# Automatic Image Labelling using Similarity Measures

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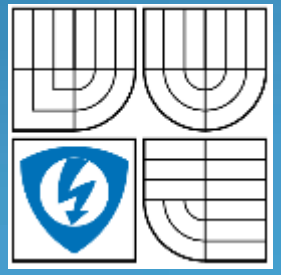
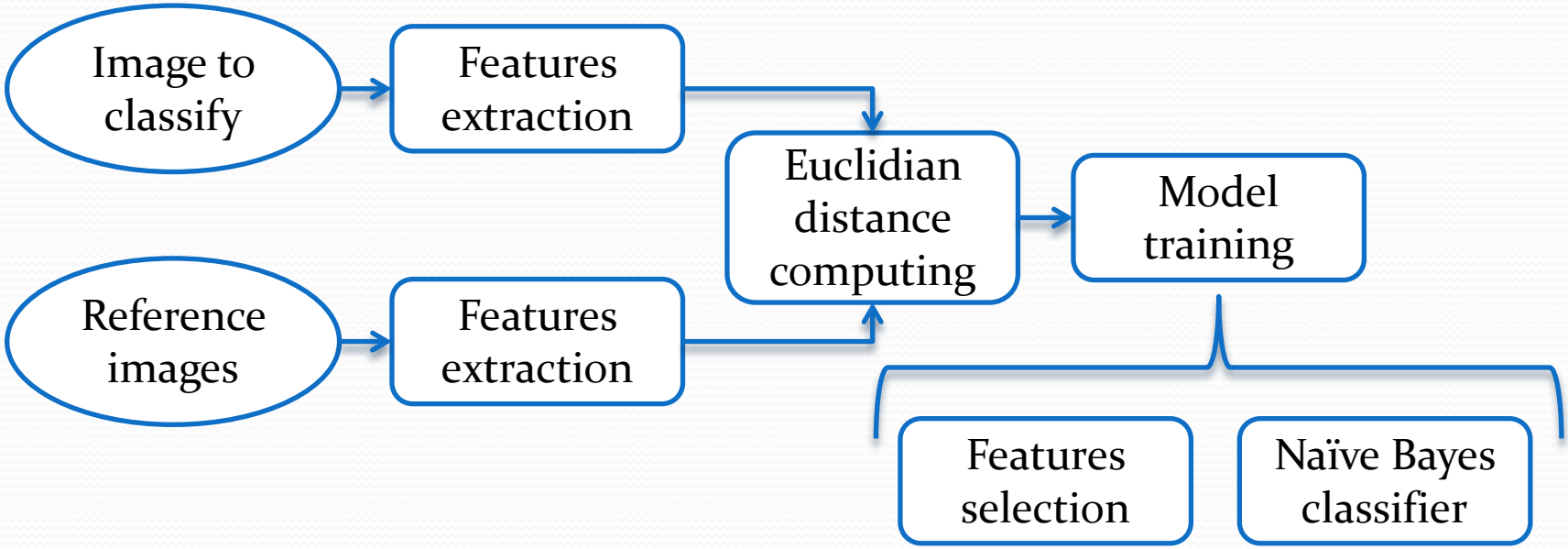


