An explanation of some feature extractor on generic object recognition

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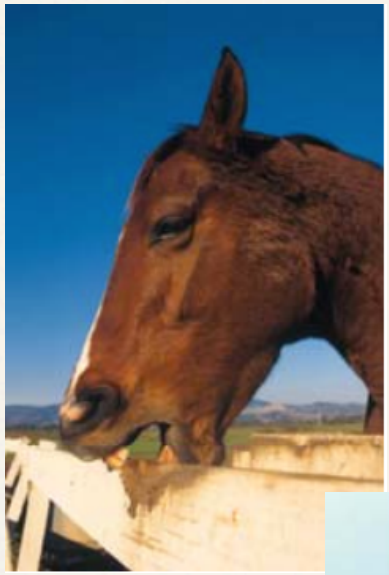
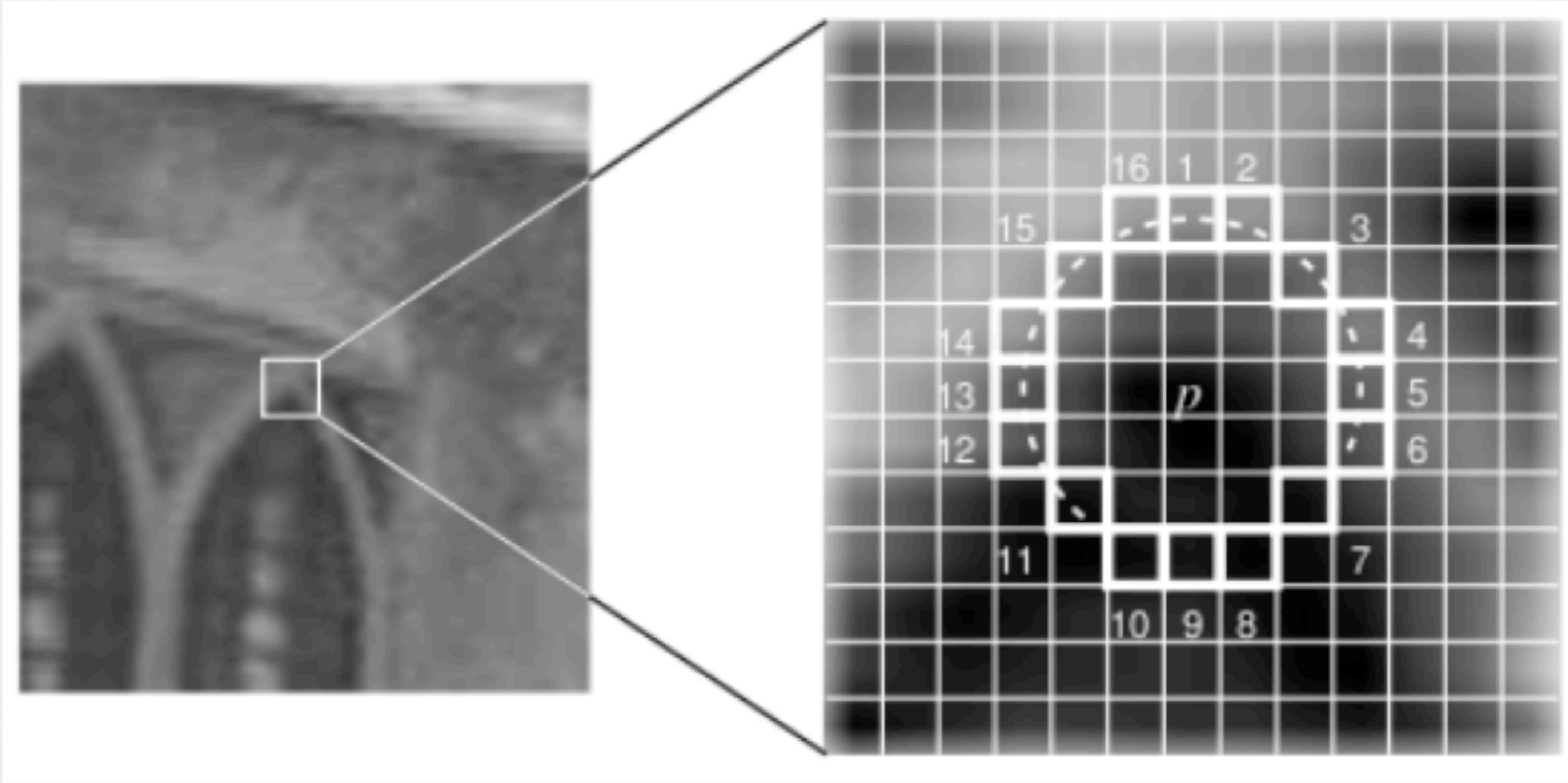
Outline

