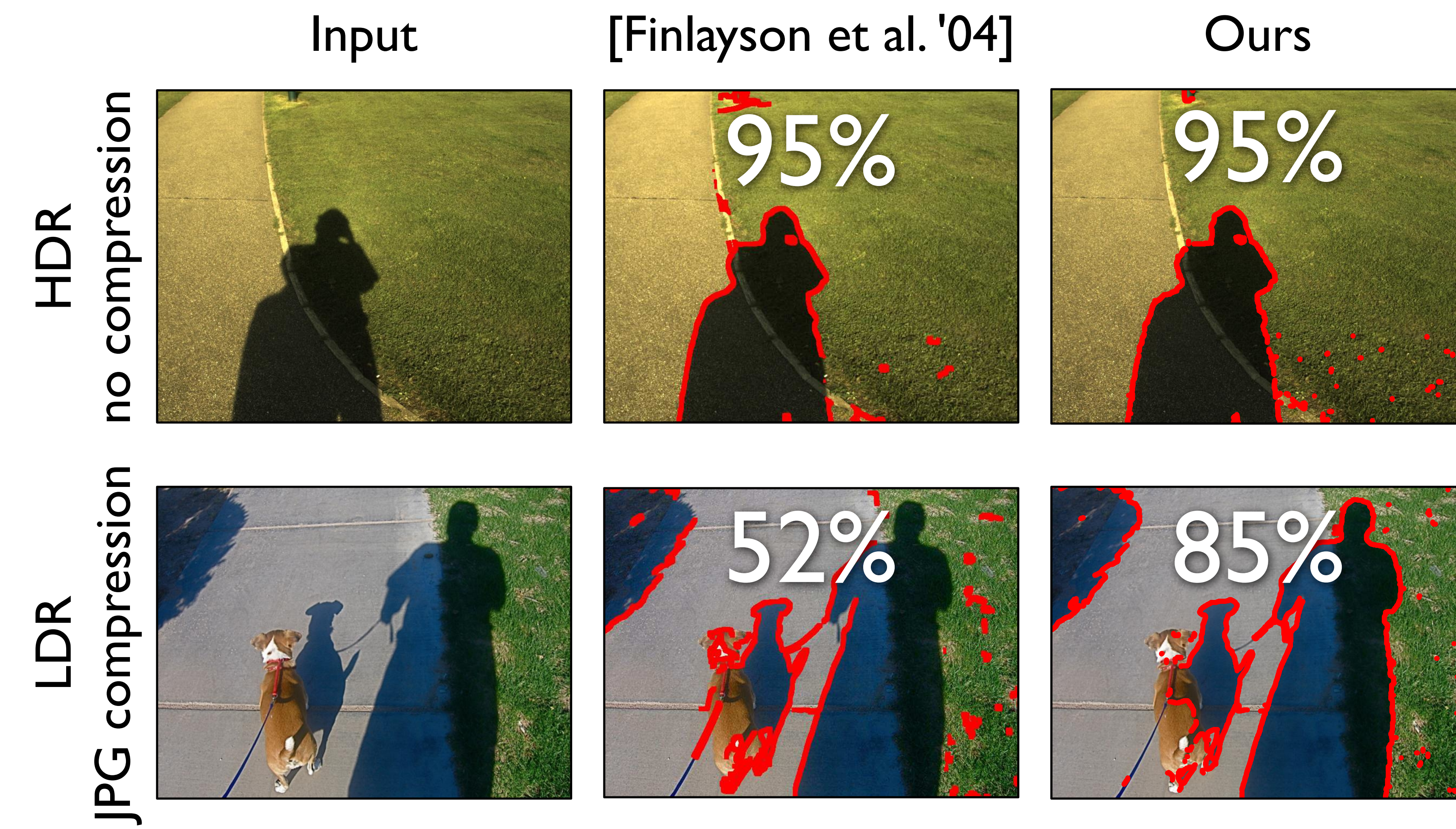


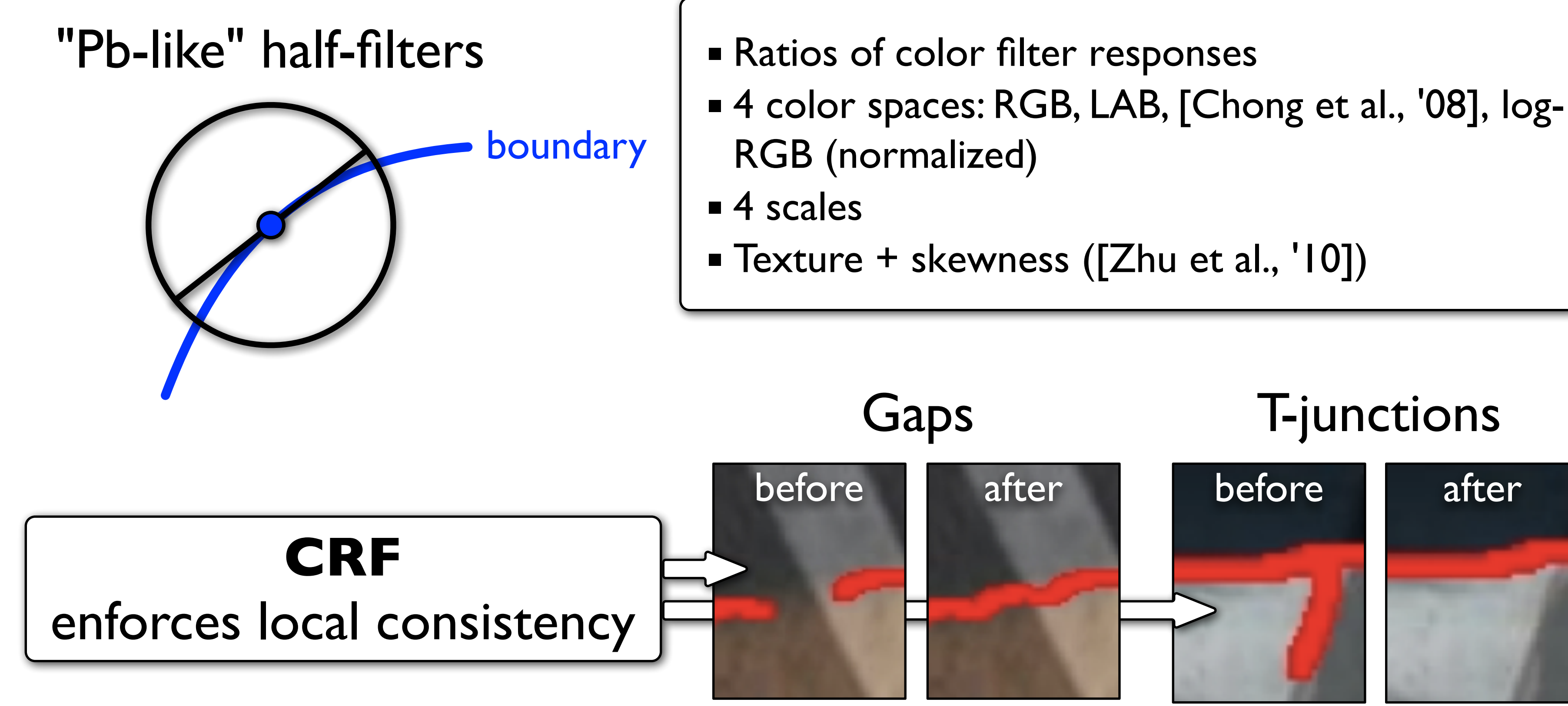
Shadow detection



