Introduction

Tutorial on Image Retrieval
Thomas Deselaers / Henning Müller
Overview

• Introduction
• Content-based Image Retrieval
• Text-based Image Retrieval
• Questions & Answers
• Break
• Combinations of Content-based and Text-based Image Retrieval
• Relevance Feedback
• Evaluation of Image Retrieval
• Demo/Questions/Answers
Henning Müller

• Diploma in Medical Informatics
  – University of Heidelberg (1992-1997)
• Daimler Benz research and technology
  – Portland, OR, USA (1997-1998)
• PhD in image analysis (content-based retrieval)
  – Part of the work in Melbourne, Australia (2001)
• Medical image analysis and information systems
  – University and Hospitals of Geneva (2002-)
• Professorship at HES SO Valais, Sierre (2007-)
Thomas Deselaers

• Diploma in computer science
  – RWTH Aachen University, 1998 – 2004
• PhD in computer science
• Research stays at ITI in Valencia, Spain
• Internship with Microsoft Research, Cambridge, UK
• Starting as PostDoc at ETH Zurich in 2009
Questions?

• Please present yourself with name and affiliation.

• What are your expectations from this tutorial?
  • Any particular domains of interest?

• Any questions already at this point?
Introduction and Motivation
Motivation for image retrieval

• Exponentially increasing amount of visual data produced
  – Availability of cheap digital cameras
  – Social image exchange platforms (Flickr, ...)

• Manual annotation is extremely expensive
  – ... and is subjective (based on person, mood, ...)
  – What is in the image vs. what the image is about
  – Visual features are automatically extracted and thus objective
Problems of image retrieval

• Sensory gap
  – Images taken mean a data loss compared to reality (limited resolution, no 3D, ...)

• Semantic gap
  – Features automatically extracted may not correspond to human semantic search categories

• Page zero problem of query formulation
  – How can an image for QBE be found?

• Result: use text wherever available!
How we would like to see image retrieval ...
... and how it is perceived
TrebleCLEF

• EU FP7 research project on the evaluation of multilingual and multimodal information retrieval
  – Pays for part of our travel to this tutorial
  – http://www.trebleclef.eu/

• Summer school in Pisa in June 2009 on information retrieval