- Generic object recognition
  1. Feature points and values
  2. BOF(Bag of Feature)
- Two feature extractor
  1. SIFT(Scale Invariant Feature Transform)
  2. HOG(Histgrams of Oriented Gradients)
- Conclusion

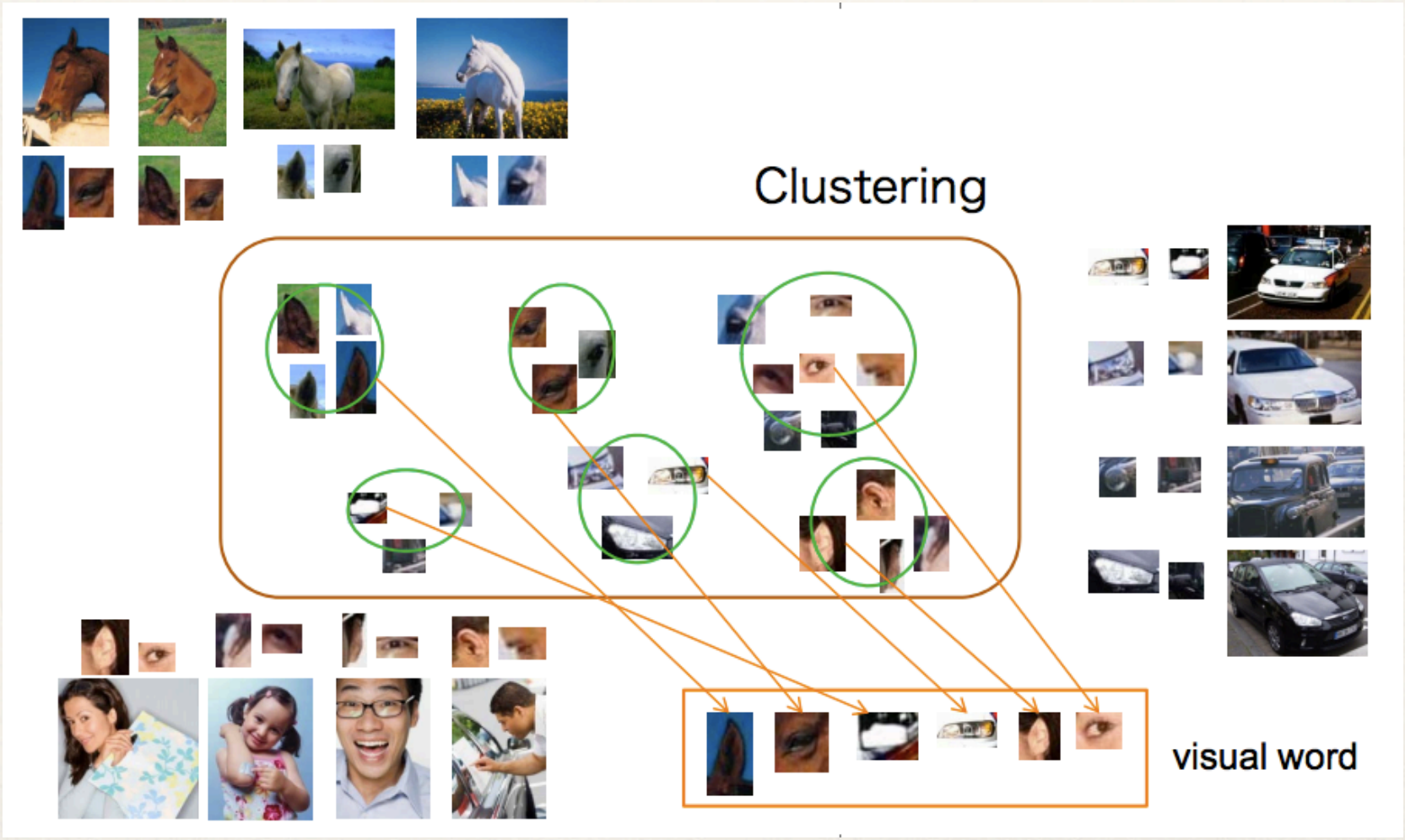
Generic object recognition



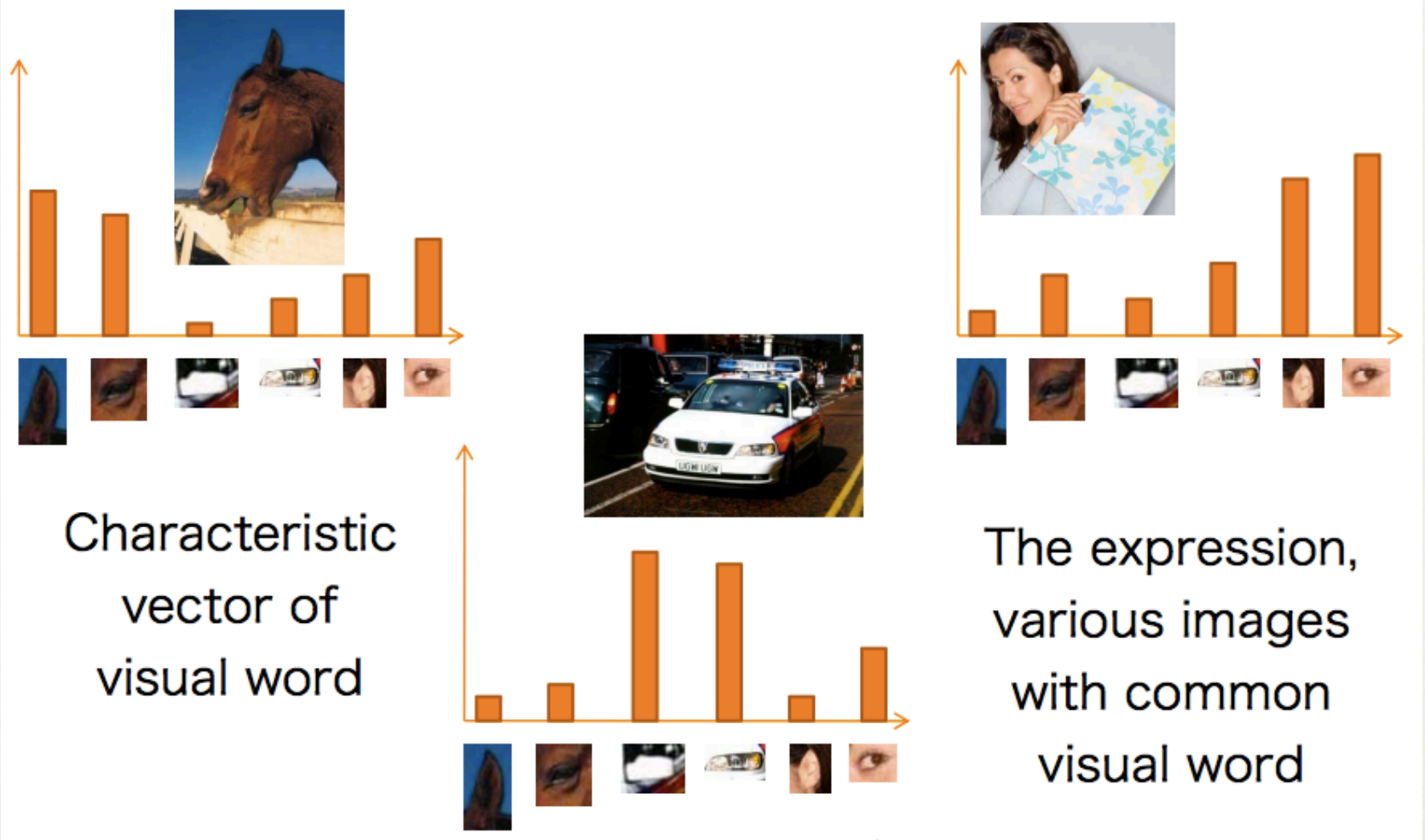
Feature points and values



