Mohammad Sadil Khan

PhD in 3D Computer Vision

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Introduction

I am a 2nd-year (penultimate) PhD student at RPTU Kaiserslautern and DFKI, Germany working on 3D Scene and Shape Understanding under Prof. Didier Stricker. My research interests are in 3D reconstruction, Generative AI, and Parametric Shape Reconstruction for 3D designing.

Notable Publications

* equally contributing first authors

1. Sankalp Sinha*, **Mohammad Sadil Khan***, Muhammad Usama, Shino Sam, Didier Stricker, Sk Aziz Ali, Muhammad Zeshan Afzal. "MARVEL-40M+: Multi-Level Visual Elaboration for High-Fidelity Text-to-3D Content Creation", **CVPR 2025**. Preprint | Project Page | Explorer.

   Contribution: *Largest 3D captioning dataset with domain-specific and multi-level annotations.*

2. **Mohammad Sadil Khan***, Sankalp Sinha*, Sheikh Talha Uddin, Didier Stricker, Sk Aziz Ali, Muhammad Zeshan Afzal. "Text2CAD: Generating Sequential CAD Models from Beginner-to-Expert Level Text Prompts", **NeurIPS 2024 (Spotlight)**. Preprint. | Project Page.

   Contribution: *First AI framework to generate 3D CAD designs from text descriptions.*

3. **Mohammad Sadil Khan**, Elona Dupont, Sk Aziz Ali, Kseniya Cherenkova, Anis Kacem, Djamila Aouada, "CAD-SIGNet: CAD Language Inference from Point Clouds using Layer-wise Sketch Instance Guided Attention", **CVPR 2024 (Highlight)**. Paper | Project Page | Video.

   Contribution: *A SOTA architecture for 3D CAD model generation from point cloud.*

Education

RPTU Kaiserslautern	**Kaiserslautern, Germany**
PhD in 3D Computer Vision	*Feb 2024 - Present*
University Jean Monnet & KU Leuven	**Saint-Etienne, France**
M.Sc in Machine Learning and Data Mining	*Sep 2020 - Jul 2022*
Chennai Mathematical Institute	**Siruseri, India**
Masters (M1) in Data Science	*Aug 2019 - Jul 2020*
Ramakrishna Mission Residential College	**Kolkata, India**
B.Sc in Mathematics	*Jul 2016 - May 2019*

Experience

Noah's Ark Lab, Huawei (UK)	**London, UK**
Research Intern	*May 2025 - Nov 2025*

○ Working on 3D Reconstruction under Ismail Elezi and Jiankang Deng.

Augmented Vision Lab, DFKI	**Kaiserslautern, Germany**
Research Assistant (Hiwi)	*Jun 2024 - Apr 2025*

- Design and implement innovative algorithms for AI-enhanced CAD modeling.
- Explore and establish cutting-edge research directions in Text-to-3D model generation.
- Help the research team with experimental analysis, providing technical support and collaborative discussions.

CVI2 Group   **Kirchberg, Luxembourg**
Student Researcher   *Jan 2023 - Feb 2024*
- Design novel algorithms for the Scan2CAD project.
- Developed CAD-SIGNet, a novel vision-language architecture for CAD language inference from point cloud.
- Served as a technical committee member for SHARP workshop in ICCV 2023.

Creatis, INSA Lyon   **Lyon, France**
Research Intern   *Feb 2022 - Jul 2022*
- Developed a novel 3D medical image segmentation approach using point clouds.
- Modified RandLa-Net with a feature extraction layer.
- Results demonstrated superior performance on multi-class and binary segmentation tasks for organs in the Visceral dataset.

Skills

- **Architecture:** VLM-LLM Inference/Finetuning, Transformers, Flow Matching, Diffusion Model, Stable Diffusion, LORA.
- **Library:** PyTorch, Lightning, Pytorch3D, vLLM, Blender Python, Kaolin, PythonOCC.
- **Programming:** Python, R, Julia, Java, Swift.
- **Interpersonal:** Creative and Independent Thinking, Collaborative Research, Problem Solving, Quick and Adaptive Learner.

International Workshops

- Technical Committee Member of SHApe Recovery from Partial Textured 3D Scans, (SHARP) Workshop. In IEEE International Conference on Computer Vision (ICCV) 2023.

Awards & Scholarships

- **BRMI Regional** Scholarship (2020-2021) and **Erasmus** Scholarship (2021-2022), France.
- **Charpak BCS Scholarship**, 2020-2021, India.
- **DST Inspire Scholarship** (top 1% nationally), India.

Languages

English (C1)   French (A2)   Hindi (C2)   Bengali (Native)