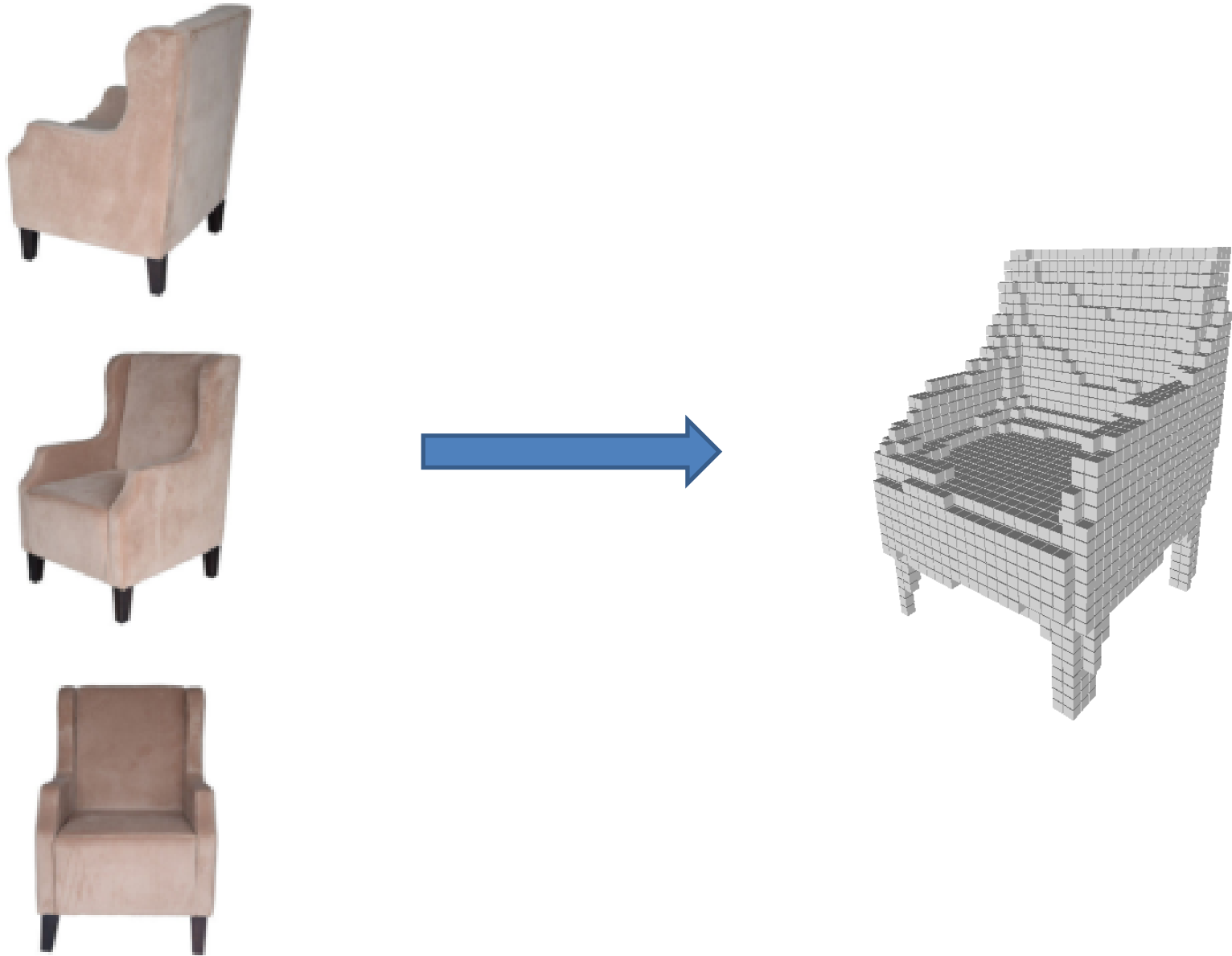# Seminar:
3D Generative Models

Preparation Meeting, 01.07.2021
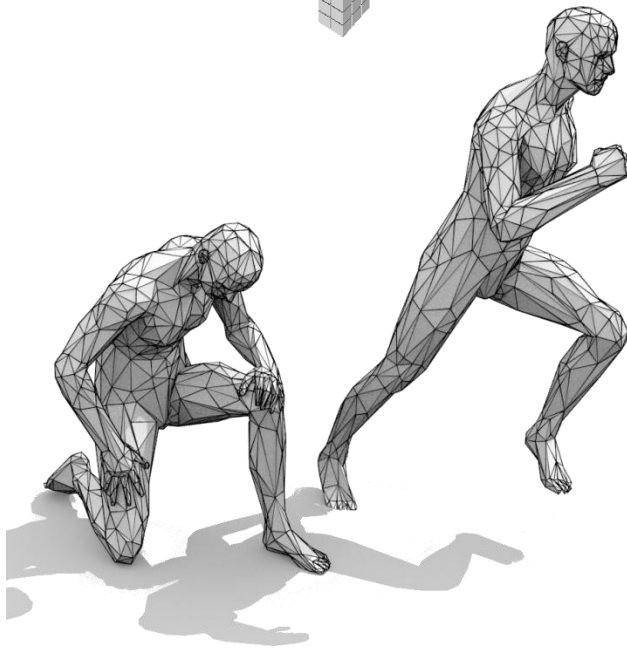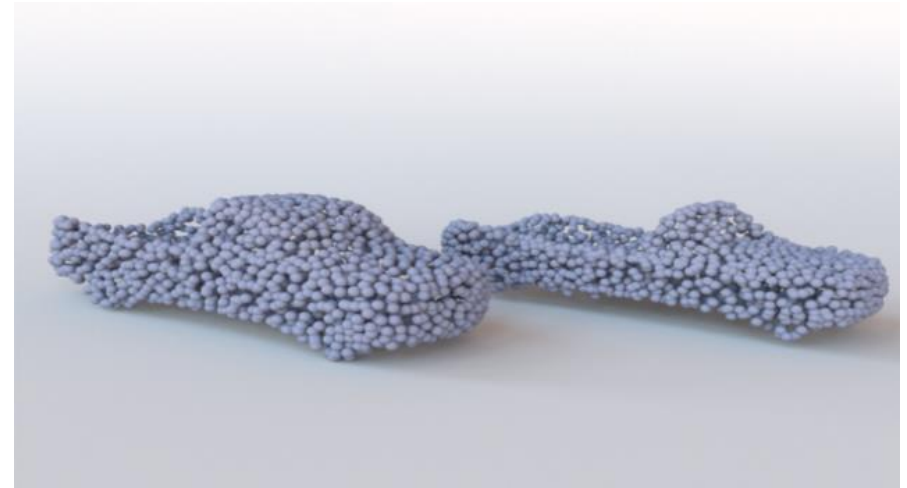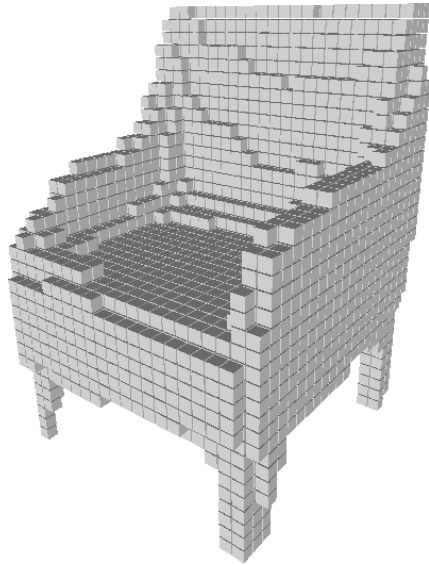
Tarun Yenamandra, Marvin Eisenberger, Maolin Gao

Seminar: 3D Generative Models

[1]Choy et al., 3d-r2n2: A unified approach for single and multi-view 3d object reconstruction. In European conference on computer vision (ECCV), 2016.

Seminar: 3D Generative Models

[1]Choy et al., 3d-r2n2: A unified approach for single and multi-view 3d object reconstruction. In European conference on computer vision (ECCV), 2016.
[2]Dai et al., 3d-r2n2: ScanNet: Richly-annotated 3D Reconstructions of Indoor Scenes. Computer Vision and Pattern Recognition (CVPR), 2017.
[3]Achlioptas et al., Learning Representations and Generative Models for 3D Point Clouds. Proceedings of the 35th International Conference on Machine Learning (PMLR), 2018.