BOF(Bag of Features)



BOF(Bag of Features)



BOF(Bag of Features)

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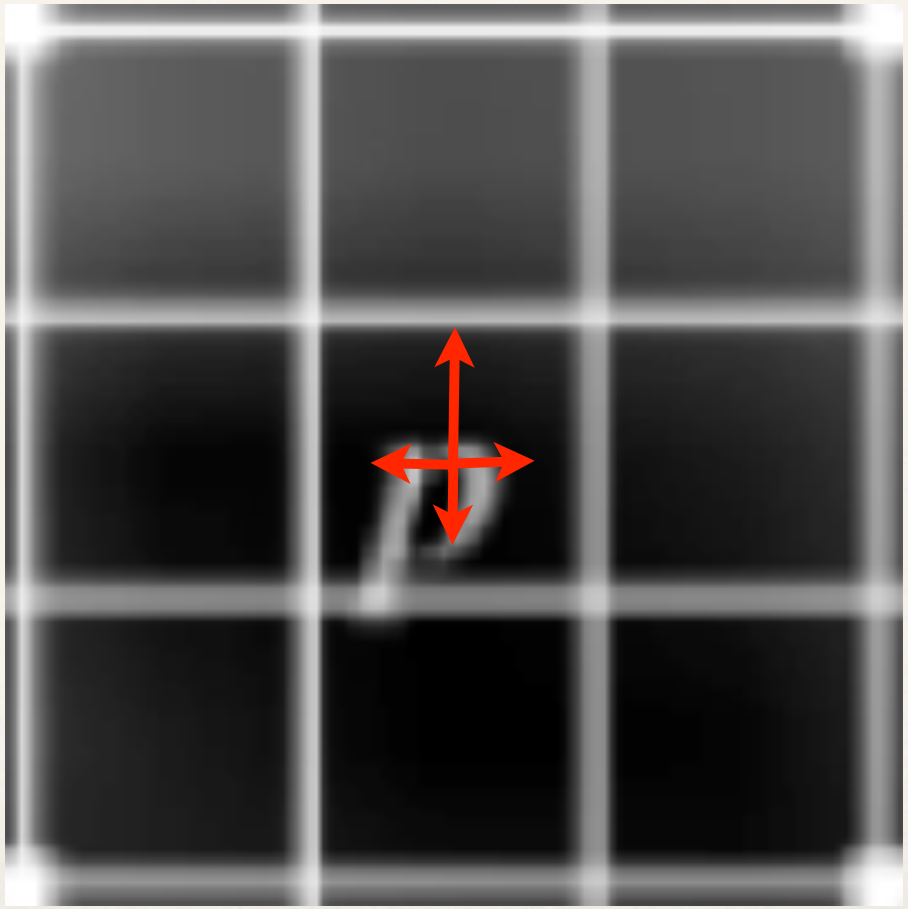
Problem

