

Seminar Robot Perception WS12/13

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AiS Autonomous
Intelligent
Systems

What is robot perception?

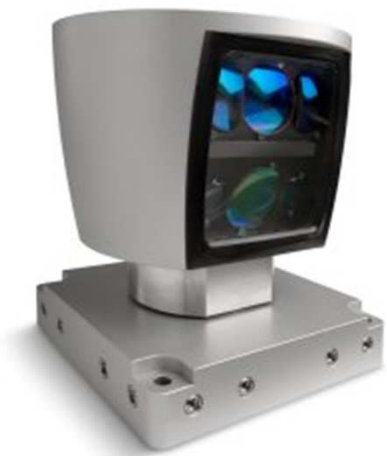


What is robot perception?



More seriously...

- Process and reason on sensory data for robotic applications
- (not just) camera
- 2D/3D Range data (laser)



What will you learn?

- Read top-notch scientific papers
- Do literature research
- Give a presentation
- Discuss a research problem

What will you have to do?

- Read all the papers
 - Answer questions for each one (summary)
- Select a paper:
 - Understand it, do literature research
 - Present it to the class
- Take part in the discussion
 - Ask relevant questions

Summary of each paper

- Several questions for each paper
- Expected: compact answers
- Overall not bigger than 6 pages

- **Needs to be sent to the supervisor before the presentation**

Your paper

- Read it
- Understand it
- Read relevant papers related to it

- Preliminary presentation
- Final version of the presentation

Your paper – presentation

- Keep it simple but not too simple!
- Example outline:
 - Motivation
 - Background
 - Approach
 - Results
 - Conclusions

Your paper – presentation

- Use images/videos
- Understand or skip
- Check the time
- PRACTICE

- **Meet with advisor before presentation**

Scoring criteria

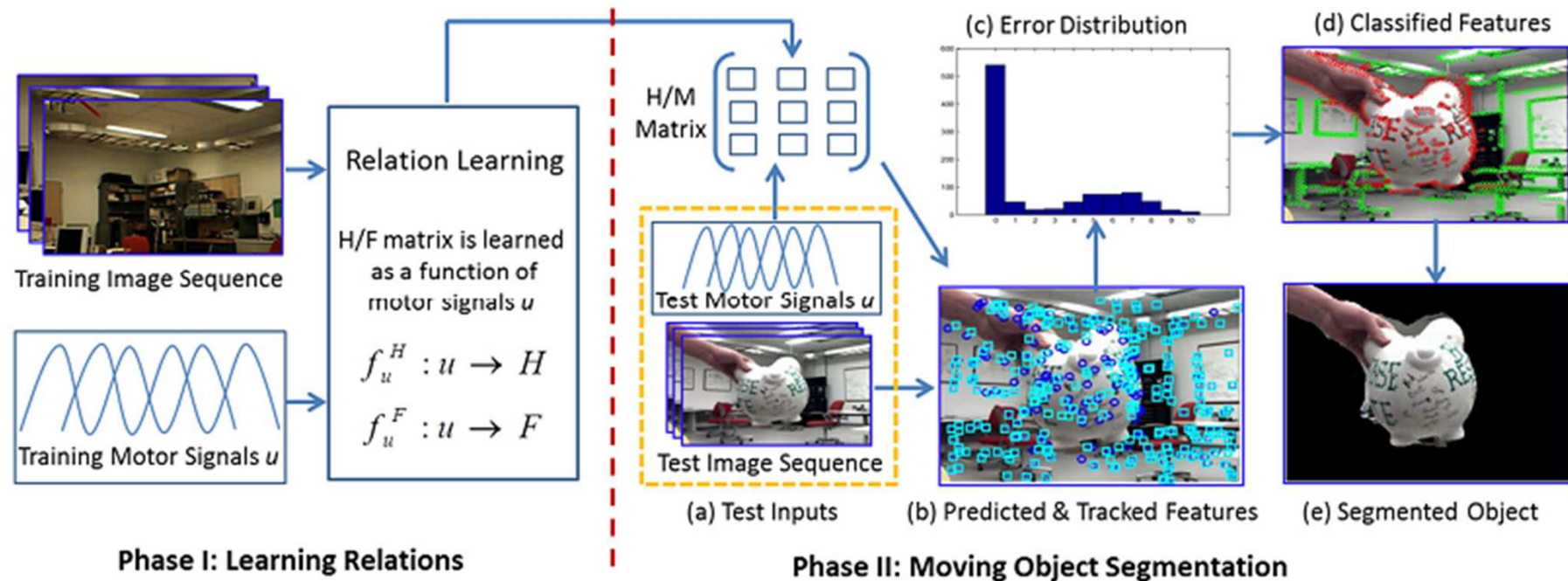
- Presentation: 60%
- Summary: 30%
- Participation in the discussion: 10%

