Advanced Topics in Computer Graphics and Vision

Fall Semester 2008

Prof. Dr. Markus Gross
Prof. Dr. Marc Pollefeys
Dr. Nils Thuerey
Dr. Gabriel Brostow

Computer Vision and Geometry Lab

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Computer Graphics Laboratory ETH Zurich
Goals of the Seminar

• Get you acquainted with research in computer graphics and vision
• Improve your ability to critically read and analyze scientific papers
• Strengthen your presentation skills
• Stimulate active learning through group discussions, improve argumentation skills
What you have to do

• Present one paper in class
  – read the paper and necessary background material
  – prepare slides and give the presentation
  – lead the discussion in class
• Read the other papers before class
• Participate in the discussion
• Grading:
  – 75% presentation
  – 25% group discussion
What you have to do 2

• Talk duration: **30 minutes**
  – Practice to be on time...

• One supervisor per topic:
  – Will help you with the preparations
  – Check talk a few days before
  – Discuss unclear points in the paper
  – List of supervisors will be available on the web
Topics

• Geometry and performance capture
• Texture synthesis
• Computational photography
• Video editing
Sept. 25

- Capturing and Animating Occluded Cloth
  R. White, K. Crane, D. Forsyth
- SIGGRAPH 07
• **Multi-view Photometric Stereo**
  C. Hernández, G. Vogiatzis, R. Cipolla
• PAMI 08
Oct. 9

- **Video Epitomes**
  V. Cheung, B. J. Frey, and N. Jojic
- CVPR 05
Oct. 16

- **Space-Time Super-Resolution**
  E. Shechtman, Y. Caspi and M. Irani
- PAMI 05
• **As-Rigid-As-Possible Shape Manipulation**
  T. Igarashi, T. Moscovich, J. F. Hughes

• **SIGGRAPH 05**
Oct. 30

- **Photo Tourism**
  N. Snavely, S. M. Seitz, R. Szeliski
- SIGGRAPH 06
Nov. 6

- **Performance Capture from Sparse Multi-view Video**

- **SIGGRAPH 08**
Nov. 13

- **Improved Seam Carving for Video Retargeting**
  M. Rubinstein, A. Shamir, S. Avidan
- **SIGGRAPH 08**
Towards Passive 6D Reflectance Field Displays
M. Fuchs, R. Raskar, H.-P. Seidel, H. P. A. Lensch

SIGGRAPH 08
Nov. 27

- **Programmable Aperture Photography**

- SIGGRAPH 08
Dec. 4

• *Multidimensional Adaptive Sampling and Reconstruction for Ray Tracing*
  T. Hachisuka, W. Jarosz, R. Weistroffer, K. Dale, G. Humphreys, M. Zwicker, H. Wann Jensen

• SIGGRAPH 08
Dec. 11

- **Hair Photobooth**

- **SIGGRAPH 08**
Dec. 18

- **Fluorescent Immersion Range Scanning**
  M. B. Hullin, M. Fuchs, I. Ihrke, H.-P. Seidel, H. P. A. Lensch

- SIGGRAPH 08
• **Anisotropic Noise**
  A. Goldberg, M. Zwicker, F. Durand

• SIGGRAPH 08
• **Surface Depth Hallucination**
  M. Glencross, G. J. Ward, C. Jay, J. Liu, F. Melendez, R. Hubbold

• SIGGRAPH 08
• **Appearance-Space Texture Synthesis**
  S. Lefebvre, H. Hoppe

• **SIGGRAPH 06**
Articulated Mesh Animation from Multi-view Silhouettes
D. Vlasic, I. Baran, W. Matusik, J. Popovic
SIGGRAPH 08
Some Remarks

• Goal of your presentation:
  – Impart knowledge to the audience
  – (not show off that you understood the paper)
Preparation

- Read the paper and background material
- Make sure you understand the subject
  - talk to assistant or contact authors if questions remain
- Think about potential visual aids, e.g., demos, videos, etc.
- Consider other material, e.g., handouts
Structure your talk

- Introduction
  - general context, motivation, problem statement

- Contents of the paper
  - core points of the paper, key contributions, relevant results, relation to other work

- Discussion
  - evaluate the paper from your own perspective
  - discuss pros and cons, talk about your own ideas for future work
Get your message across

• Stress the important points
  – “Tell'em what you are going to tell'em. Tell'em. Then tell'em what you told'em.”

• Consider your audience
  – what prior knowledge can you expect?
  – how can you make sure people will be able to follow your presentation?
The Talk

• Practice your talk!
  – get feedback from others or use video camera
  – check the timing

• Talk to the audience not to the screen

• Talk clearly, not too slow or too hasty

• Give the audience time to understand what you tell them
Things to avoid

• Exceed the time limit
• Never practice the talk
• Lose yourself in detailed, confusing explanations
• Too many slides, equations, too many bullets
• Fonts too small, too much text
• Discontinuous speech
• Ignore the audience
Some quotes

• “Before I speak, I have something important to say.”   -Groucho Marx

see:http://www.erp.wisc.edu/profdev/Scientifically_speaking.pdf
Some quotes

• “A speech is a solemn responsibility. The man who makes a bad speech to two hundred people wastes only half an hour of his own time. But he wastes one hundred hours of the audience’s time - more than four days - which should be a hanging offense” - Jenkin Lloyd Jones

see: http://www.erp.wisc.edu/profdev/Scientifically_speaking.pdf
Some quotes

• “I’m rather like a mosquito in a nudist camp: I know what I ought to do, but don’t know where to begin.” -Stephen Bayne

see: http://www.erp.wisc.edu/profdev/Scientifically_speaking.pdf
Some quotes

• “Be sincere; be brief; be seated.” - Franklin D. Roosevelt

see:http://www.erp.wisc.edu/profdev/Scientifically_speaking.pdf
Some quotes

• “Many attempts to communicate are nullified by saying too much.” – Robert Greenleaf

see:http://www.erp.wisc.edu/profdev/Scientifically_speaking.pdf
Some quotes

• “The human brain starts working the moment you are born and never stops until you stand up to speak in public.” - George Jessel

see: http://www.erp.wisc.edu/profdev/Scientifically_speaking.pdf
Some quotes

• “In science as in love, too much concentration on technique can often lead to impotence.” -P.L. Berger, Sociologist and author

see: http://www.erp.wisc.edu/profdev/Scientifically_speaking.pdf