

Gabor Wavelets for Automatic Face Recognition

Ladislav Lenc, Pavel Král

Department of Computer Science and Engineering, University of West
Bohemia, Plzeň, Czech Republic

January 25th, 2012

Introduction

Gabor
Wavelets for
Automatic
Face
Recognition

Ladislav Lenc,
Pavel Král

Introduction

Gabor
Wavelets

Main Goals

Conclusions
and
Perspectives

- 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

Gabor
Wavelets for
Automatic
Face
Recognition

Ladislav Lenc,
Pavel Král

Introduction

Gabor
Wavelets

Main Goals

Conclusions
and
Perspectives

- 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

Gabor
Wavelets for
Automatic
Face
Recognition

Ladislav Lenc,
Pavel Král

Introduction

Gabor
Wavelets

Main Goals

Conclusions
and
Perspectives

- 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

Gabor
Wavelets for
Automatic
Face
Recognition

Ladislav Lenc,
Pavel Král

Introduction

Gabor
Wavelets

Main Goals

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