rotation change

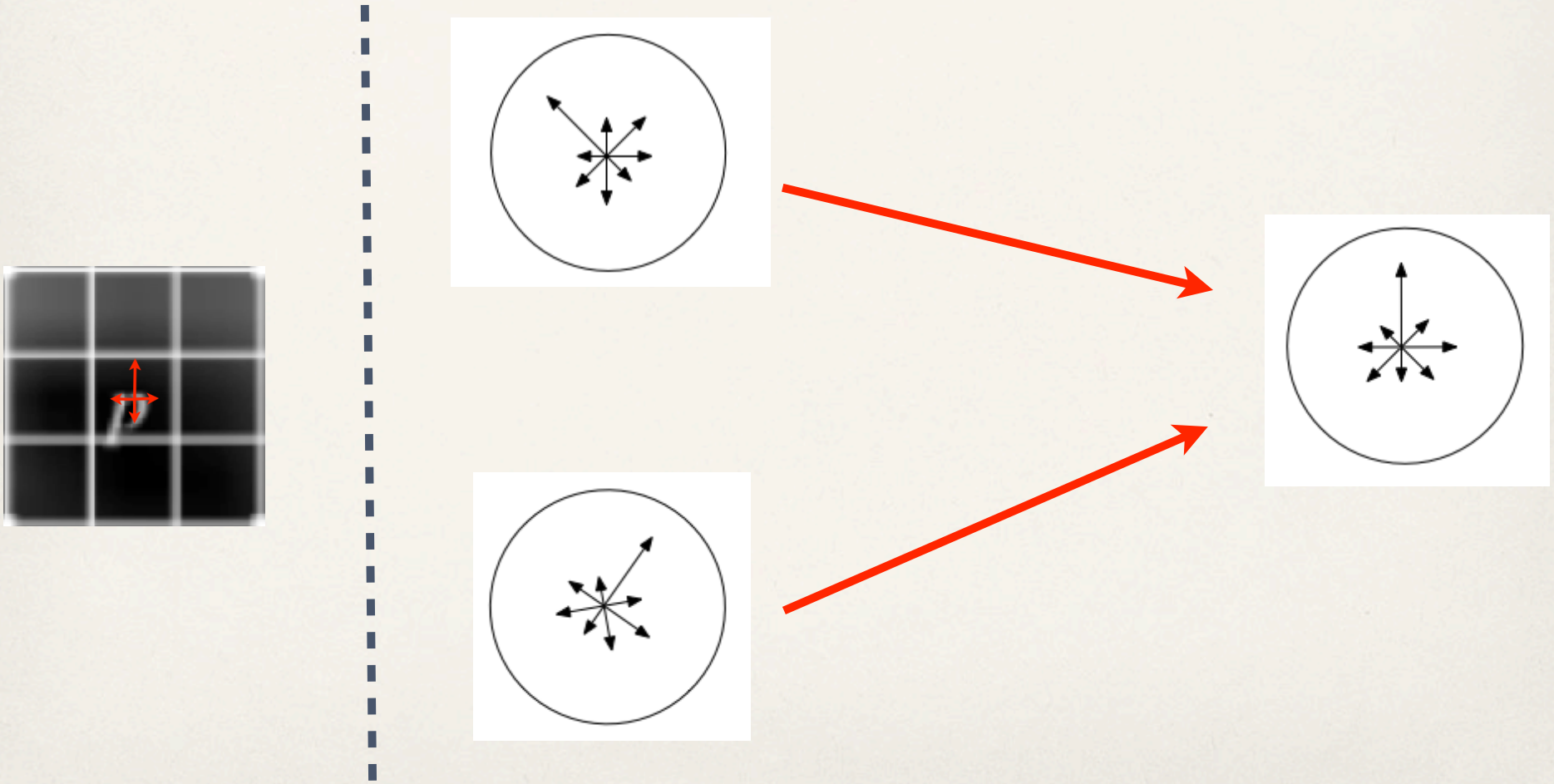
light change

SIFT(Scale Invariant Feature Transform)