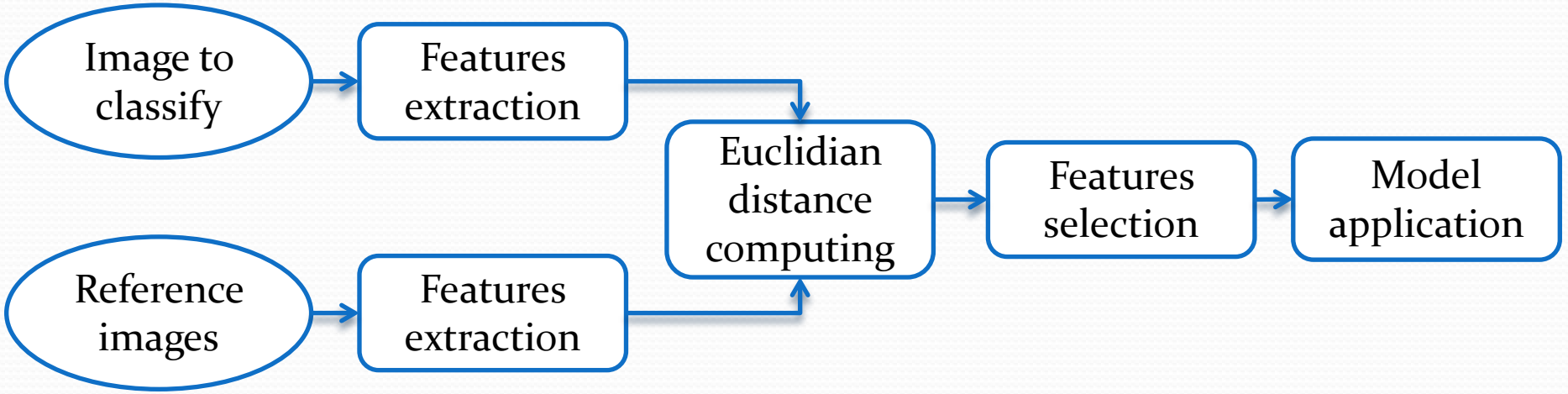

# Outline

- Process description
- Features extraction
- Data
- Results

# Training process description



# Testing process description

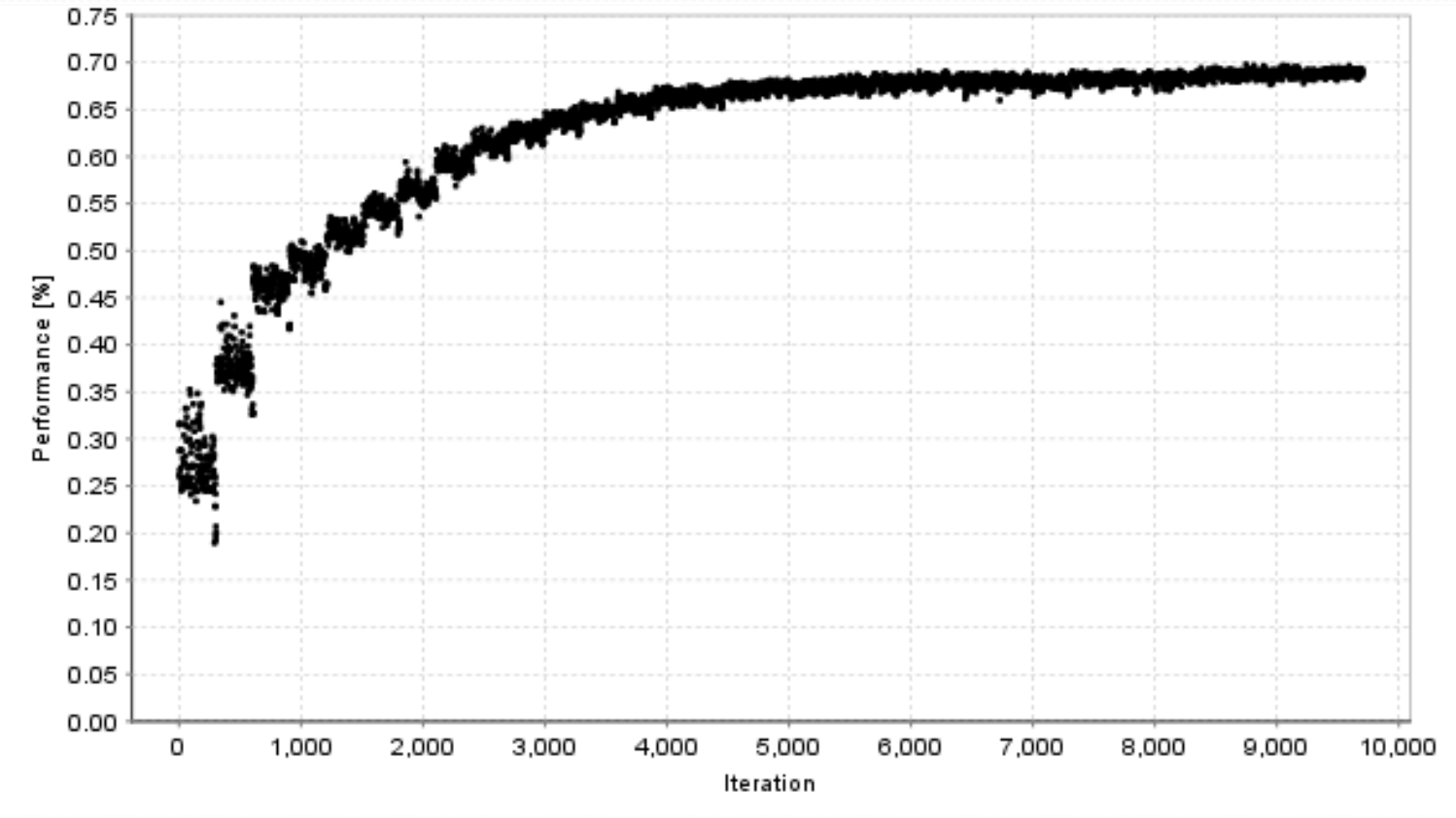


# Features extraction

- Auto colour correlogram
- Pyramid of Histograms of Orientation Gradients
- Binary Patterns Pyramid
- Colour and Edge Directivity Descriptor
- Colour layout
- Edge Histogram
- Fuzzy Colour and Texture Histogram
- Fuzzy colour histogram
- Fuzzy Opponent Histogram
- Gabor
- JPEG Coefficient Histogram
- Local Binary Patterns
- Luminance Layout
- Opponent Histogram
- Rotation Invariant Local Binary Patterns
- Scalable Colour
- Simple Colour Histogram
- Tamura

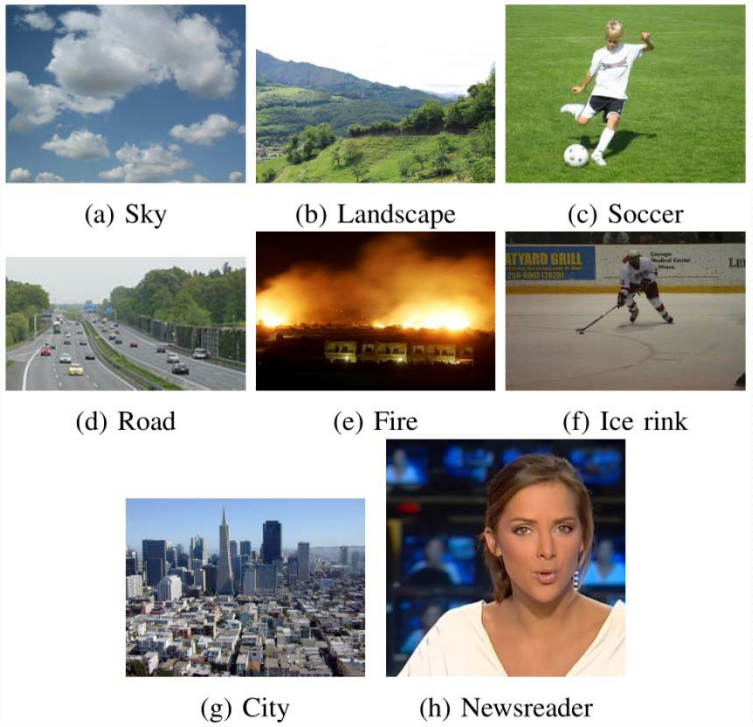
# Optimization

- Forward selection of features



# Data set

- 8 classes: city, fire, ice rink, landscape, newsreader, road, sky, and soccer
- 2 images from each class as reference
- 6 873 images for training and testing



# Results

**Train accuracy**

| class | class precision |
|---|---|
| City | 69.70% |
| Fire | 68.07% |
| Ice rink | 52.96% |
| Landscape | 60.50% |
| Newsreader | 53.78% |
| Road | 67.57% |
| Sky | 74.51% |
| Soccer | 65.10% |

**Test accuracy - 69.76%**

| class | class precision |
|---|---|
| City | 73.70% |
| Fire | 73.72% |
| Ice rink | 60.67% |
| Landscape | 62.37% |
| Newsreader | 55.79% |
| Road | 72.50% |
| Sky | 78.26% |
| Soccer | 65.10% |

# Visual results

Correctly classified images

(a) Sky

(b) Landscape

(c) Soccer

(d) Road

(e) Fire

(f) Ice rink

(g) City

(h) Newsreader

Incorrectly classified images (correct class in the brackets)

(a) Fire (Sky)

(b) Fire (Landscape)

(c) Landscape (Soccer)

(d) Sky (Road)

(e) Newsreader (Fire)

(f) Fire (Ice rink)

(g) Landscape (City)

(h) City (Newsreader)

Thank you for your attention.

Questions?