

Image segmentation

INF391 - MINERÍA DE DATOS

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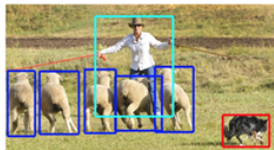
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Image Segmentation



(a) classification



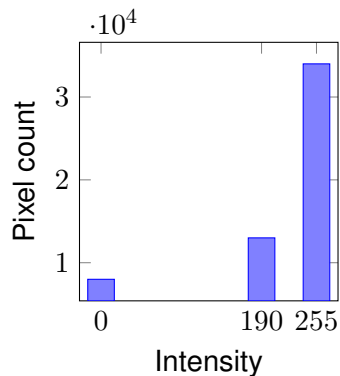
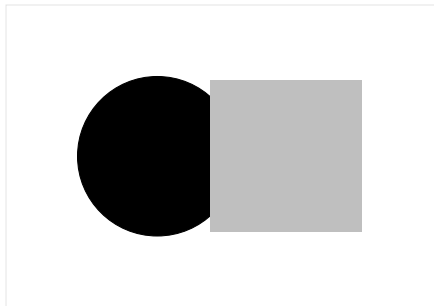
(b) detection



(c) segmentation

- ▶ Process of partitioning a digital image into multiple segments.
- ▶ Goal: simplify and/or change the representation into something that is easier to analyze.
- ▶ Used to locate objects and boundaries.

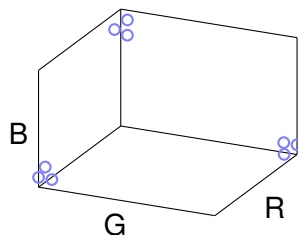
Segmentation as Clustering



Feature Space

Grouping pixels based on:

- ▶ Intensity Similarity (1D).
- ▶ RGB color (3D).
- ▶ Texture (High Dimensional).



Mean-Shift Clustering/Segmentation

- ▶ Find features (color, gradients, texture, etc).
- ▶ Initialize windows at individual pixel locations.
- ▶ Perform mean shift for each window until convergence.
- ▶ Merge windows that end up near the same “peak”.