YINYU NIE

Website: https://yinyunie.github.io/
Visual Computing Group, Department of Informatics, Technical University of Munich
Boltzmannstraße 3, 85748 Garching, Germany
E-mail: yinyu.nie@tum.de

EDUCATION

Bournemouth University, U.K. *January 2017 - April 2021*
PhD, Scene understanding and reconstruction, 3D shape analysis.
Thesis: "Holistic Indoor Scene Understanding, Modelling and Reconstruction from Single Images".
National Centre for Computer Animation, Faculty of Media and Communication.

Southwest Jiaotong University, China. *September 2014 - December 2016*
MEng, Vehicle system dynamics, Photo-based vehicle body modelling.
Thesis: "Data-driven simulation framework for railway vehicle dynamics".
State Key Laboratory of Traction Power.

Southwest Jiaotong University, China. *September 2010 - June 2014*
BSc, Statistics.
School of Mathematics.

RESEARCH INTERESTS

3D Computer Vision and Graphics including: **1)** 3D scene analysis, understanding and reconstruction; **2)** 3D shape analysis, representation and reconstruction; **3)** Human-scene interaction; **4)** Medical image/video analysis.

RESEARCH EXPERIENCE

Technical University of Munich, Germany *April 2021 - Present*
Post-doctoral researcher with Prof. Matthias Niessner

National Centre for Computer Animation, U.K. *January 2017 - April 2021*
Postgraduate researcher
Topics: Content-aware indoor scene understanding and modeling.
Supervisors: Jian Chang, Jian J Zhang.

The Chinese University of Hong Kong (Shenzhen), China *August 2019 - December 2020*
Visiting PhD researcher
Topics: 3D scene understanding and reconstruction.
Project Instructor: Xiaoguang Han.

State Key Laboratory of Traction Power, China. *September 2013 - December 2016*
Postgraduate researcher
Topics: Photo-based 3D modelling of train accident scenes; Data-driven vehicle dynamics simulation.
Supervisors: Jian J Zhang, Zhao Tang.

SKILLS

Proficient in deep learning / machine learning techniques in computer vision and graphics with related programming languages and tools.

Programming: Python, C/C++, HTML, LaTeX, Mathematica, Matlab

Tools: Pytorch, Tensorflow, Blender, OpenCV, VTK.

ACADEMIC SERVICES

Conference Reviewer: CVPR'22, ECCV'22, 3DV'22

Journal Reviewer: TPAMI, TVCG, CGF, ISPRS, Computers & Graphics

TEACHING

Teaching Assistant: Advanced Deep Learning for Computer Vision, 2021-2022, TU Munich.

MAIN PUBLICATIONS

Rao, Y., **Nie, Y.**, Dai, A., PatchComplete: Learning Multi-Resolution Patch Priors for 3D Shape Completion on Unseen Categories. (NeurIPS 2022)

Nie, Y., Dai, A., Han, X. and Nießner, M., 2022. Pose2Room: Understanding 3D Scenes from Human Activities. (ECCV 2022)

Gong, B., **Nie, Y.**, Lin, Y., Han, X. and Yu, Y., 2021. ME-PCN: Point Completion Conditioned on Mask Emptiness. (ICCV 2021)

Zhang, J., **Nie, Y.**, Chang, J. and Zhang, J.J., 2021. Surgical Instruction Generation with Transformers. (MICCAI 2021 **Oral**)

Nie, Y., Hou, J., Han, X. and Nießner, M., 2020. RfD-Net: Point Scene Understanding by Semantic Instance Reconstruction. (CVPR 2021)

Nie, Y., Han, X., Lin, Y., Guo, S., Chang, J., Cui, S. and Zhang, J.J., 2020. Skeleton-bridged Point Completion: From Global Inference to Local Adjustment. (NeurIPS 2020)

Du, D., Zhu, H., **Nie, Y.**, Han, X., Cui, S., Yu, Y., Liu, L., 2020. Learning Part Generation and Assembly for Sketching Man-Made Objects. (Computer Graphics Forum)

Nie, Y., Han, X., Guo, S., Zheng, Y., Chang, J. and Zhang, J.J., 2020. Total3DUnderstanding: Joint Layout, Object Pose and Mesh Reconstruction for Indoor Scenes from a Single Image. arXiv preprint arXiv:2002.12212. (CVPR2020 **Oral**, **Paper Award nominee**)

Zhang, J., **Nie, Y.**, Lyu, Y., Li, H., Chang, J., Yang, X., Zhang, J.J., 2020. Symmetric Dilated Convolution for Surgical Gesture Recognition. arXiv preprint arXiv:2007.06373. (MICCAI 2020 **Oral**, **Student Award**)

Nie, Y., Guo, S., Chang, J., Han, X., Huang, J., Hu, S.M. and Zhang, J.J., 2020. Shallow2Deep: Indoor scene modeling by single image understanding. Pattern Recognition, 103, p.107271.

Nie, Y., Chang, J., Chaudhry, E., Guo, S., Smart, A. and Zhang, J.J., 2018. Semantic modeling of indoor scenes with support inference from a single photograph. Computer Animation and Virtual Worlds, 29(3-4), p.e1825. (CASA2018, **Best Paper Award**)

REFERENCES

Prof. Dr. Matthias Nießner
Professor, CS, TUM
niessner@tum.de

Prof. Dr. Angela Dai
Professor, CS, TUM
angela.dai@tum.de

Prof. Dr. Xiaoguang Han
Professor, CS, CUHK,SZ
hanxiaoguang@cuhk.edu.cn

Prof. Dr. Jian Chang
Professor, CS, BU
jchang@bournemouth.ac.uk

Prof. Dr. Jian J Zhang
Professor, CS, BU
jzhang@bournemouth.ac.uk