Dates

1 st ver. presentation	4.Feb.2012
1 st ver. summary	6.Feb.2012
final summary	14.Feb.2012
presentation	18.Feb.2012

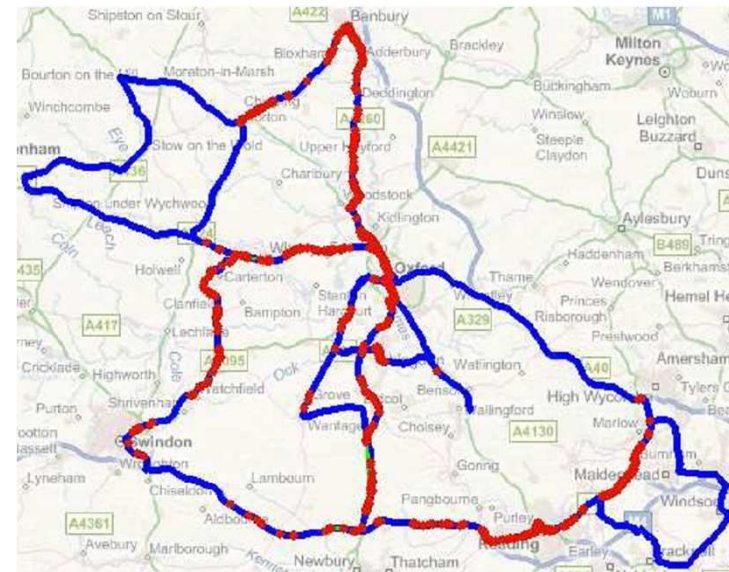
Papers

Object segmentation in video



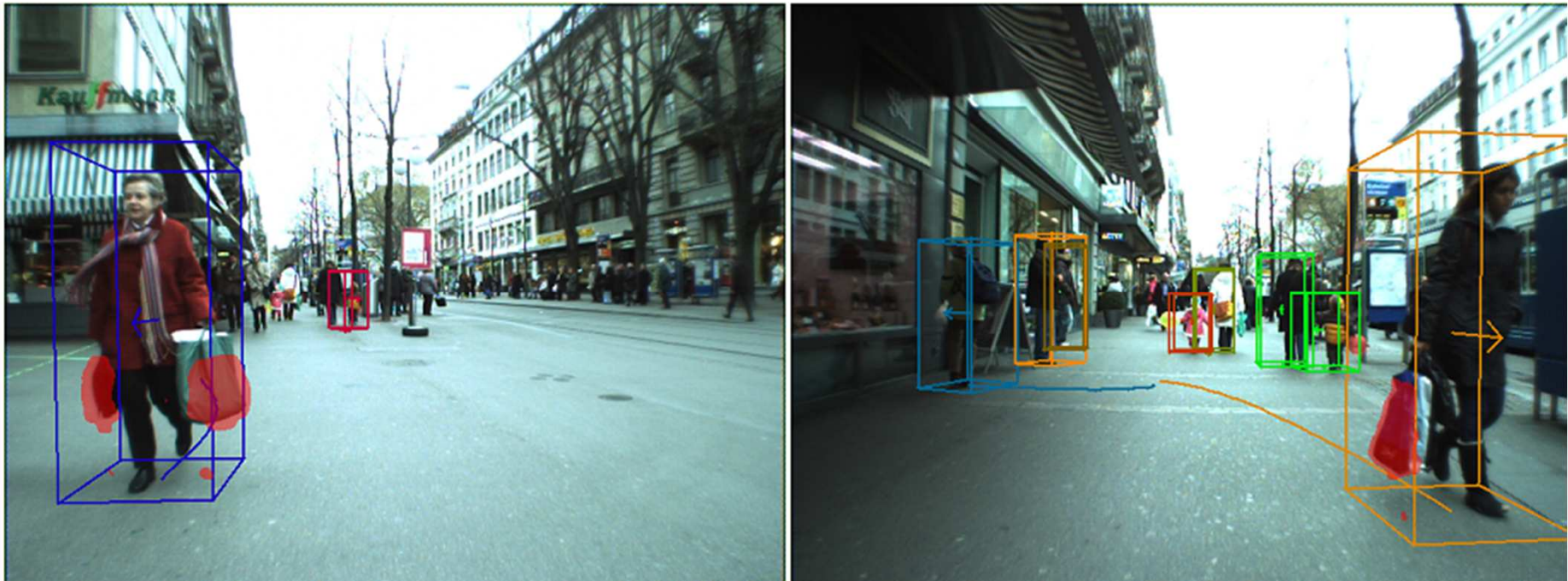
“Moving Object Segmentation Using Motor Signals”
Xu, Liu, Kuipers – ECCV12