~Direction of luminance~



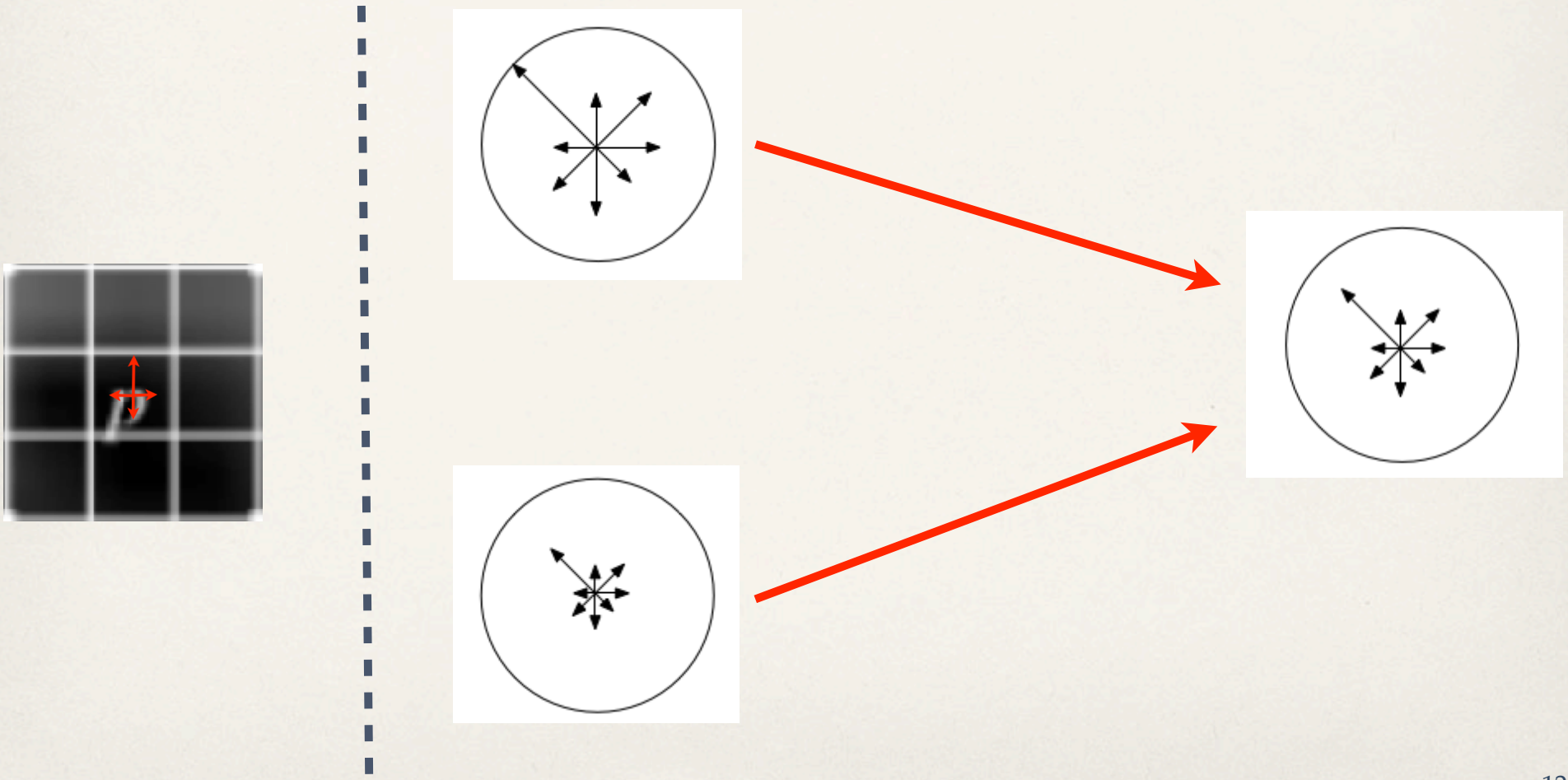
SIFT(Scale Invariant Feature Transform)

