Mohd Yawar Nihal Siddiqui

Curriculum Vitae

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Research Interests

My research interests lie at the intersection of computer vision and graphics. I am interested in working on AI assisted 3D content generation (geometry reconstruction and texturing), novel view synthesis and 2D-3D scene understanding.

Education

November 2019 – 2023 **Ph.D. Candidate**, Technical University of Munich, Germany.
Ph.D. student with Prof. Dr. Matthias Nießner at Visual Computing Group at TUM focusing on 3D understanding, geometry reconstruction and texturing.

October 2016 – August 2019 **Master of Science, Informatics**, *Technical University of Munich*, Germany, *GPA – 1.2*, graduated with high distinction.

May 2010 – March 2014 **Bachelor of Technology, Informatics**, *Jamia Millia Islamia, New Delhi*, India, *GPA – 9.9 / 10*, class rank 1/90, gold medalist.

Experience

December 2023–May 2024 **AI Research Scientist Intern**, Meta, London, UK.
Working with the GenAI group on 3D generative models.

May–August 2022 **Research Scientist Intern**, Meta, Zurich, Switzerland.
Worked with XR-Maps team on representing indoor rooms as volumetric neural fields.

July–October 2018 **Research Intern**, Disney Research, Zurich, Switzerland.
Worked with Capture and Effects group on performance capture. In particular, enhanced the existing framework for markerless facial performance capture by investigating and implementing algorithms for tracking and reconstructing the neck in a coupled way with the face.

April–June 2018 **Student Research Assistant**, fortiss, Munich, Germany.
Worked on the Providentia project aimed at providing drivers and smart vehicles on autobahns with a comprehensive view of the road ahead. Contributed to anomaly detection framework for detecting to detect oddities like traffic jams, accidents, etc.

May–September 2017 **Student Research Assistant**, Technical University of Munich, Germany.
C++/Python programmer at Chair of Human-Machine Communication assisting in tracking and computer vision research work.

June 2014 – August 2016 **Software Engineer**, Adobe Systems, Core Technologies Team, Noida, India.

Responsibilities

- Enhancement and maintenance of core imaging libraries used in major Adobe desktop products, and imaging libraries used on Adobe Shared Cloud and Behance
- Creation and enhancement of various in house tools
- Following agile scrum based development approach to resolve issues on sprint basis

March–July 2012 **Software Engineer - Intern**, Indian Institute of Technology, Mumbai, India.

Worked on enhancement of Clicker Software - a web based student response system designed for tablets.

- Implemented question bank and quiz bank modules
- Implemented a raise hand module to be used by students for posting doubts

Publications

CVPR24 (highlight) **Siddiqui, Y.**, Alliegro, A., Artemov, A., Tommasi, T., Sirigatti, D., Rosov, V., Dai, A. and Nießner, M., 2023. MeshGPT: Generating Triangle Meshes with Decoder-Only Transformers.

arxiv18 Alliegro, A., **Siddiqui, Y.**, Tommasi, T. and Nießner, M., 2023. PolyDiff: Generating 3D Polygonal Meshes with Diffusion Models.

ICCV23 Chen, D.Z., **Siddiqui, Y.**, Lee, H.Y., Tulyakov, S. and Nießner, M., 2023. Text2Tex: Text-driven Texture Synthesis via Diffusion Models.

CVPR23 (highlight) **Siddiqui, Y.**, Porzi, L., Buló, S.R., Müller, N., Nießner, M., Dai, A. and Kontschieder, P., 2022. Panoptic Lifting for 3D Scene Understanding with Neural Fields.

CVPR23 (highlight) Müller, N., **Siddiqui, Y.**, Porzi, L., Buló, S.R., Kontschieder, P. and Nießner, M., 2022. DiffRF: Rendering-Guided 3D Radiance Field Diffusion.

ECCV22 **Siddiqui, Y.**, Thies, J., Ma, F., Shan, Q., Nießner, M. and Dai, A., 2022. Texturify: Generating Textures on 3D Shape Surfaces

ICCV21 **Siddiqui, Y.**, Thies, J., Ma, F., Shan, Q., Nießner, M. and Dai, A., 2021. Retrieval-Fuse: Neural 3D Scene Reconstruction with a Database.

CVPR21 Dai, A., **Siddiqui, Y.**, Thies, J., Valentin, J. and Nießner, M., 2021. Spsg: Self-supervised photometric scene generation from rgb-d scans.

CVPR20 **Siddiqui, Y.**, Valentin, J. and Nießner, M., 2020. Viewal: Active learning with viewpoint entropy for semantic segmentation.

arxiv18 Aljalbout, E., Golkov, V., **Siddiqui, Y.**, Strobel, M. and Cremers, D., 2018. Clustering with deep learning: Taxonomy and new methods.

Academic Projects

2019 **Active Learning for Semantic Segmentation**.

A novel active learning method for semantic segmentation. We proposed attaching to the primary segmentation network an accuracy prediction module which guides the active selection criteria. [code]

2017 **GPU Programming in Computer Vision**.

Implemented the paper - Depth Super-Resolution Meets Uncalibrated Photometric Stereo in CUDA and achieved a performance gain of 6x over the original implementation. [code]

2014 **Real Time Gesture based Boxing Game**.
A multiplayer boxing game implemented using JMonkeyEngine which used OpenCV to recognize gestures such as punch and dodge as inputs to the video game.

Achievements

2020 Recieved Joseph Ströbl-Förderpreis 2020 from Technical University of Munich for my M.Sc. thesis

2016 Contributor to the filed patent - Generating Custom Quantization Tables for JPEG Compression based on Image Content [application]

2016 Recieved Special Contribution Award for outstanding performance, Adobe Core Technologies team

2014 Recieved Special Contribution Award for outstanding performance, Adobe Shape CC Team

2014 Gold Medalist, Computer Science Batch 2014, Jamia Millia Islamia

Skills

Technical Python, Javascript, NodeJS, C++, MATLAB, LaTeX, OpenAI Triton

Languages Hindi (native), Urdu (native), English (C2), German(B1)