Camera based SLAM



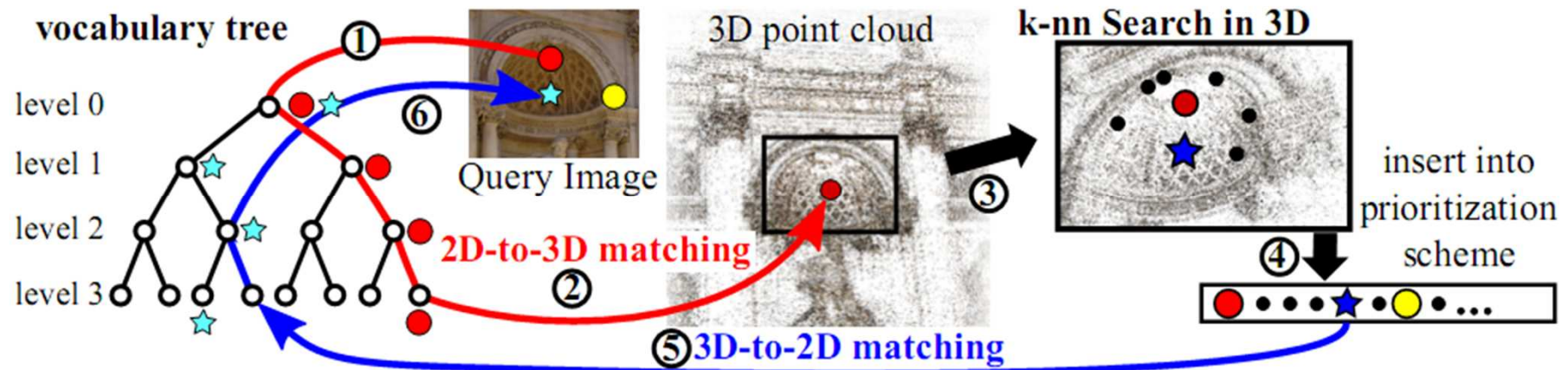
“Highly Scalable Appearance-Only SLAM FAB-MAP 2.0”
Cummins, Newman – RSS09

People and object tracking



“Taking Mobile Multi-Object Tracking to the Next Level: People, Unknown Objects, and Carried Items”
Mitzelr, Leibe – ECCV12

