Lang Nie

Beijing Jiaotong University
100044, Beijing, China
+86 18811752801
nielang@bjtu.edu.cn
nie-lang.github.io

I am currently a second-year Ph.D. student and I am looking for a research intern position with special interest in multi-view geometry and deep learning.

Education

2021–2025 **Beijing Jiaotong University**, *Ph.D.*, Information and Communication Engineering
2019–2021 **Beijing Jiaotong University**, *M.Sc.*, Signal and Information Processing (Rank: 1/43)
2015–2019 **Beijing Jiaotong University**, *B.Sc.*, Computer Science and Technology (Rank: 12/200)

Research Interests

— **Multi-View Geometry and Deep Learning**
Image Stitching, Image Alignment, Image Rectangling, Homography Estimation, Multi-View Stereo, Optical Flow Estimation

— **Panoramic Understanding**
Object Detection, Semantic Segmentation, Depth Estimation, Layout Estimation

Selected Publications

Preprint

[1] **Lang Nie**, Chunyu Lin, Kang Liao, Shuaicheng Liu, Yao Zhao. Deep Rotation Correction without Angle Prior, arXiv:2207.03054.

[2] Kang Liao*, **Lang Nie***, Chunyu Lin, Zishuo Zheng, Yao Zhao. RecRecNet: Rectangling Rectified Wide-Angle Images by Thin-Plate Spline Model and DoF-based Curriculum Learning, arXiv:2301.01661. (* Equal contribution)

2023

[1] Zishuo Zheng, Chunyu Lin, **Lang Nie**, Kang Liao, Yao Zhao. Complementary Bi-directional Feature Compression for Indoor 360° Semantic Segmentation with Self-distillation, *Winter Conference on Applications of Computer Vision* (**WACV**).

[2] Chunlan Zhang, Chunyu Lin, Kang Liao, **Lang Nie**, Yao Zhao. As-Deformable-As-Possible Single-image-based View Synthesis without Depth Prior, *IEEE Transactions on Circuits and Systems for Video Technology* (**TCSVT**).

2022

[1] **Lang Nie**, Chunyu Lin, Kang Liao, Shuaicheng Liu, Yao Zhao. Deep Rectangling for Image Stitching: A Learning Baseline, *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR Oral Presentation**).

[2] Zhijie Shen, Chunyu Lin, Kang Liao, **Lang Nie**, Zishuo Zheng, Yao Zhao. PanoFormer: Panorama Transformer for Indoor 360° Depth Estimation, *European Conference on Computer Vision* (**ECCV**).

[3] Chunlan Zhang, Chunyu Lin, Kang Liao, **Lang Nie**, Yao Zhao. SivsFormer: Parallax-Aware Transformers for Single-image-based View Synthesis, *IEEE Conference on Virtual Reality and 3D User Interfaces* (**IEEE VR**).

[4] Zhijie Shen, Chunyu Lin, Kang Liao, **Lang Nie**, Zishuo Zheng, Yao Zhao. Neural Contourlet Network for Monocular 360° Depth Estimation, *IEEE Transactions on Circuits and Systems for Video Technology* (**TCSVT**).

[5] Zishuo Zheng, Chunyu Lin, **Lang Nie**, Kang Liao, Yao Zhao. Bi-Projection for 360° Image Object Detection Bridged by Roi Searcher, *Journal of Visual Communication and Image Representation* (**JVCIR**).

2021

[1] **Lang Nie**, Chunyu Lin, Kang Liao, Shuaicheng Liu, Yao Zhao. Unsupervised Deep Image Stitching: Reconstructing Stitched Features to Images, *IEEE Transactions on Image Processing* (**IEEE TIP**).

[2] **Lang Nie**, Chunyu Lin, Kang Liao, Shuaicheng Liu, Yao Zhao. Depth-Aware Multi-Grid Deep Homography Estimation with Contextual Correlation, *IEEE Transactions on Circuits and Systems for Video Technology* (**IEEE TCSVT**).

[3] **Lang Nie**, Chunyu Lin, Kang Liao, Yao Zhao. Learning Edge-Preserved Image Stitching from Multi-Scale Deep Homography, *Neurocomputing* (**NEUCOM**).

[4] Zhijie Shen, Chunyu Lin, **Lang Nie**, Kang Liao, Yao Zhao. Distortion-Tolerant Monocular Depth Estimation on Omnidirectional Image using Dual-Cubemap, *IEEE International Conference on Multimedia and Expo* (**ICME**).

2020

[1] **Lang Nie**, Chunyu Lin, Kang Liao, Yao Zhao. A View-Free Image Stitching Network Based on Global Homography, *Journal of Visual Communication and Image Representation* (**JVCIR**).

Selected Honors & Awards

Oct. 2022 China national scholarship (2% awarded)

Apr. 2022 PhD Innovation Fund of BJTU

Oct. 2021 First-class PhD academic scholarship of BJTU

Oct. 2020 China national scholarship (3% awarded)

Oct. 2019 First-class graduate students academic scholarship of BJTU

Academic Service & Activity

— **Reviewer**

Conference: CVPR, ECCV, WACV

Journal: TCSVT, Information Fusion, Neurocomputing, Signal, Image and Video Processing,

— **Talk**

Unsupervised Deep Image Stitching, *Graduate academic forum of Chinese journal of image and graphics*, Sep. 2021

Exploring Deep Image Warp, *Extreme mart* , Apr. 2022

Deep Rectangling for Image Stitching: A Learning Baseline, *VALSE*, Jun. 2022

Technical Skills

"*I tried to do some innovative and influential works. Recently I have released several GitHub repositories with more than 100 stars. Please refer to* `https://github.com/nie-lang` *for more details.*"

Programming C/C++, Matlab, Python

Frameworks TensorFlow, PyTorch

Tools Git, LaTeX