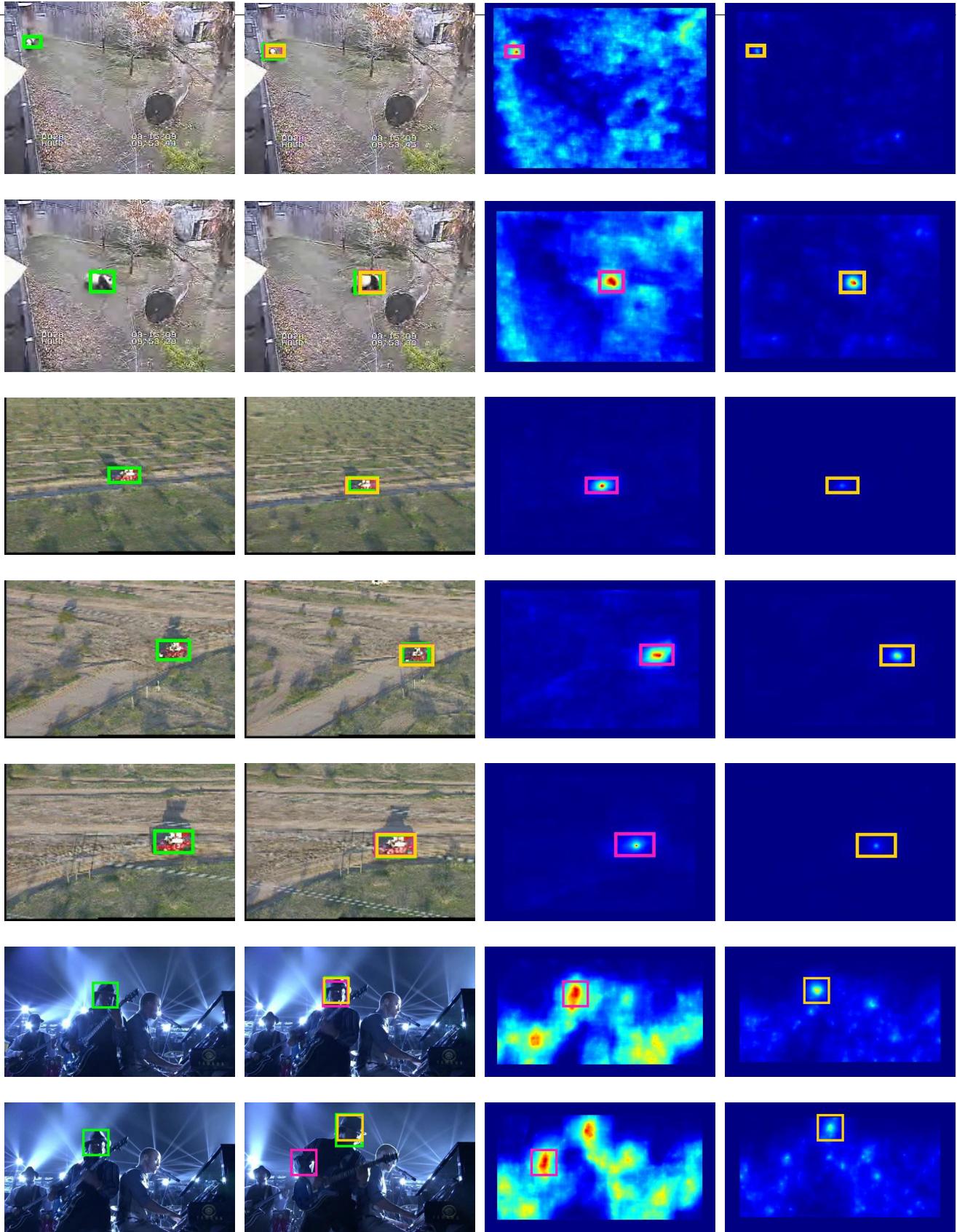


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map