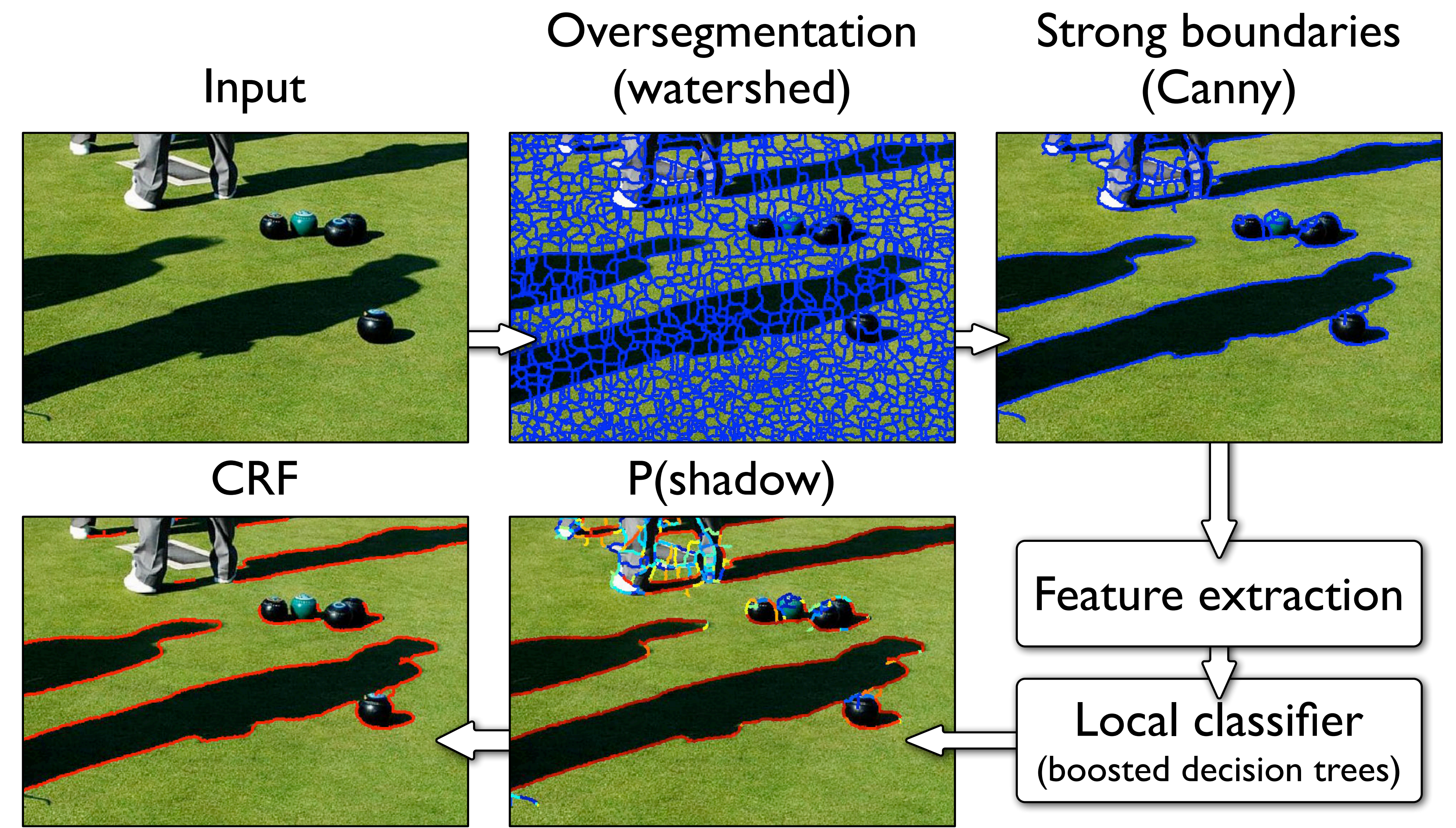
Observation: photometric methods do not work well on consumer images.

Hypothesis: appearances of shadows on the ground are less varied than shadows in general, and can be learned from labelled images.