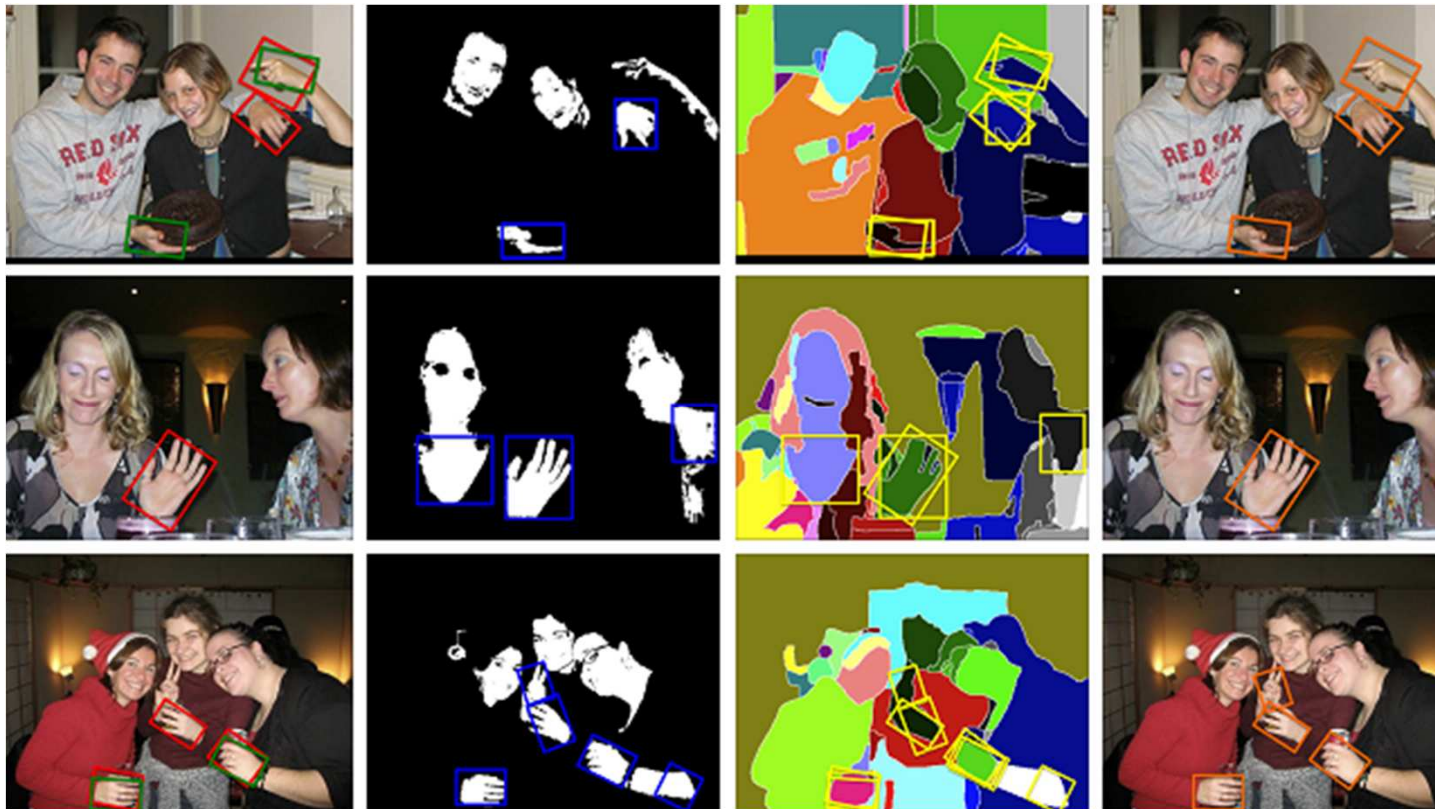
Place recognition



“Improving Image-Based Localization by Active Correspondence Search”

