Seminar: 3D Shape Matching and Applications in Computer Vision

Preparation Meeting, 12.07.2023

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Seminar: 3D Shape Matching

Eisenberger et al
Seminar: 3D Shape Matching

Wonder Studio
Organisation

Block seminar: **26 - 27.09.2023** (maximal 2 days)

Place: **Hybrid**, room 02.09.023 & online (zoom link see tumonline)

Website: https://cvg.cit.tum.de/teaching/ws2023/3ds

Email: 3dsm-ws23@vision.in.tum.de
What you will learn

Get an overview on recent research in 3D Shape Matching and Applications in Computer Vision

Read and understand scientific publications

Prepare and give a talk

Write a scientific report
Preparation

- You do not need to (and should not) work on your topic alone
- Meet at least twice with your supervisor
- It is your responsibility to contact your supervisor for these meetings

Seminar: 3D Shape Matching

12th Jul, 2023
Presentation

- 30 minutes talk + 15 minutes discussion
- use visualizations
- number your slides
- do not make slides full of text
- explain things you had problems understanding when first reading your paper in more detail
- reference the original author and conference/journal name

Recommended structure
1. Introduction of the problem
2. Approach
3. Results (if any)
4. Summary
Report

- The report is due 2 weeks after the talk and gives you the chance to **make up for questions that were left**
- **Address the open questions left from the Q&A session.**
- Not a copy of your assigned material, **focus on parts that you found interesting or concepts you had to do additional work to understand**
- 6-10 pages
- Use CVPR Latex template: [https://media.icml.cc/Conferences/CVPR2023/cvpr2023-author_kit-v1_1-1.zip](https://media.icml.cc/Conferences/CVPR2023/cvpr2023-author_kit-v1_1-1.zip)
- Use your text editor of choice if you must but keep the style similar to the template
Evaluation Criteria

● Attendance on the block seminar day is necessary! Contact us beforehand if you have other appointments.

● Participation (questions, discussions) influences the final grade.

● Final grade will be a weighted combination of your presentation, participation and report.
General Tips

- Choose the main aspects and interesting subtopics
- Understand them in every detail
- It may be necessary to check related articles or textbooks
- Prepare the topic such that it is understandable to the other participants of the seminar
Data Structure

Point cloud

Triangular mesh
1. DiffusionNet: Discretization Agnostic Learning on Surfaces

Sharp et al. 2022
2. Point Clouds Registration Via Efficient Convex Relaxation

\[ \| RP - QX \| \]

Haggai et al. 2016
3. Unsupervised Learning of Robust Spectral Shape Matching

Cao et al. 2023
4. Dense Elastic 3D Shape Matching

Schmidt et al. 2014
Registration

• Computer Science & exchange students apply through the TUM Matching platform (matching.in.tum.de)

• There are 12 places in total

• Everyone present at the premeeting gets priority in the matching system, please post your name, TUM-Kennung and email in the chat in one message
Assignment of Topics

- A list of topics will be available on the homepage in the upcoming weeks

- https://cvg.cit.tum.de/teaching/ws2023/3dsm

- If you got assigned to this seminar, send us an email to 3dsm-bs23@vision.in.tum.de with your four favorite topics

- Topics will be assigned by first come first serve

Questions?