(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

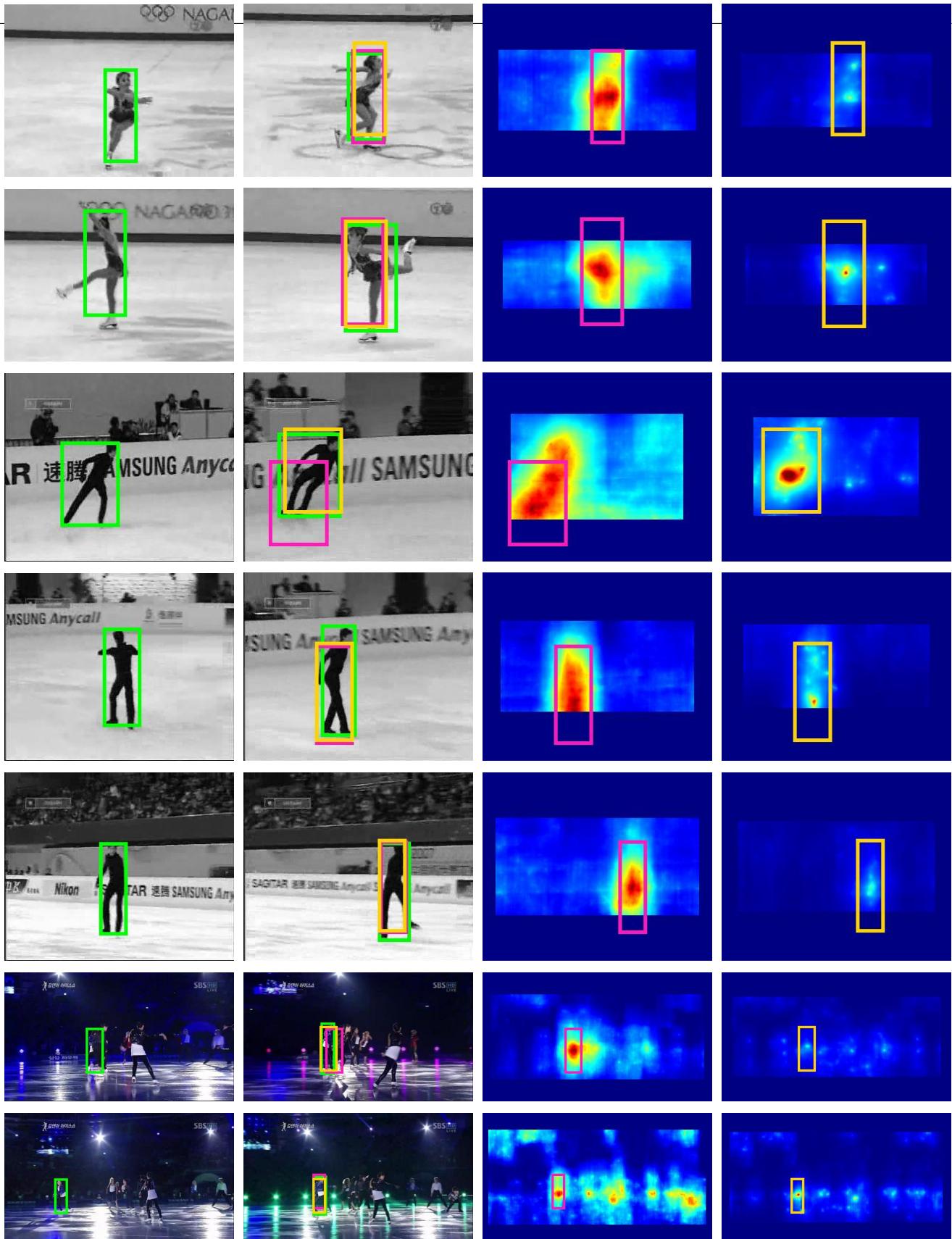


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