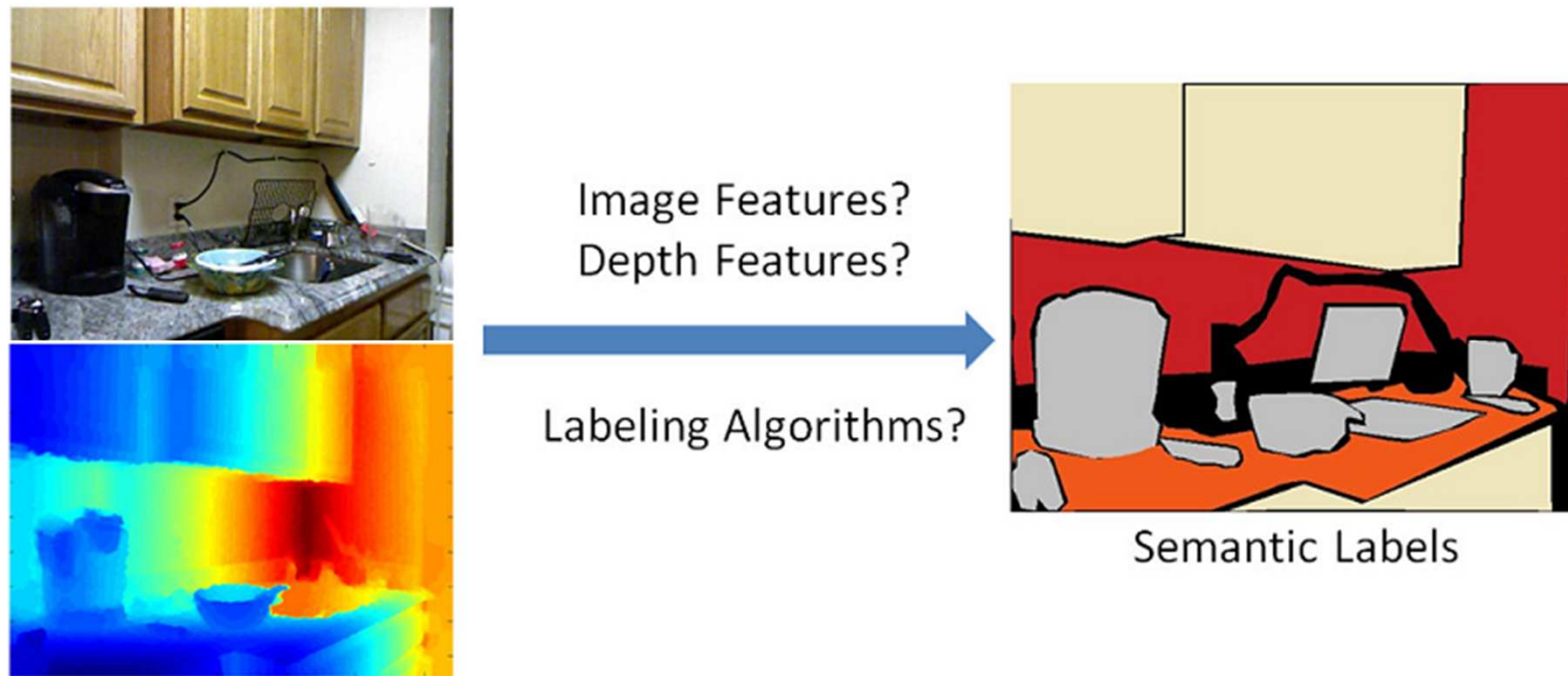
Sattler, Leibe, Kobbel – ECCV12

Hand detection



“Hand detection using multiple proposals”
Mittal, Zisserman, Torr – BMVC12

RGBD Scene Labeling



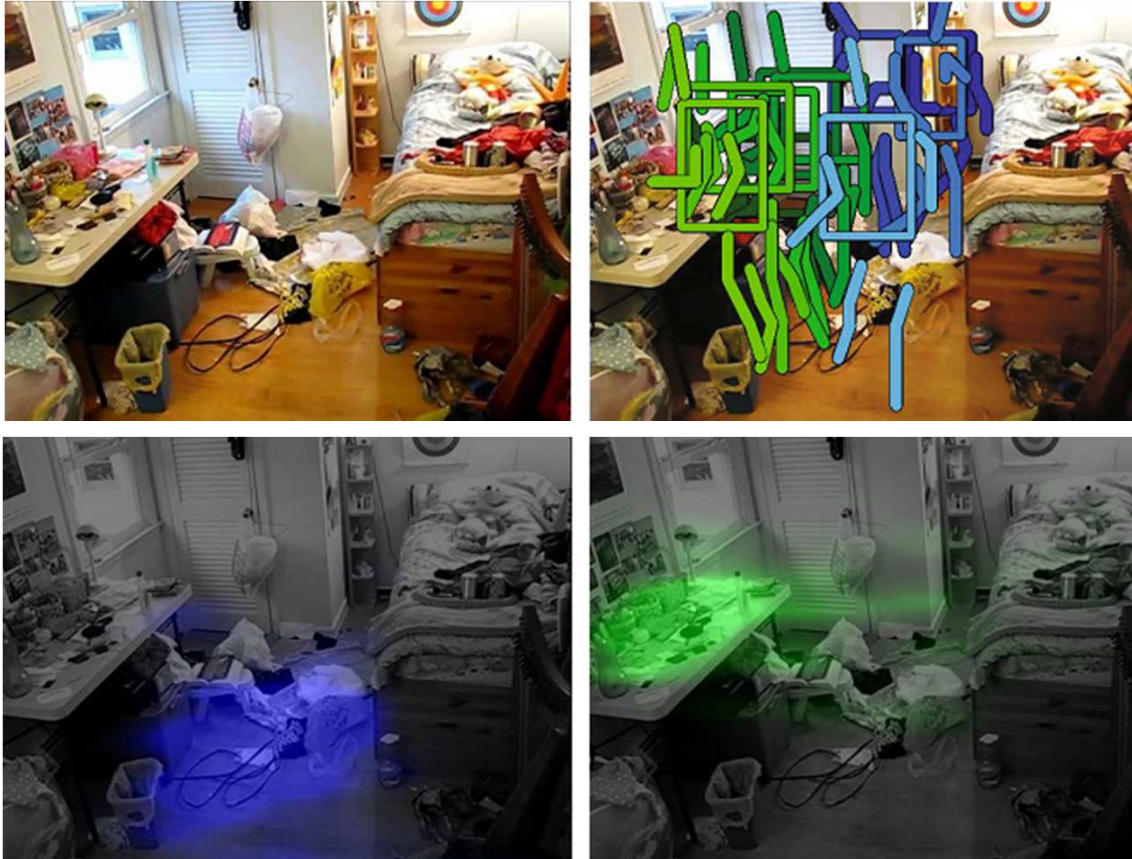
“RGB-(D) Scene Labeling: Features and Algorithms”
Ren, Bo, Fox – CVPR12