~Normalize direction~

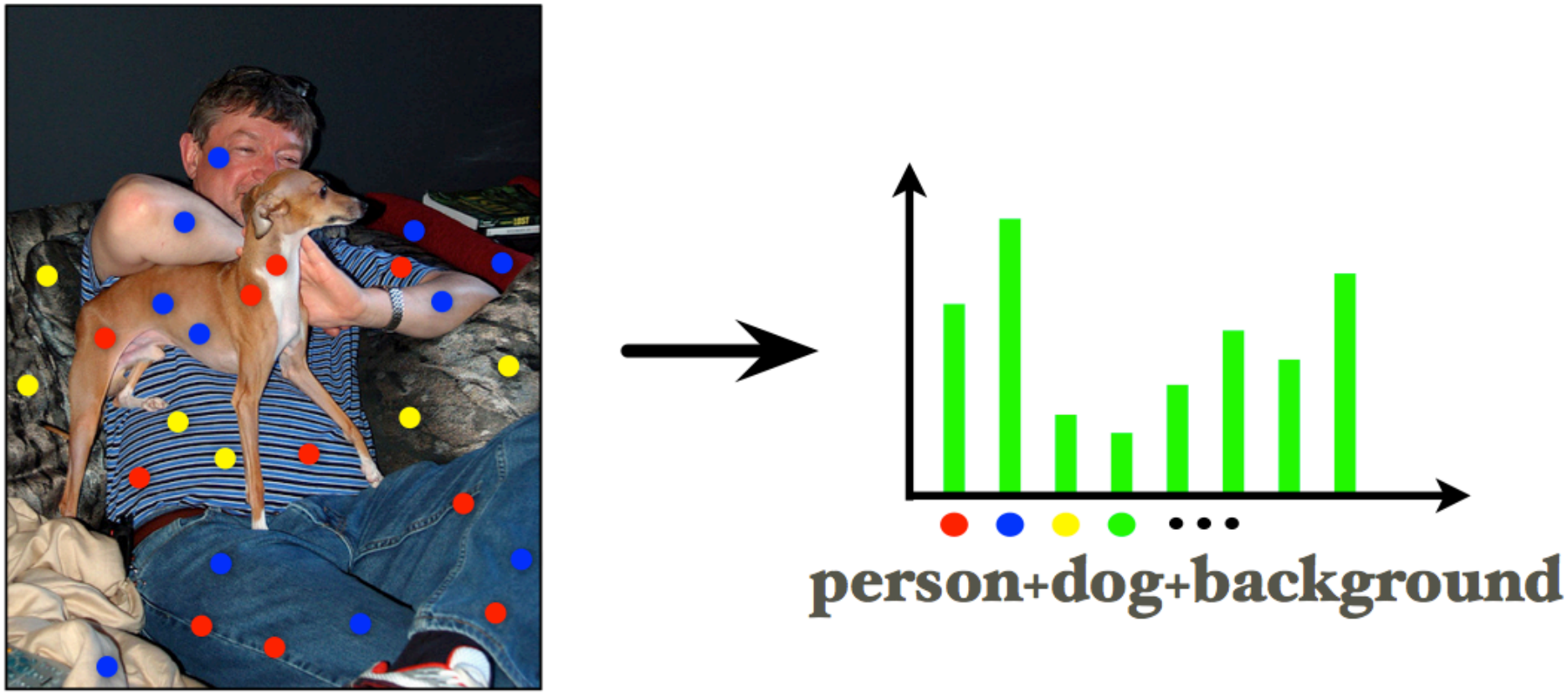


SIFT (Scale Invariant Feature Transoform)

