

# Siyun Liang

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## RESEARCH INTEREST

**3D/4D Reconstruction/Generation; 3D Scene Understanding, Physics Simulation**

## EDUCATION

**Technical University of Munich**, Munich, Germany

- M.Sc. in Informatics Oct 2021 – Present
  - GPA: 1.3 / 1.0
  - Related Course: 3D Scanning and Motion Capture (1.0), Computer Vision II: Multiple View Geometry (1.0)

**Southeast University (Project 985)**, Nanjing, China

- B.Eng. in Software Engineering Aug 2015 – Jun 2019

## RESEARCH EXPERIENCE

**Technical University of Munich**, Munich, Germany

- **Master thesis, supervised by PD. Dr. Federico Tombari** Jun 2024 – Present
  - Work on project *3D Scene Open-Vocabulary Omniversal Segmentation*, to distill knowledge from 2D foundation models, e.g., CLIP and SAM, into 3D Gaussian Splatting-represented scene.
  - Propose a novel representation to group 3DGS into Superpoint that bridges the semantic segmentation task with instance and hierarchical segmentation.
  - Outperforms prior SOTA on open-vocabulary object query and semantic segmentation tasks.
- **Research project** Apr 2024 – Present
  - Work on project *Animatable Gaussian-Splatting from monocular video*, aiming at reconstructing an animatable 3D model from a monocular RGB video with limited viewpoints.
  - Use diffusion priors and multi-step sampling score distillation sampling loss to achieve more complete and photo-realistic reconstruction results.
- **Praktikum** Oct 2023 – Feb 2024
  - Worked on project *NeRF-based RGB-SLAM*, aiming to simultaneously localize the camera pose and reconstruct the 3D scene represented by NeRF, from a monocular RGB video.
  - Introduced additional monocular depth/normal cues and distillation from the diffusion model that models the correspondence between RGB-D indoor scenes.

**National Institute of Informatics**, Tokyo, Japan

- **Research Internship, supervised by Prof. Dr. Isao Echizen** Mar 2023 – Sep 2023
  - Worked on project *3D Master Face Attack*, aiming to generate synthetic 3D face samples that can bypass the 2D and 3D face recognition systems with a certain false matching rate.
  - Leveraged the 3D Morphable Face Model to generate 3D master face samples with the evolutionary algorithm for refinement. Conducted intensive experiments to simulate real-world attacks.
  - Success in generating controllable and morphable faces that exhibit a higher false matching rate than the baseline method, demonstrating the vulnerability of 2D and 3D face authentication systems to the 3D Master Face Attack technique.

## PROFESSIONAL EXPERIENCE

**Technical University of Munich, Prof. Dr. Nils Thuerey's Lab**, Munich, Germany

- Teaching Assistant for Game Physics Course Oct 2022 – Mar 2024
  - Prepared in-person tutorial Q&A sessions, graded programming assignments, and exam sheets.

**SAP Labs China**, Shanghai, China

- Full-stack Developer for SAP Analytic Cloud Aug 2019 – Aug 2021
  - Implemented front-end business logic with React.
  - Developed and maintain two Spring Boot micro-services related.
  - Supported DevOps work, such as service monitoring and CI/CD pipeline building.

## SKILLS

LaTeX, Python, Java, JavaScript, C++

## LANGUAGES

Chinese (Native), English (TOEFL: 96, GRE: 321 + Writing 4.0)