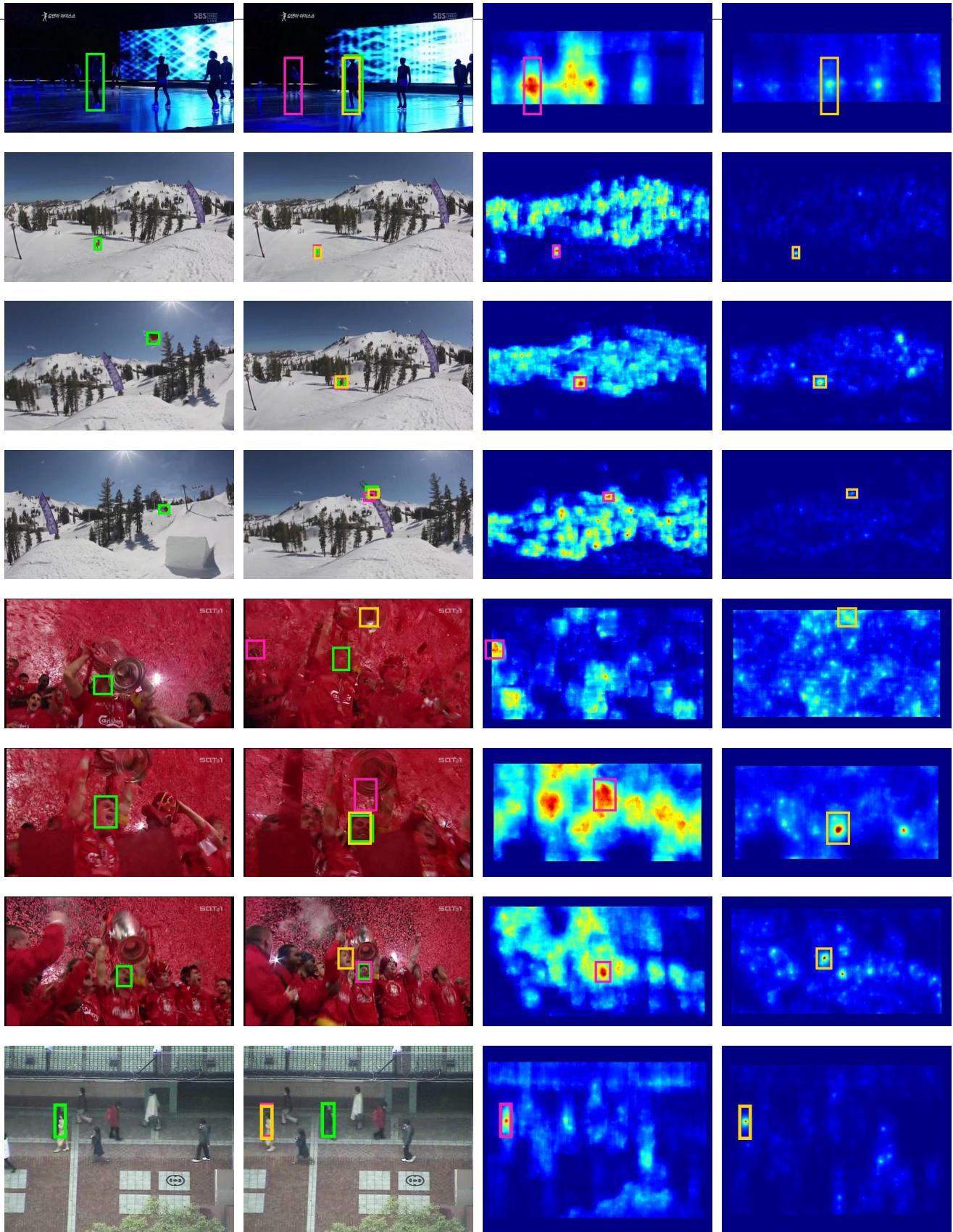


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