Seminar: 3D Generative Models
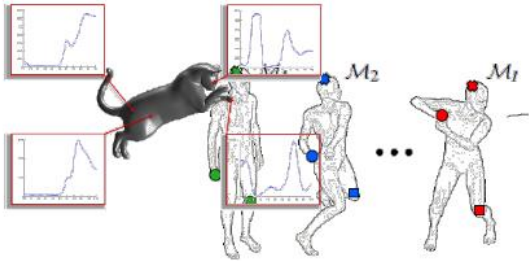
Timeslot: Tuesday, 10:00-12:00

Place: Seminar room: 00.08.055

Website: https://vision.in.tum.de/teaching/ws2021/generative_models
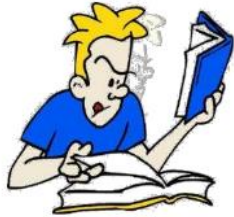Password: genmod2021

Email: 3dgm-ws21@vision.in.tum.de

What you will learn

Get an overview on recent research in 3D Generative Models and Applications in Computer Vision

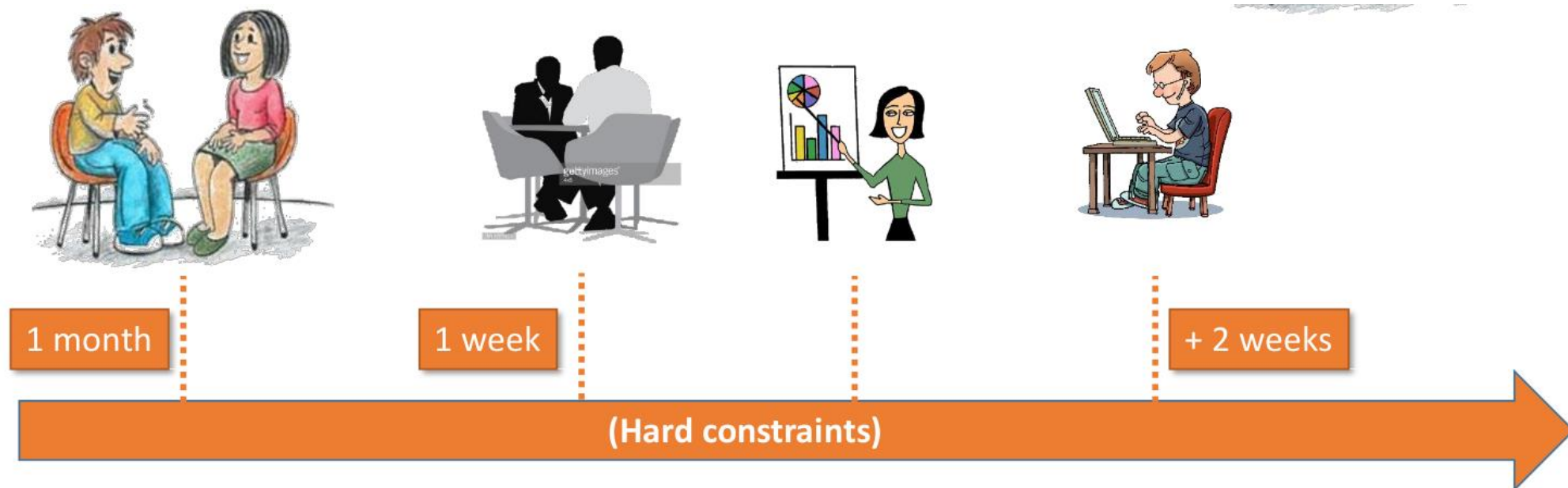Read and understand scientific publications
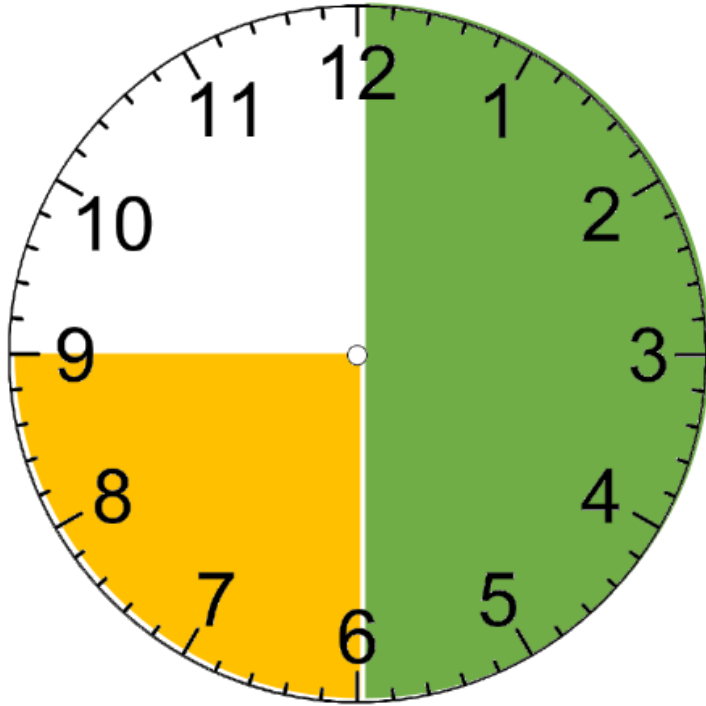
Prepare and give a talk

