Current Topics in Computer Vision and Machine Learning

B. Leibe, E. Horbert, D. Mitzel, T. Weyand, G. Floros

28.03.2011

Bastian Leibe, Esther Horbet, Dennis Mitzel, Tobias Weyand, Georgios Floros
RWTH Aachen
http://www.mmp.rwth-aachen.de
leibe@umic.rwth-aachen.de
Outline

- Organization of the seminar
- Some hints for your reports
- Presentation of topics
- Distribution of topics
Organization

- Type of seminar
  - Block seminar, held at end of semester:
    in 21-22. July 2011
Reports

• Written reports: English or German, ~20 pages
  ➢ Not much more, not much less

• LaTeX is mandatory
  ➢ Template provided by us
  ➢ Compilation of one large document

• Outline of report is due 2. May 2011
  ➢ Your chance to get valuable feedback

• Reports are due 20. June 2011
  ➢ This version of your report will be graded.
  ➢ Will be annotated, revision for compilation
Talks

• Oral presentation: English (or German), ~45 minutes
  ➢ Again not much more, not much less

• Electronic slides: English (PPT, OOo, PDF)
  ➢ Templates provided by us
  ➢ You may use your own template if you like.

• Bring your own laptop if you want
  ➢ Or use the presentation laptop we provide.

• Slides are due 10. July 2011
  ➢ Again, chance to get valuable feedback.
Outline

- Organization of the seminar
- Some hints for your reports
- Presentation of topics
- Distribution of topics
What You Should Do...

- Read and understand your paper.
- Search for additional literature
  - Take part in a library tour!
- Write a report in your own words.
- Discuss advantages / disadvantages / problems of the methods
- Compare to work of other authors
  - The paper you get from us is not enough for your report!
- Correctly cite all sources and state where figures have been taken from!
- Make the reader understand your topic!
...And What Not to Do

- Do not copy original text!
- Do not simply translate original text!
- Do not hand in your report too late!

- We will check if you
  - have copied text from a paper,
  - have copied text from a website,
  - have not correctly cited all material, etc.

- If you do, you immediately fail the seminar!
Declaration of Compliance

• Read the “Ethical Guidelines for the Authoring of Academic Work”

• Sign and hand in the “Declaration of Compliance”
Outline

• Organization of the seminar
• Some hints for your reports
• Presentation of topics
• Distribution of topics
1. Human Body Pose Recognition

- J. Shotton, A. Fitzgibbon, M. Cook, T. Sharp, M. Finocchio, R. Moore, A. Kipman, A. Blake:

  *Real-Time Human Pose Recognition in Parts from Single Depth Images*
Topics: Scene Understanding

2. Mobile Scene Understanding
   - C. Wojek, S. Roth, K. Schindler, B. Schiele:
     *Monocular 3D Scene Modeling and Inference: Understanding Multi-Object Traffic Scenes*
Topics: Pose Estimation

3. Detection, Segmentation and Pose estimation with Poselets
   - L. Bourdev, J. Malik: *Poselets: Body Part Detectors Trained Using 3D Human Pose Annotations*
Topics: Tracking

4. Tracking occluded objects by using context
   - H. Grabner, J. Matas, L. Van Gool, P. Cattin:
     Tracking the Invisible: Learning where the Object might be
Topics: Action Recognition

5. Group activities recognition

- T. Lan, Y. Wang, W. Yang, G. Mori:
  *Beyond Actions: Discriminative Models for Contextual Group Activities*
Topics: Image Retrieval

6. Landmark building recognition
   Y. Avrithis, Y. Kalantidis, G. Tolias, E. Spyrou
   *Retrieving Landmark and Non-Landmark Images from Community Photo Collections*
Topic: 3D Reconstruction

7. Dense Multi-View Stereo

- Y. Furukawa, J. Ponce
  *Accurate, Dense, and Robust Multi-View Stereopsis*
Topic: Local Feature Descriptors

8. Feature Space Learning
   - J. Philbin, M. Isard, J. Sivic, A. Zisserman
   *Descriptor Learning for Efficient Retrieval*
9. Object Detection

- M.B. Blaschko, C.H. Lampert: *Learning to Localize Objects with Structured Output Regression*
- Traditional Sliding Windows
- Here: Learn a function


Topic: Segmentation

10. Multi-Class Scene Labeling

- L. Ladický, P. Sturgess, K. Alahari, C. Russell, and P.H.S. Torr
  *What, Where & How Many? Combining Object Detectors and CRFs*
Outline

- Organization of the seminar
- Some hints for your reports
- Presentation of topics
- Distribution of topics
Topics: Overview

1. Human Body Pose Recognition
2. Mobile Scene Understanding
3. Detection, Segmentation and Pose estimation with Poselets
4. Tracking occluded objects by using context
5. Group activities recognition
6. Landmark building recognition
7. Dense Multi-View Stereo
8. Feature Space Learning
9. Object Detection
10. Multi-Class Scene Labeling