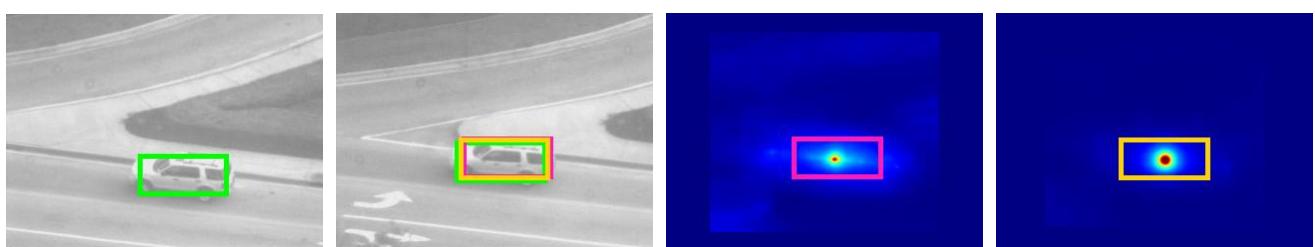
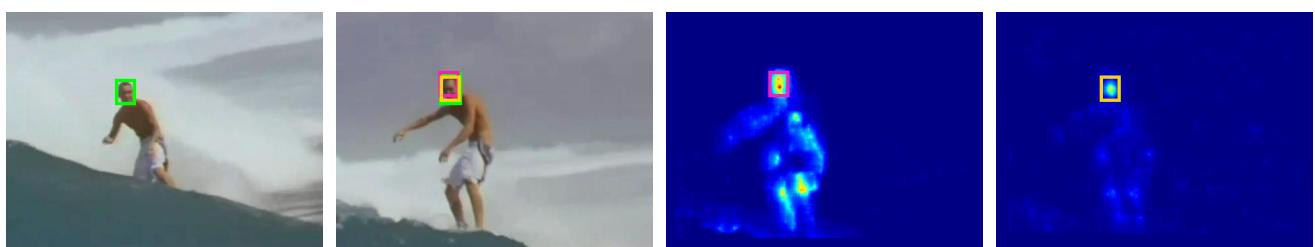
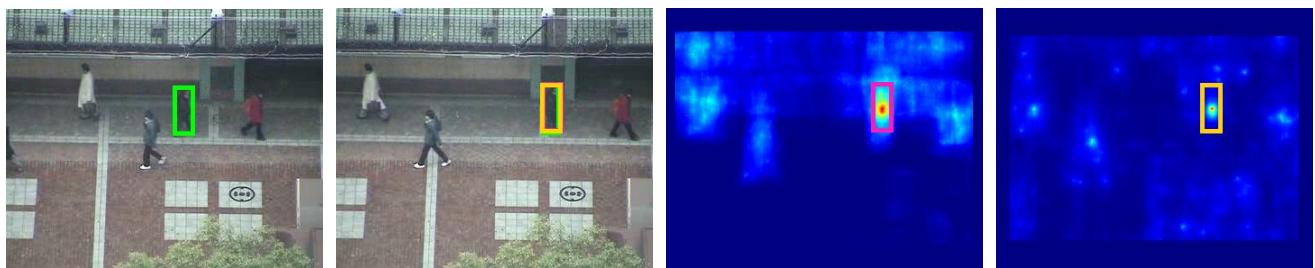