Learning appearance of cities



“What Makes Paris Look like Paris?”
Doersch, Singh, Gupta, Sivic, Efros – ECCV12

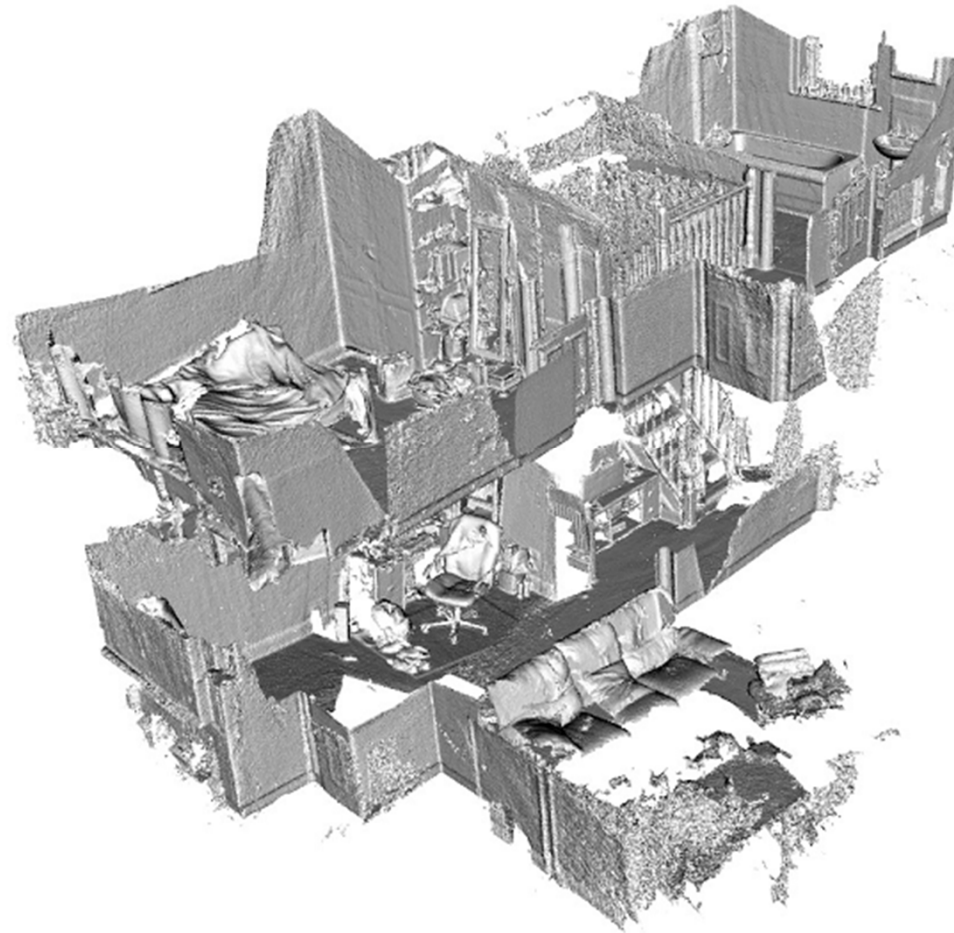
Understanding affordances



“People Watching: Human Actions as a Cue for Single View Geometry”

Fouhey, Delaitre, Gupta, Efros, Laptev, Sivic – ECCV12

Dense depth reconstruction



“Kintinuous: Spatially Extended KinectFusion”

Whelan, McDonald, Kaess, Fallon, Johannsson, Leonard – RSS12
(RGBD WS)

Decision time

- Score 1 to 4 each paper
- Provide email address
- Wait for optimal assignment 😊