Gabor Wavelets for Automatic Face Recognition

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Introduction

- **Automatic Face Recognition (AFR)**
  - Comparison of human faces in digital images
  - Identification and verification
  - Access control, surveillance

- **Gabor Wavelets**
  - Computer vision
  - Sinusoid with Gaussian envelope
Gabor Wavelets Based Algorithm

- Kepenekci approach
- Feature based method
  - Positions not fixed
  - Extraction - Gabor wavelet transform
  - Multiple Gabor filters
- Complex matching algorithm
- High recognition rate
  - Near 100% with standard datasets (ORL, Stirling)
Main Goals

- Kepenekci method analysis
- Parameters adjustment
  - Sliding window size
  - Distance threshold
  - Features count
- Testing on the Czech News Agency (ČTK) database
  - Real-world corpus
  - Uncontrolled conditions
- Modification of the face representation
Conclusions and Perspectives

- Parameters adjustment
  - Reasonable features count
  - High recognition rate
  - Low execution time
- Using more training images of each individual for training
  - Composed face
  - Increased robustness
- Perspectives
  - Better determination of the fiducial (feature) points
  - Image preprocessing