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

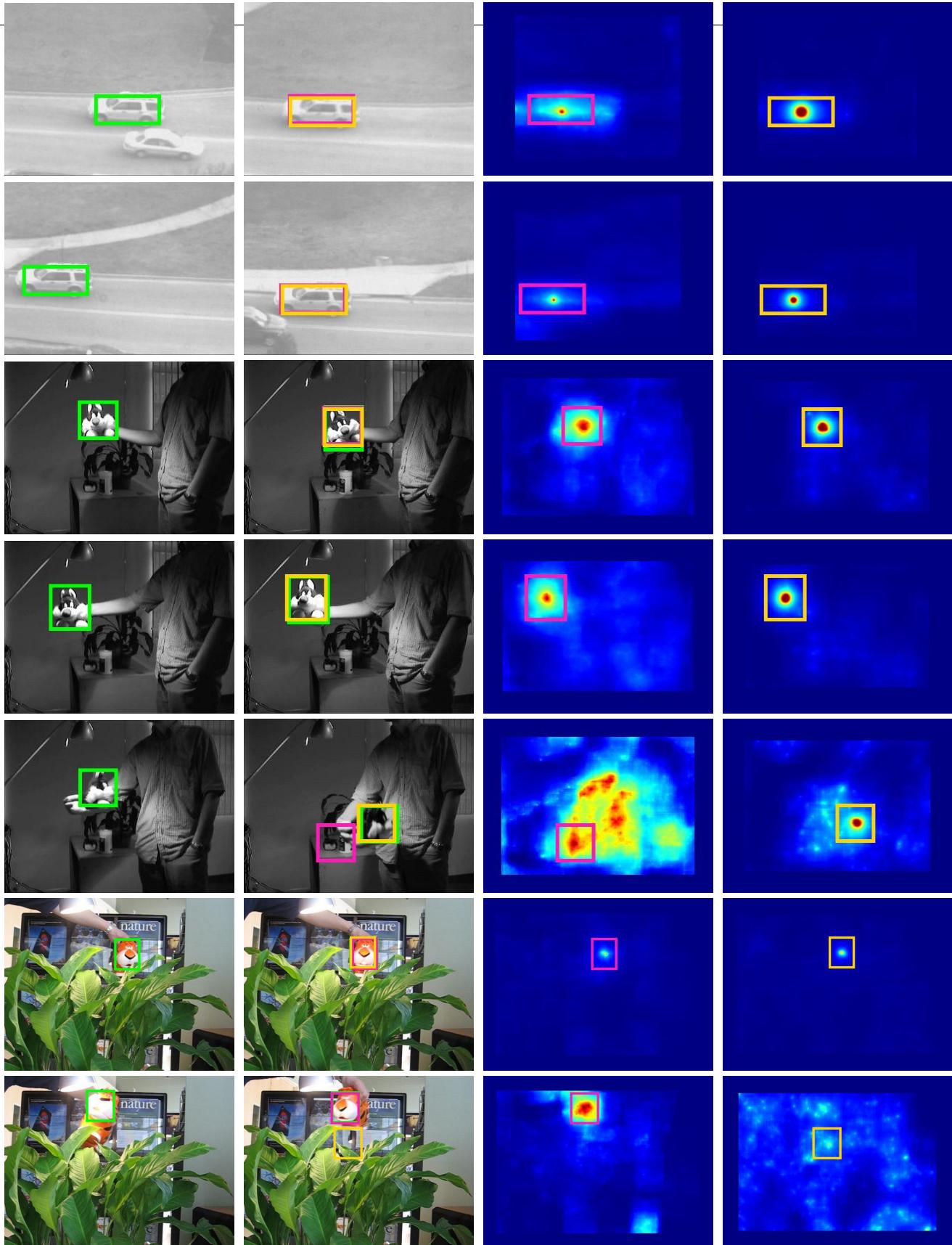


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

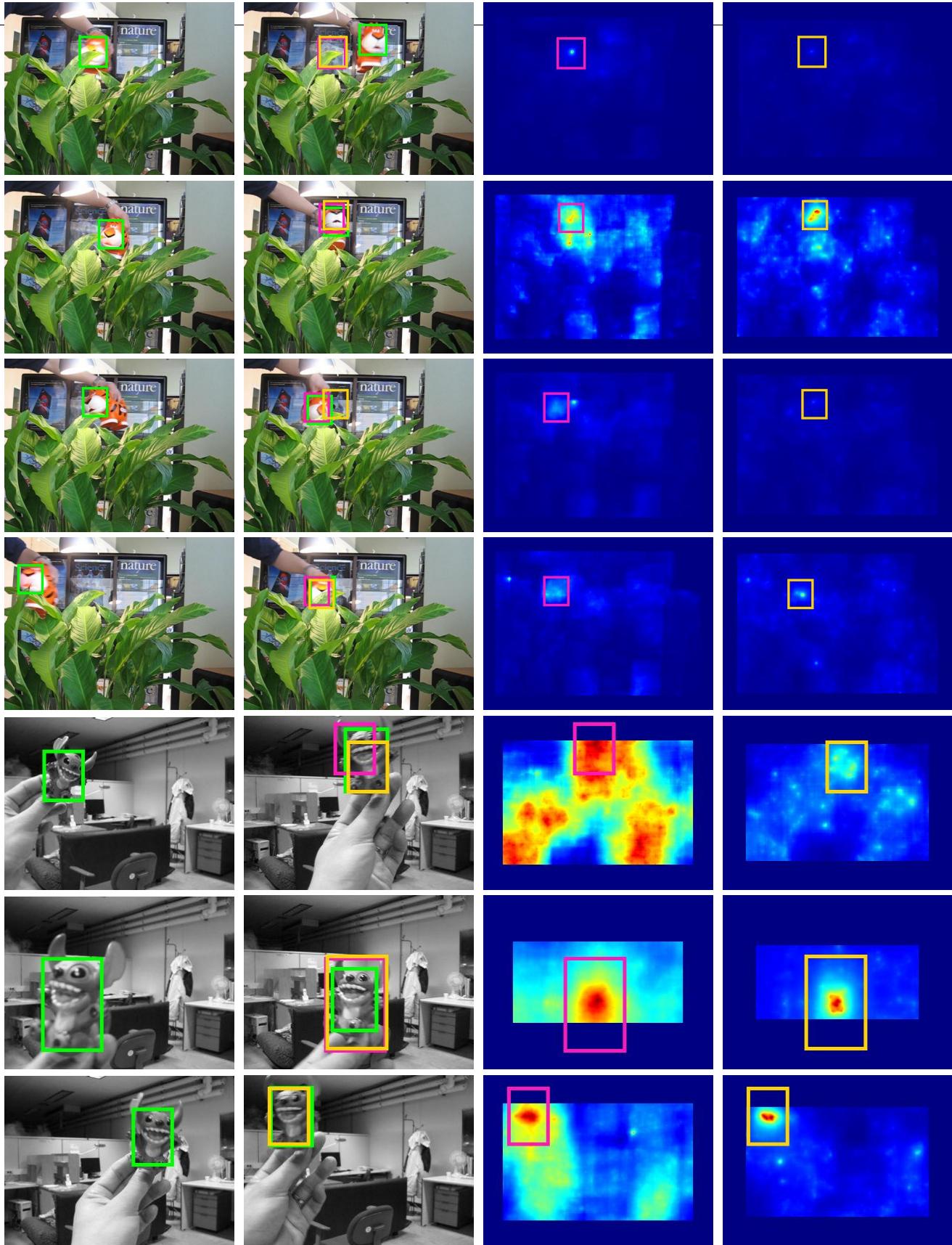


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

