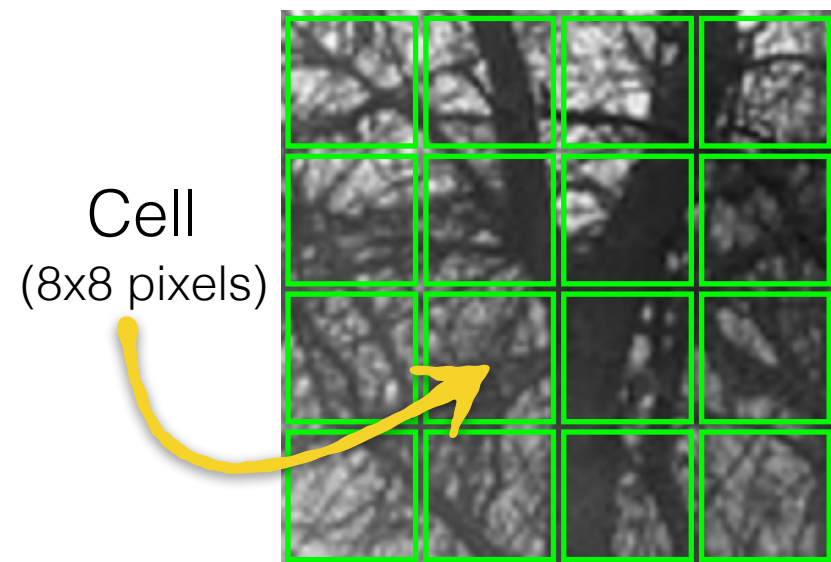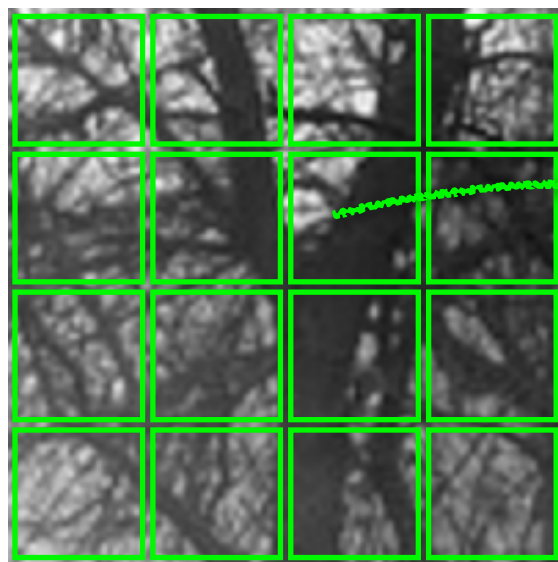# HOG descriptor

HOG

Dalal, Triggs. **Histograms of Oriented Gradients** for Human Detection. CVPR, 2005

Cell
(8x8 pixels)

HOG

Dalal, Triggs. **Histograms of Oriented Gradients** for Human Detection. CVPR, 2005

histogram of 'unsigned' gradients

soft binning

gradient magnitude (one for each cell)
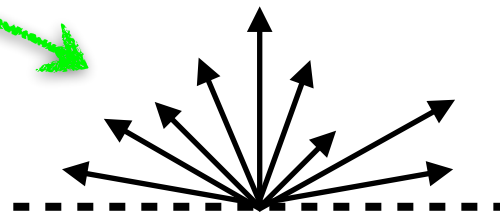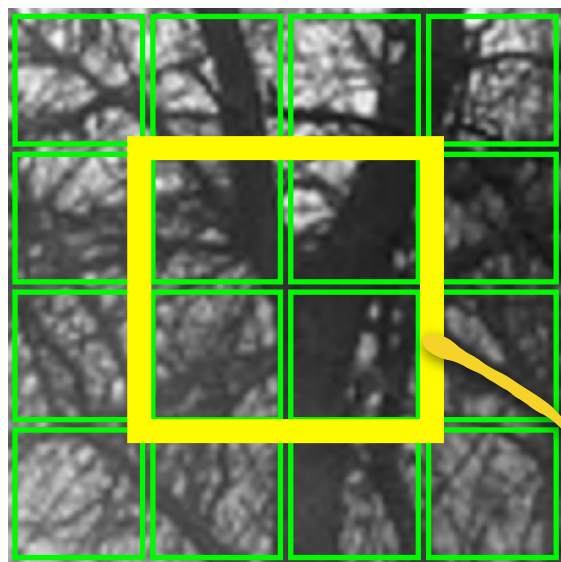
HOG

Dalal, Triggs. **Histograms of Oriented Gradients** for Human Detection. CVPR, 2005