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

1 month   1 week   + 2 weeks

(Hard constraints)

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

- Overview and main contributions of the assigned topic

- Not a copy of your assigned material, focus on parts that you found interesting but discuss them more in-depth or concepts you had to do additional work to understand

- The report **is due 2 weeks after the talk** and gives you the chance to make up
for questions that were left

- 6-10 pages

- Use CVPR Latex template: http://cvpr2021.thecvf.com/sites/default/files/2020-09/cvpr2021AuthorKit_2.zip

- Use your text editor of choice if you must but keep the style similar to the template

Evaluation Criteria

- Attendance at each meeting is necessary! Contact us **beforehand** if you have other appointments.

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

a. Choose the main aspects and interesting subtopics
b. Understand them in every detail
c. It may be necessary to check related articles or text books
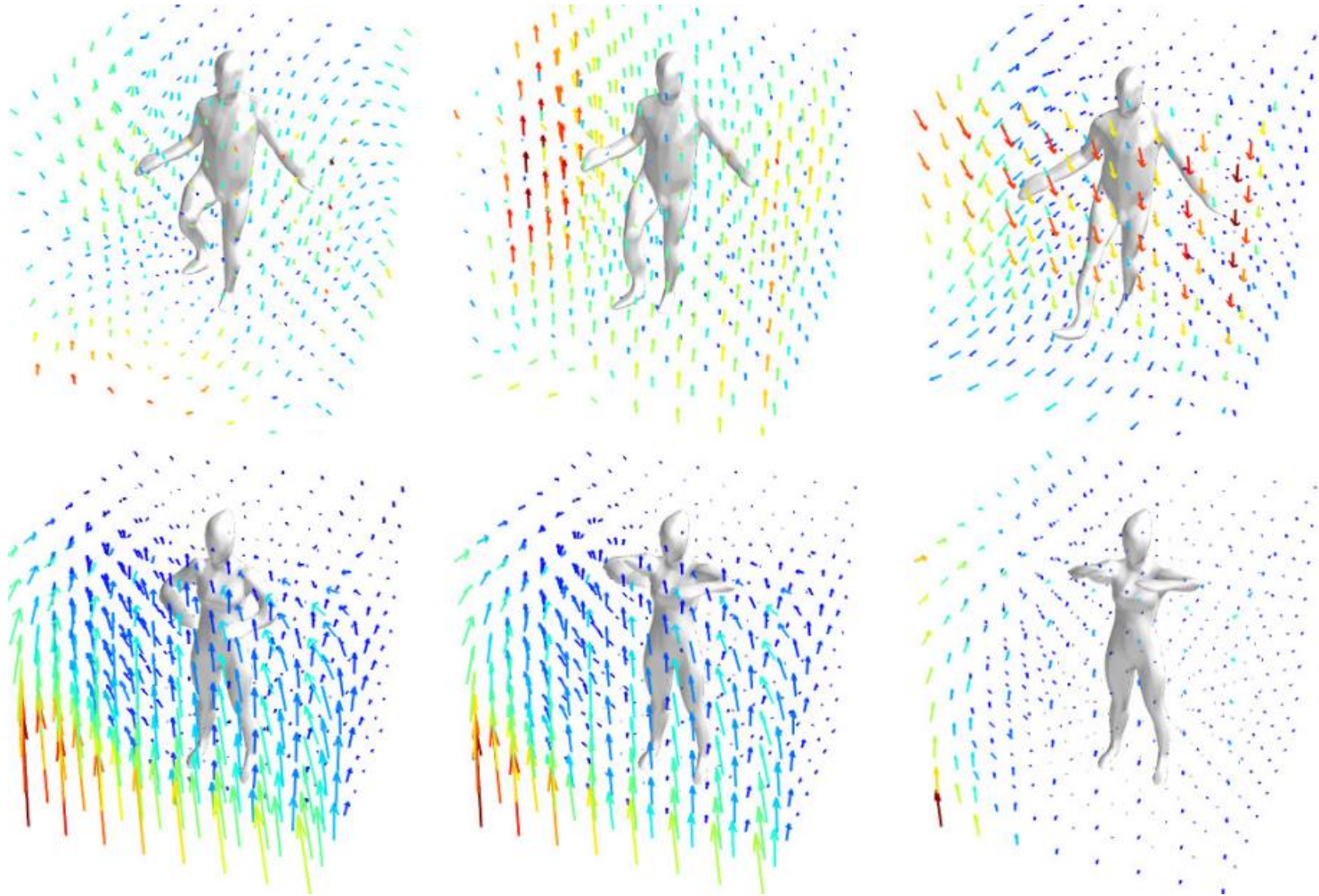d. **Prepare the topic such that it is understandable to the other participants of the seminar**