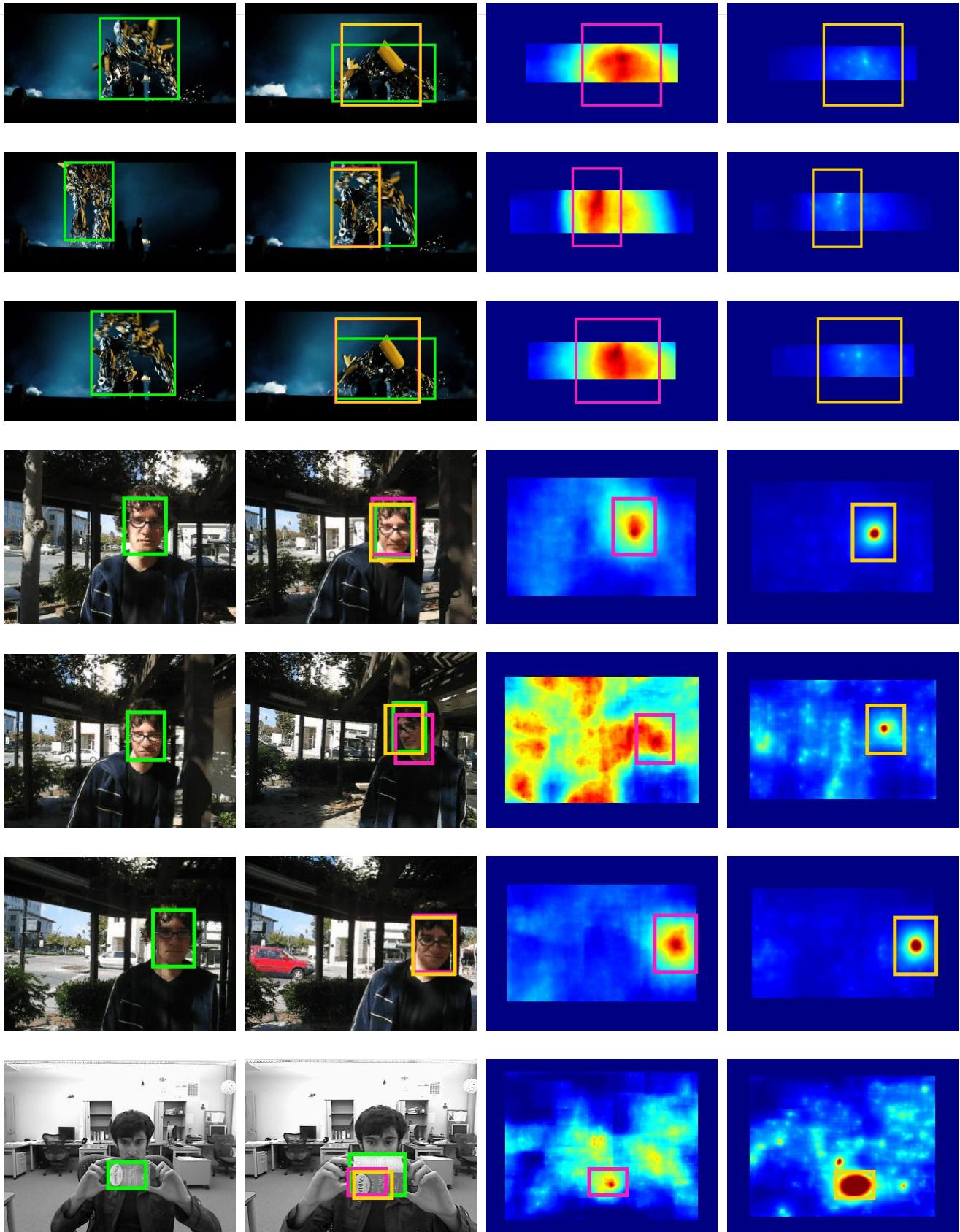


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

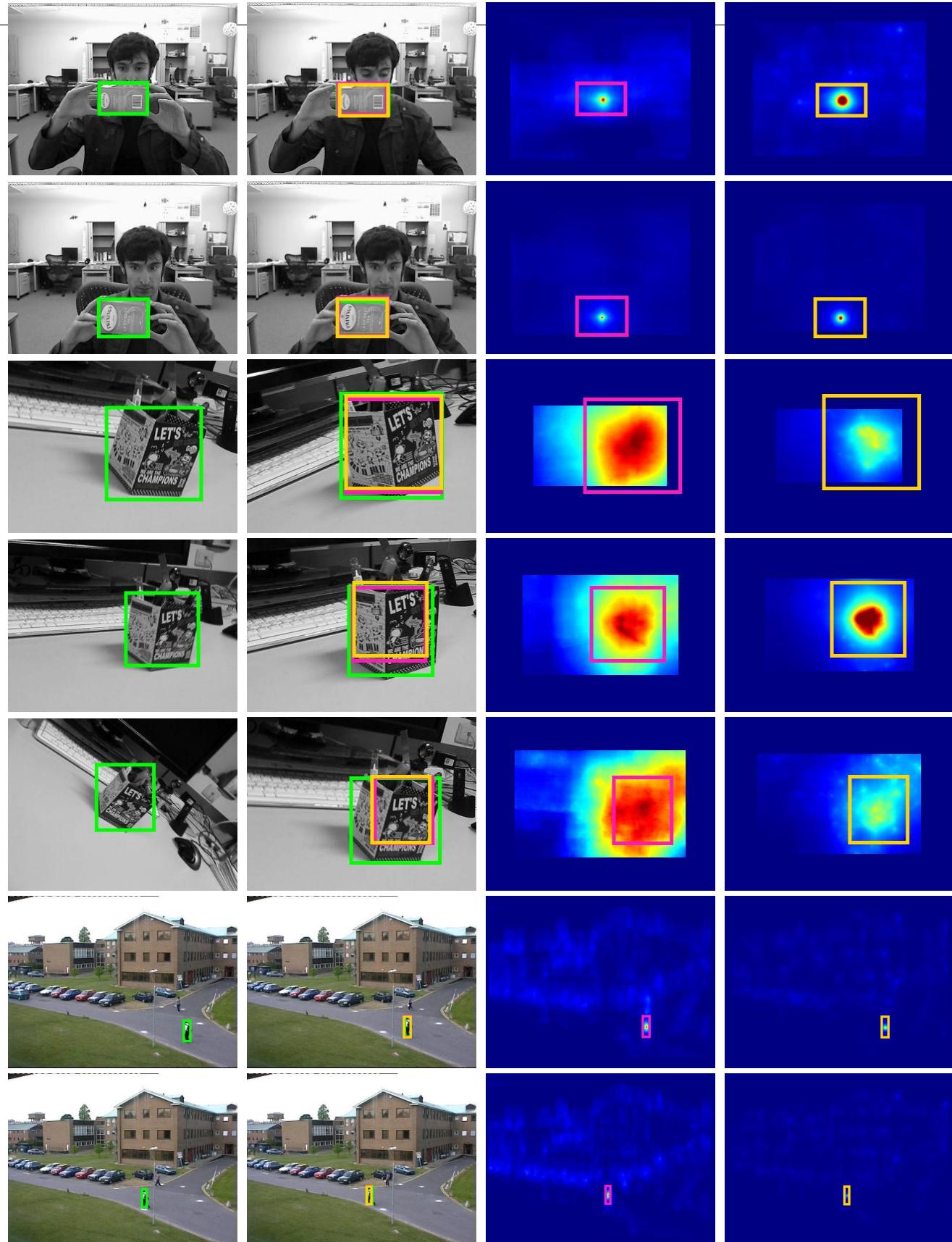


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map



(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

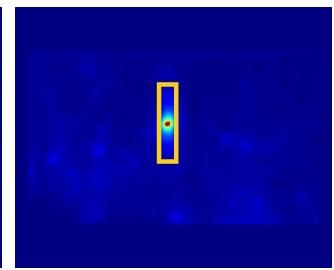
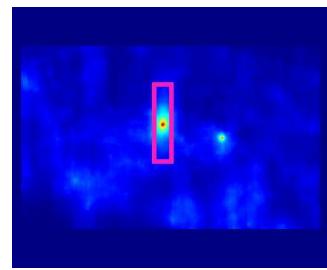


(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map



(a) template image

(b) target image

(c) DDIS(RGB) map

(d) DDIS(VGG) map

References

- [1] S. Oron, T. Dekel, T. Xue, W. T. Freeman, and S. Avidan. Best-buddies similarity-robust template matching using mutual nearest neighbors. *arXiv preprint arXiv:1609.01571*, 2016. 3