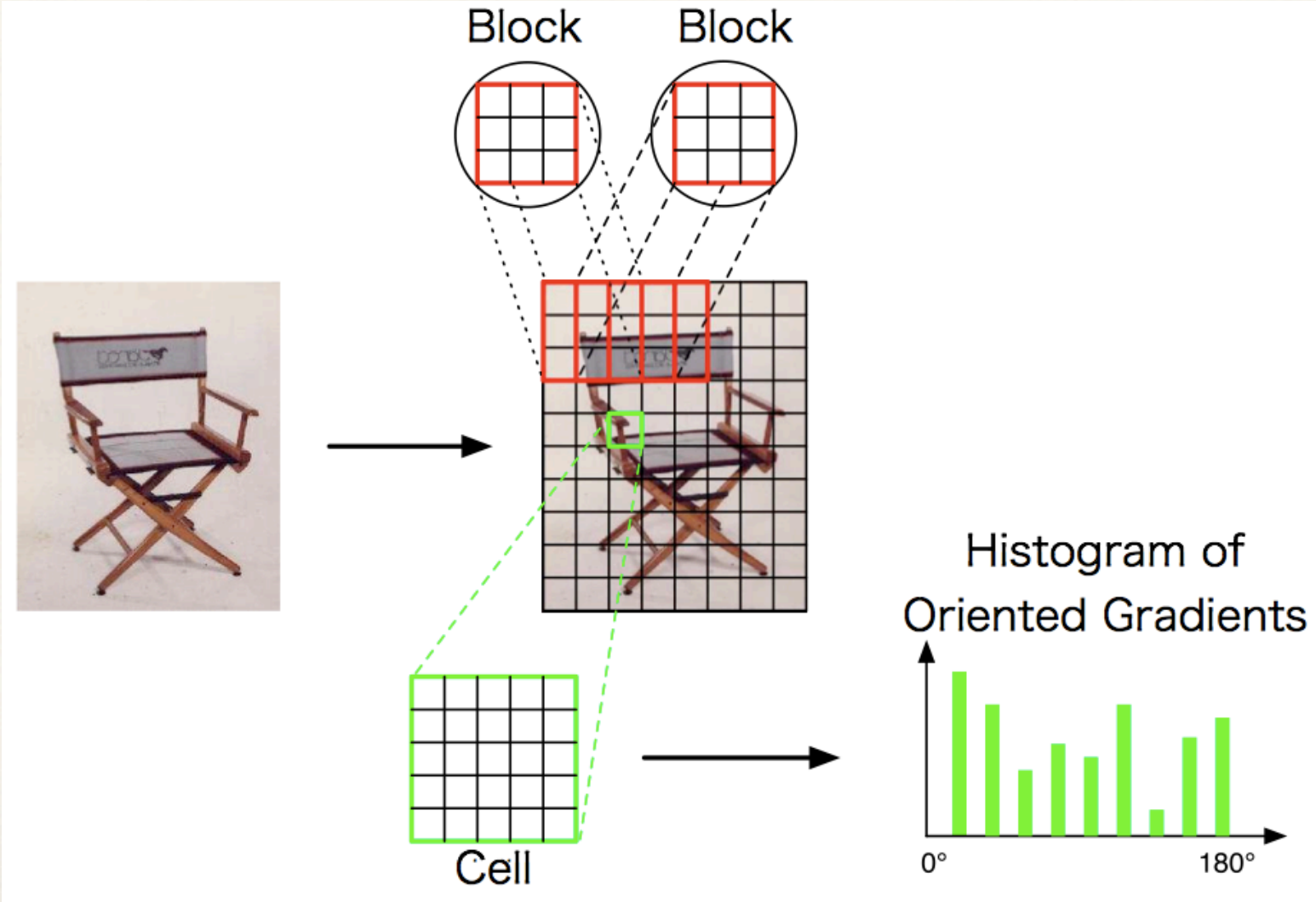
~Normalize feature vector~



Problem of SIFT



HOG(Histogram of Oriented Gradients)



Conclusion

~Compare two feature extractor ~

	light change	rotation change	scale change	feature value	use
SIFT	○	○	○	each feature points	specific object recognition and matting
HOG	○	×	×	each images	generic object recognition