

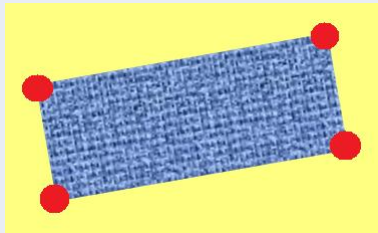
Computer Vision/Visual Pattern Recognition

Structured Feature Representation for Scene and Object Recognition

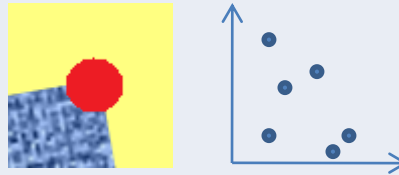
Markus Brenner

Feature extraction

Shape (Key points)



Color (Histogram)



Texture (Filter bank)



Preprocessing and feature extraction already implemented by Supervisor/NICTA in Matlab

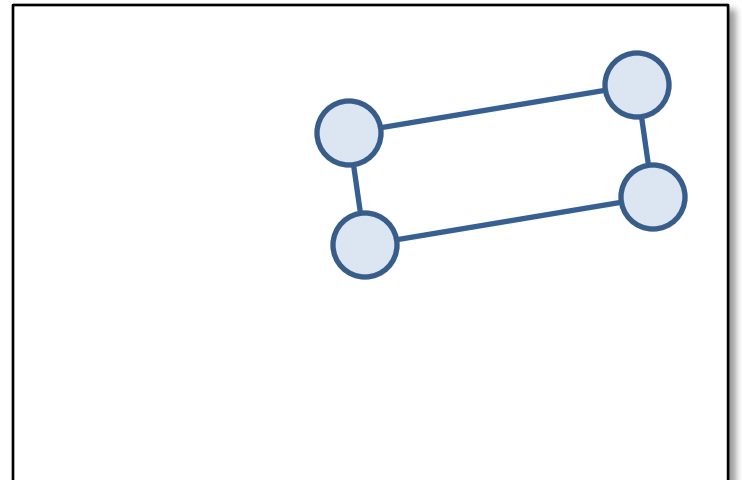
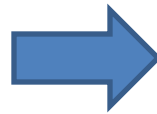
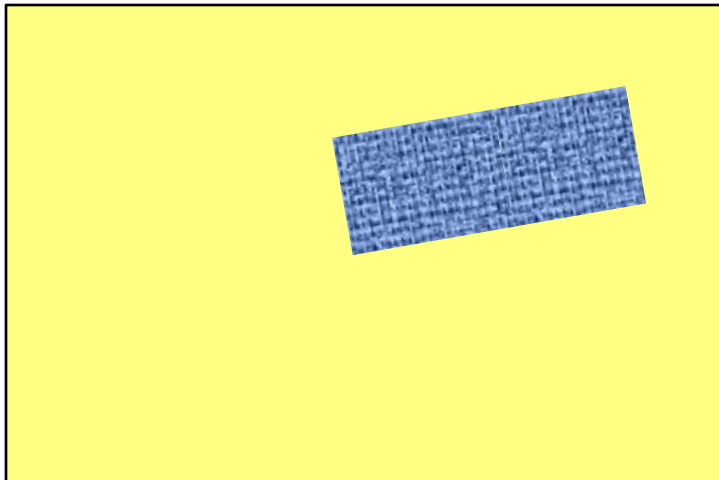


Using Matlab as environment

- Fast and easy prototyping
- No runtime optimization required

Minor research part: Build graph

- Combine features to nodes: Key points supplemented by color and structure
- Edges weighted



Major research part: Compare graphs

- 1. Entire graphs:** Scale-invariant
- 2. Subgraphs:** Scale/position/rotation-invariant
 - Entire graph within another graph
 - Part of graph within another graph

Example:

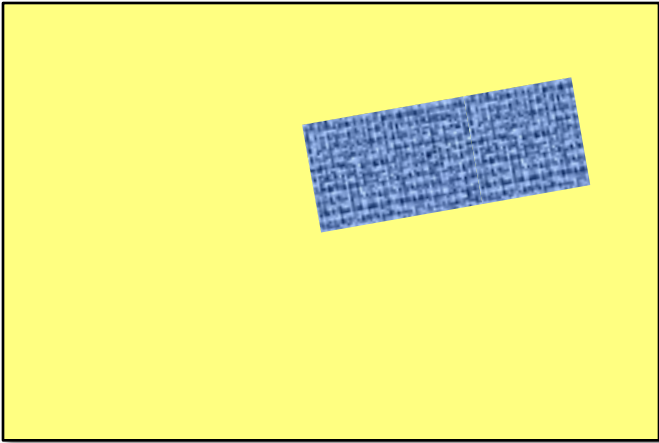
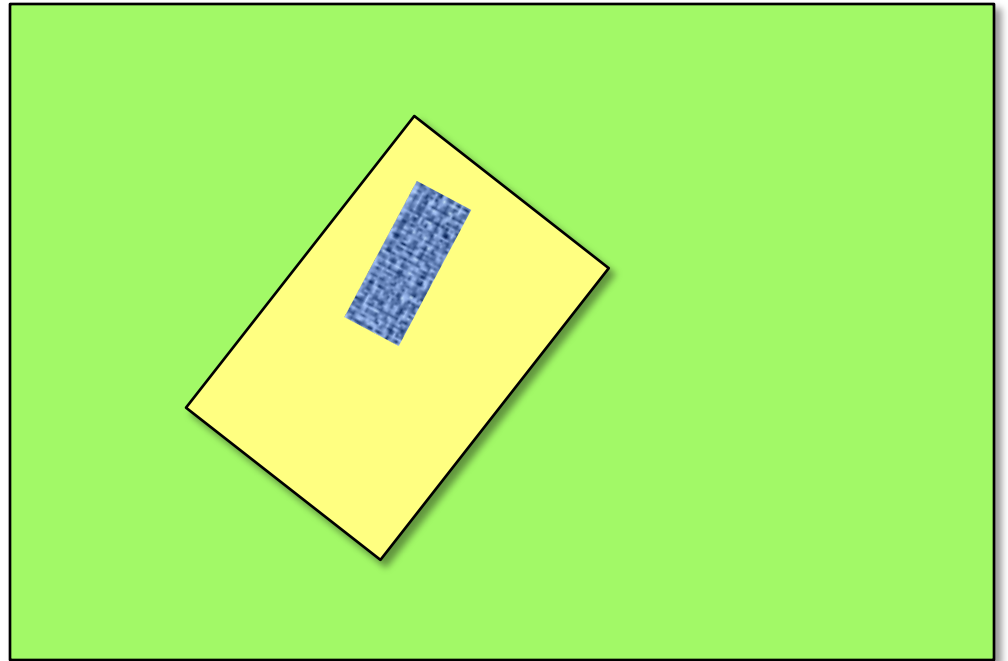


Image 1

Image 2



Comparison by using Graph entropy!?!

Functional on a graph with a probability distribution
on its vertices/nodes

Thank you!