1. SMPL-X: 3D Hands, Face, and Body from a Single Image
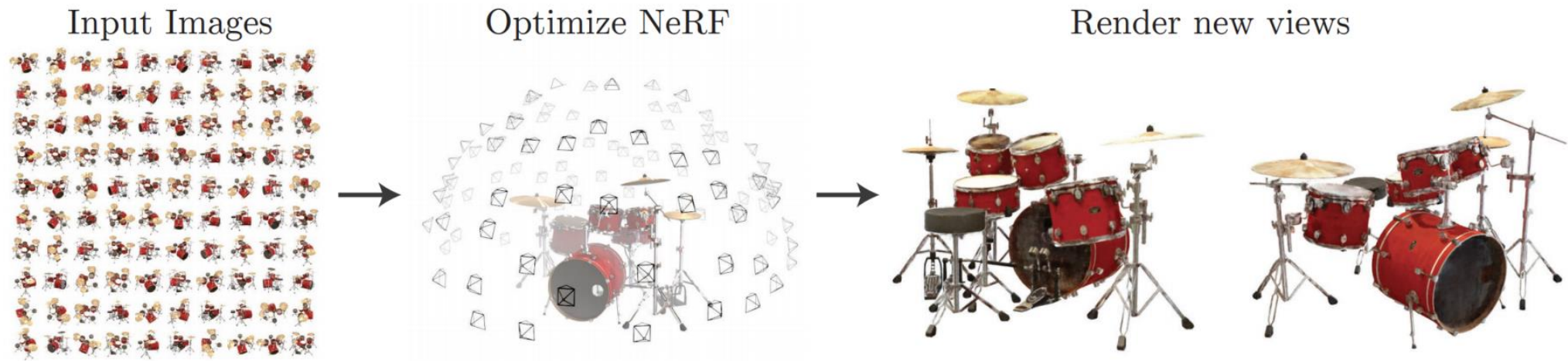
Pavlakos et al. 2019
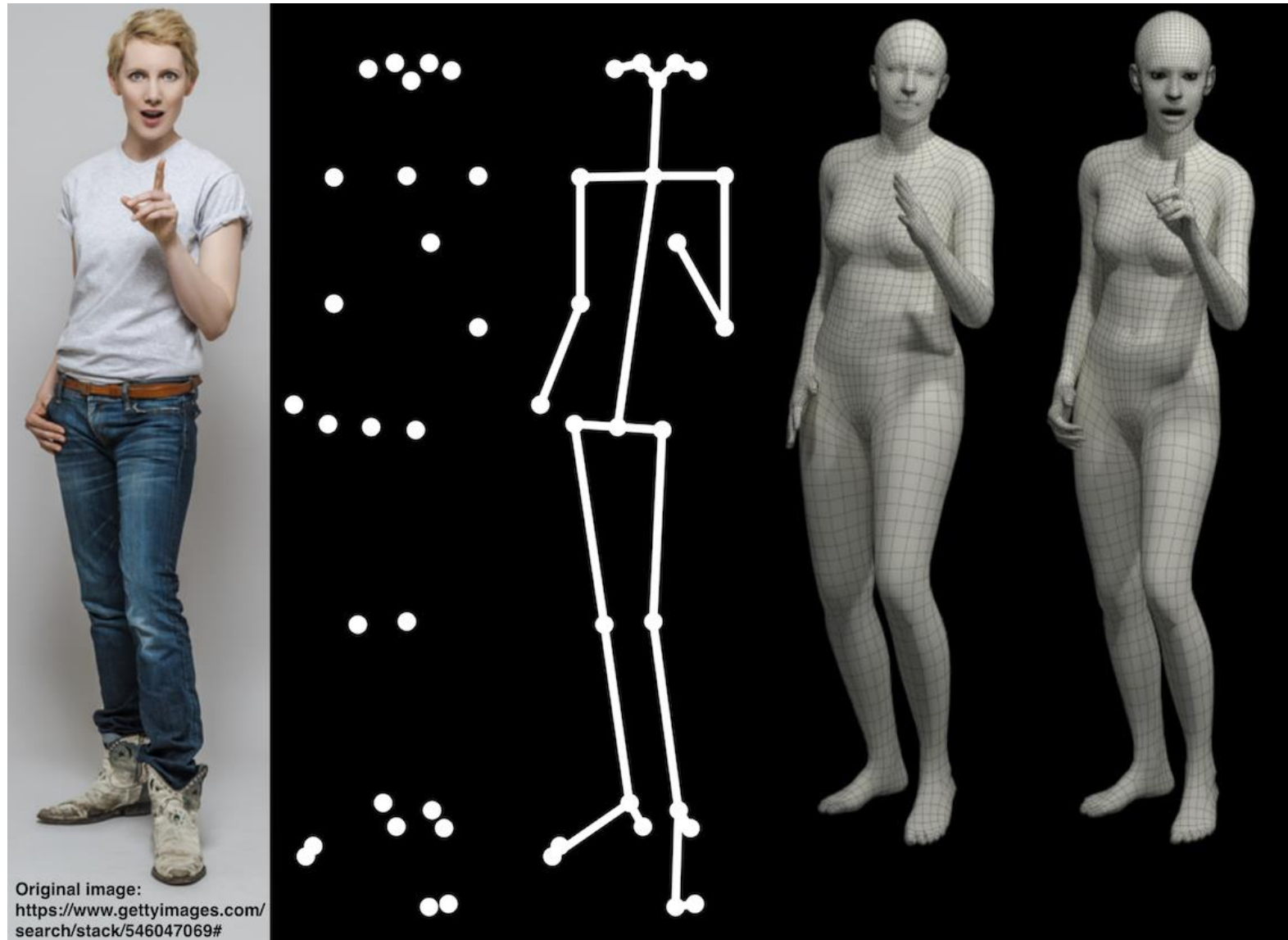
2. Occupancy Flow: 4D Reconstruction by Learning Particle Dynamics

Niemeyer et al. 2019

3. NeRF: Representing Scenes as Neural Radiance Fields for View Synthesis

Mildenhall et al. 2020

3. NeRF: Representing Scenes as Neural Radiance Fields for View Synthesis

Mildenhall et al. 2020

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 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://vision.in.tum.de/teaching/ws2021/generative_models
  Password: genmod2021

- If you got assigned to this seminar, send us an email to
  3dgm-ws21@vision.in.tum.de with your **four** favorite topics

- Topics will be assigned by first come first serve

Any Questions?

- **Webpage**: https://vision.in.tum.de/teaching/ws2021/generative_models
- **Password**: genmod2021
- **Email**: 3dgm-ws21@vision.in.tum.de

Input 3D-R2N2 PSGN Pix2Mesh AtlasNet Ours