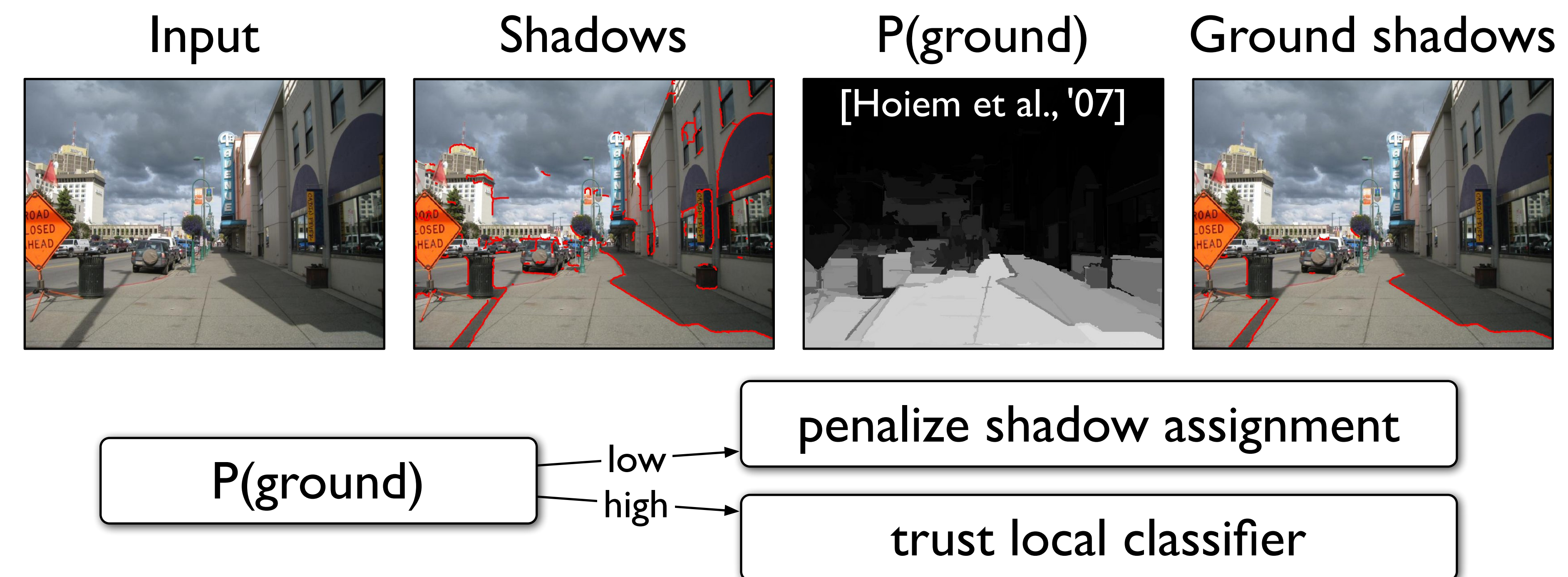
Features & CRF



Learning shadow appearance



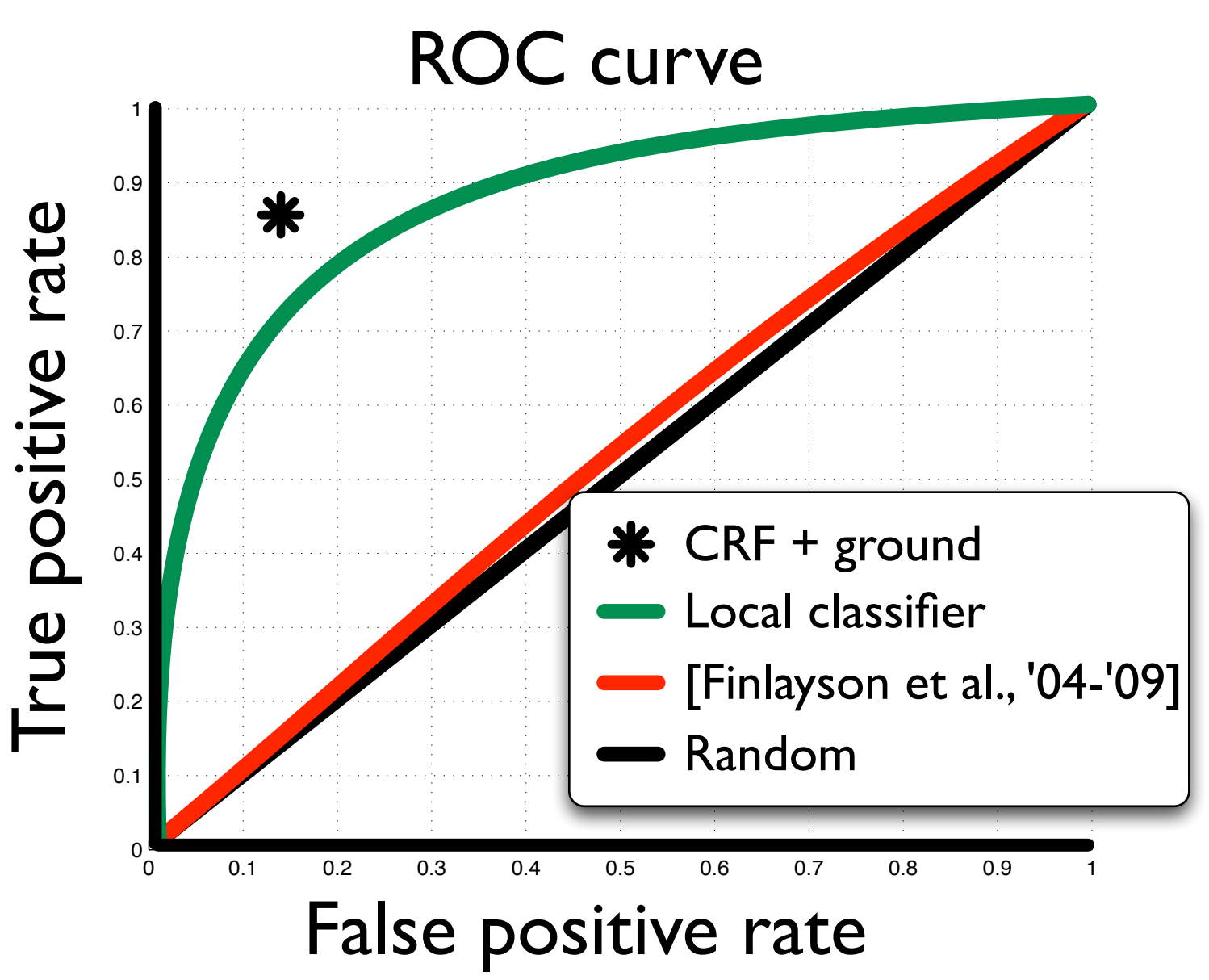
Incorporating scene layout



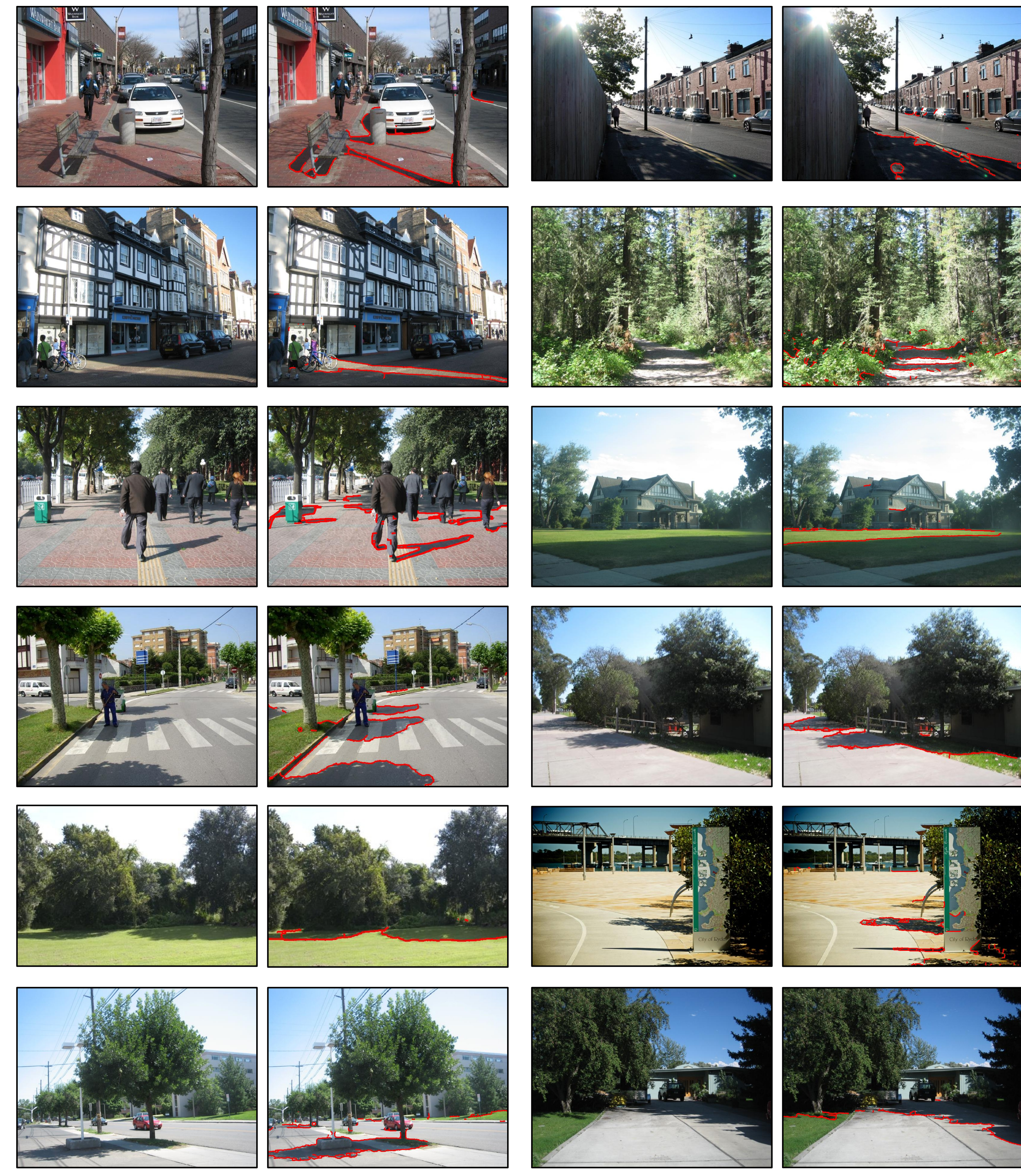
Evaluation

135 8-bit, JPG-compressed images
LabelMe [Russell et al., '08], Flickr, [Zhu et al., '10]

	Shadows	Non-shadows	Combined
Grayscale only	68.1%	71.2%	69.5%
Local classifier	78.3%	81.0%	79.7%
CRF	78.7%	82.3%	80.5%
CRF + ground	73.1%	96.4%	84.8%



Results



Application: shadow removal