histogram of
'unsigned' gradients

soft binning

gradient magnitude
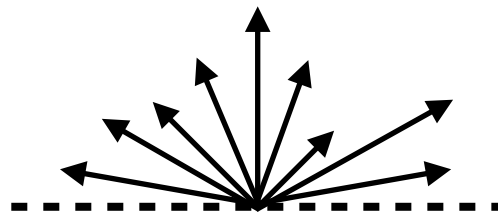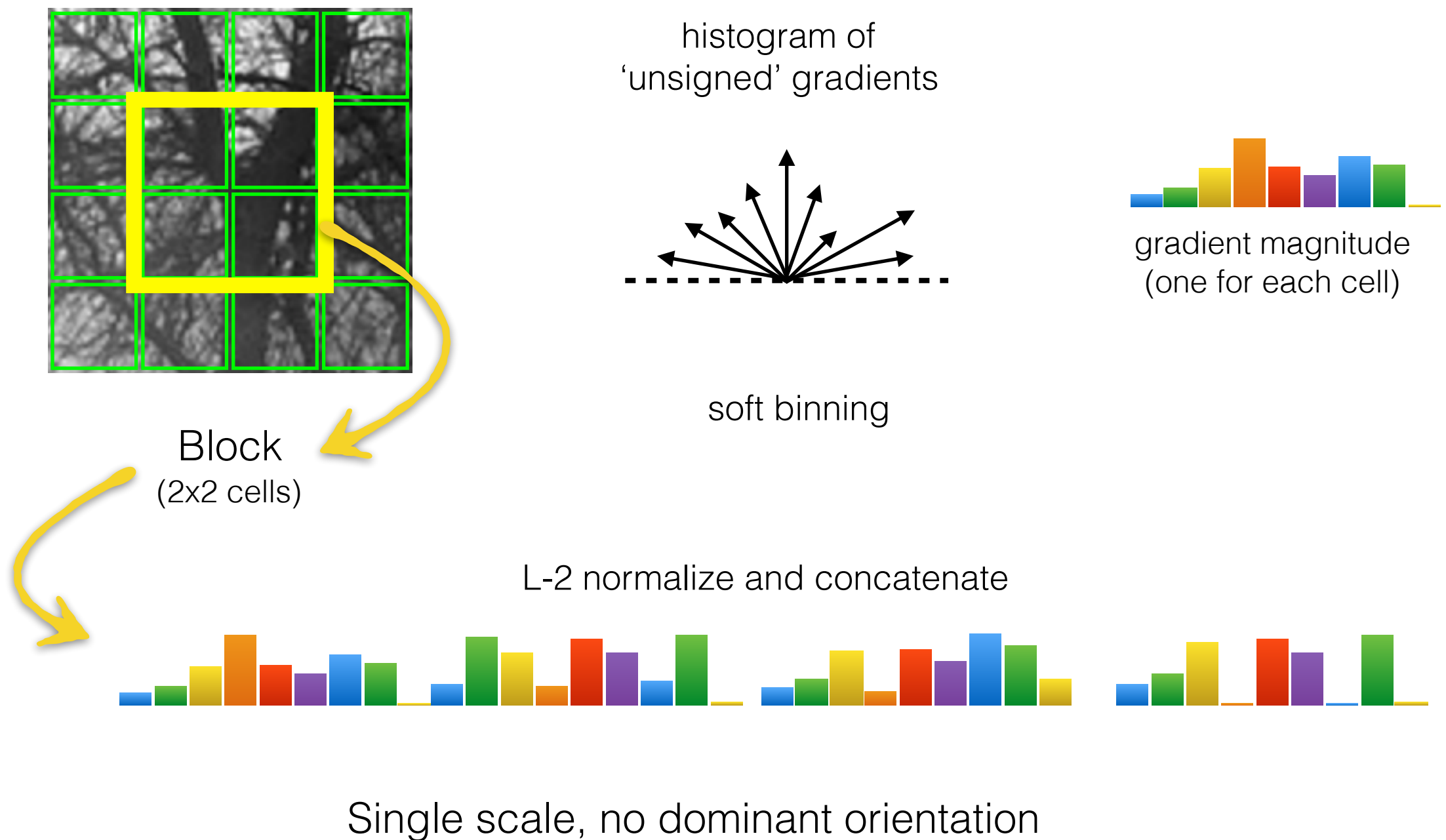(one for each cell)

Block
(2x2 cells)

HOG

Dalal, Triggs. **Histograms of Oriented Gradients** for Human Detection. CVPR, 2005

histogram of
'unsigned' gradients

gradient magnitude
(one for each cell)

soft binning

Block
(2x2 cells)

L-2 normalize and concatenate

Single scale, no dominant orientation
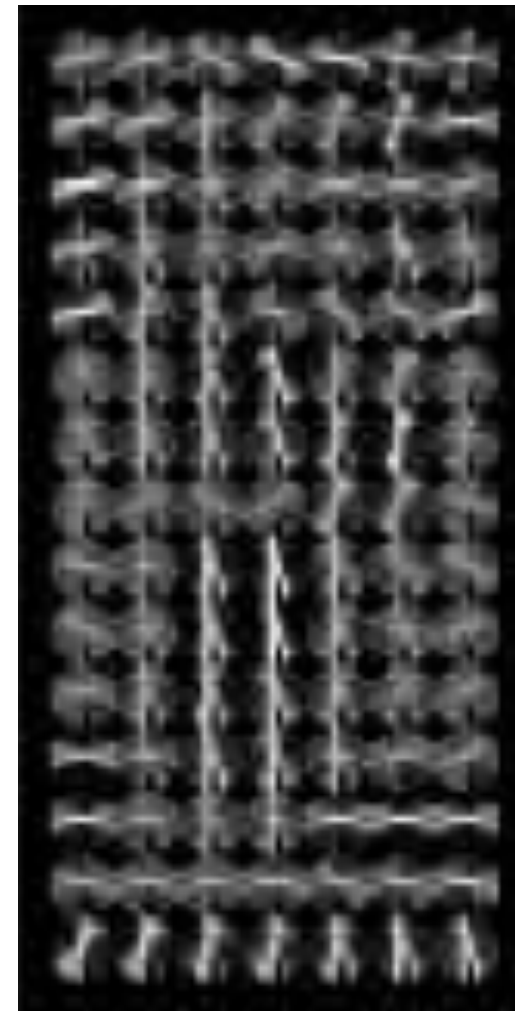
Pedestrian detection

1 cell step size

visualization

128 pixels
16 cells
15 blocks

$15 \times 7 \times 4 \times 36 = 3780$

64 pixels
8 cells
7 blocks

Redundant representation due to overlapping blocks
How many times is each inner cell encoded?