INF FAKULTÄT FÜR INFORMATIK

Project Samael

– "The Blind God" –

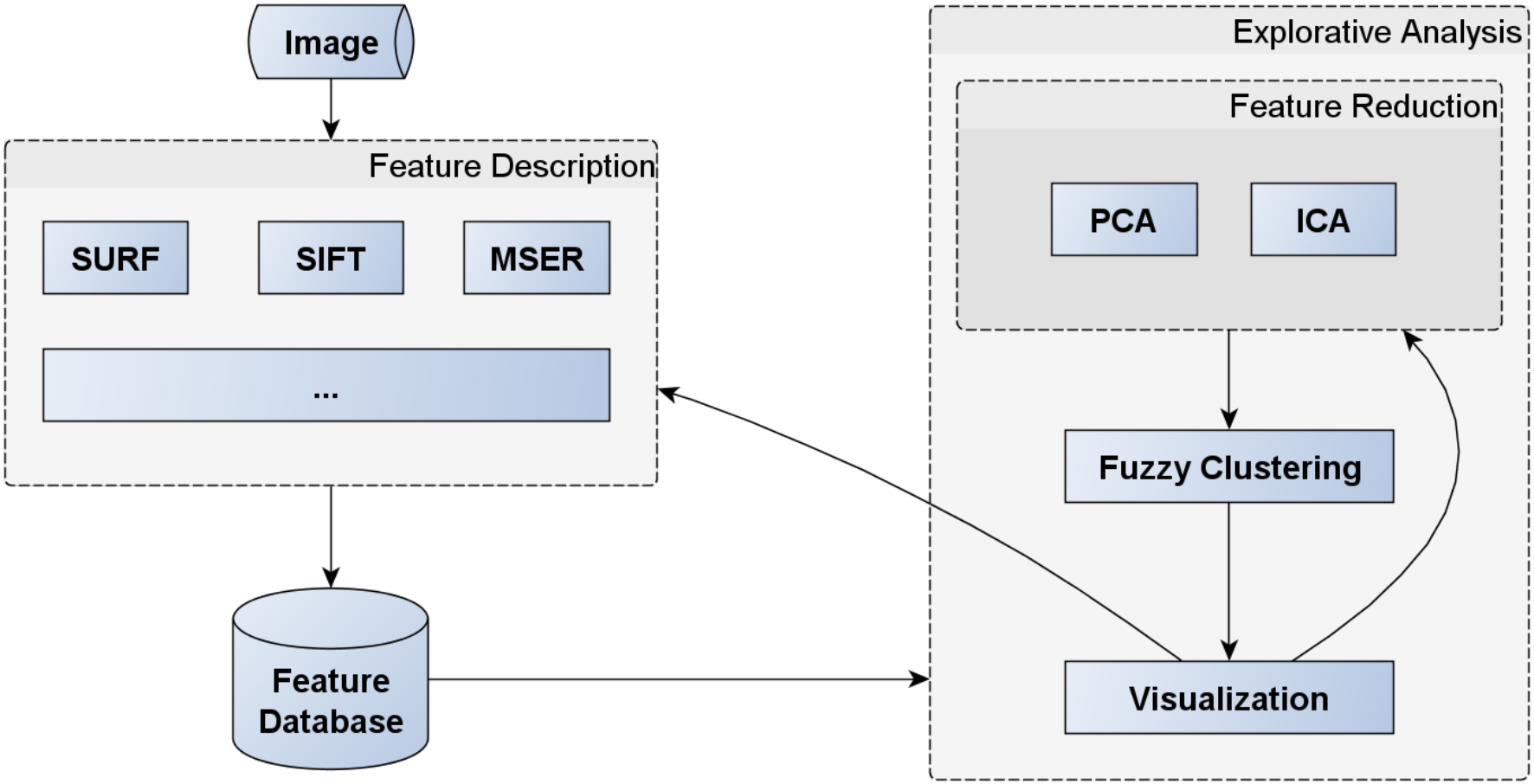
Christoph Lämmerhirt Sarah Pauksch Tim Benedict Jagla

Advanced Topics in Image Understanding - SS13

Outline

1. Repetition
2. Feature Space
3. Classification

Repetition: Our Plan



Feature Space

- SIFT keypoints:
  - unknown number of points
- SIFT descriptors:
  - gradient location (4 x 4 grid)
  - gradient orientation (8 bins)
  - 4 * 4 * 8 = 128 dimensional descriptor

Feature Space

- Bag of Words dictionary/vocabulary
  - all descriptors from the training dataset are clustered by a K-Means algorithm
- creation of histograms for each cluster
  - …each filled with the keypoints of their respective cluster

SVM Training

- now the histograms represent our feature vectors
- Support-Vector-Machine training
  - the currently trained class will always be marked as positive, everything else as negative
    - this enables a 1-vs-all classifier

Classification

- Input Image
  - search for the best separation of the histogram of our test image in regard to the existing classes

Thank you for your attention.