

# Zhi-Hao Lin

## Curriculum Vitae

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📁 [zhihao-lin.github.io](https://github.com/zhihao-lin)

### Research Interests

3D Computer Vision, Neural Rendering, Inverse Rendering.

### Education

- Fall. 2022 - present **University of Illinois Urbana-Champaign**, USA.  
Ph.D. in Computer Science,  
Advisor: Prof. Shenlong Wang [📄 link](#)
- Sept. 2019 - Apr. 2021 **National Taiwan University**, Taiwan.  
M.S. in Communication Engineering,  
Advisor: Prof. Yu-Chiang Frank Wang [📄 link](#)
- Sept. 2015 - Jun. 2019 **National Taiwan University**, Taiwan.  
B.S. in Electrical Engineering

### Publications

- [8] **Video2Game: Real-time, Interactive, Realistic and Browser-Compatible Environment from a Single Video.**  
Hongchi Xia, **Zhi-Hao Lin**, Wei-Chiu Ma, Shenlong Wang  
CVPR, 2024. [📄 project](#) [📄 paper](#) [📄 code](#)
- [7] **IRIS: Inverse Rendering of Indoor Scenes from Low Dynamic Range Images.**  
**Zhi-Hao Lin**, Jia-Bin Huang, Zhengqin Li, Zhao Dong, Christian Richardt, Tuotuo Li, Michael Zollhöfer, Johannes Kopf, Shenlong Wang, Changil Kim  
Under Review, 2023. [📄 project](#) [📄 paper](#)
- [6] **UrbanIR: Large-Scale Urban Scene Inverse Rendering from a Single Video.**  
**Zhi-Hao Lin**, Bohan Liu, Yi-Ting Chen, David Forsyth, Jia-Bin Huang, Anand Bhattad, Shenlong Wang  
Under Review, 2023. [📄 project](#) [📄 paper](#)
- [5] **Sim-on-Wheels: Physical World in the Loop Simulation for Autonomous Driving.**  
Yuan Shen\*, Bhargav Chandaka\*, **Zhi-Hao Lin**, Albert Zhai, Hang Cui, David Forsyth, Shenlong Wang  
Robotics and Automation Letters (RA-L), 2023. [📄 project](#) [📄 paper](#) [📄 code](#)
- [4] **ClimateNeRF: Extreme Weather Synthesis in Neural Radiance Field.**  
Yuan Li\*, **Zhi-Hao Lin**\*, David Forsyth, Jia-Bin Huang, Shenlong Wang  
ICCV, 2023. [📄 project](#) [📄 paper](#) [📄 video](#) [📄 code](#)
- [3] **NeurMiPs: Neural Mixture of Planar Experts for View Synthesis.**  
**Zhi-Hao Lin**, Wei-Chiu Ma, Hao-Yu Hsu, Yu-Chiang Frank Wang, Shenlong Wang  
CVPR, 2022. [📄 project](#) [📄 paper](#) [📄 code](#)
- [2] **Learning of 3D Graph Convolution Networks for Point Cloud Analysis.**  
**Zhi-Hao Lin**, Sheng-Yu Huang, Yu-Chiang Frank Wang,  
TPAMI, 2021. [📄 paper](#) [📄 IEEE](#)

- [1] **Convolution in the Cloud: Learning Deformable Kernels in 3D Graph Convolution Networks for Point Cloud Analysis.**  
Zhi-Hao Lin, Sheng-Yu Huang, Yu-Chiang Frank Wang,  
CVPR, 2020. [📄 paper](#) [📄 supp](#) [📄 video](#) [📄 code](#)

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## Research Experience

- May. 2023 - **Computational Photography Group, Meta.**  
Present **Research Scientist Intern**  
Advisor: Changil Kim [📄 link](#)
  - Proposed a framework for inverse rendering from LDR images for indoor scene, and submitted to a top conference in computer vision.
- Apr. 2021 - **Vision Group, University of Illinois Urbana-Champaign.**  
Feb. 2022 **Visiting Student**  
Advisor: Prof. Shenlong Wang [📄 link](#)
  - Proposed a novel 3D representation that represents scenes with multiple learnable planes for novel view synthesis,
  - Outperformed NeRF and MPI methods in extreme view extrapolation. [CVPR, 2022]
- Sept. 2018 - **Vision & Learning Lab, National Taiwan University, Taipei, Taiwan.**  
Jan. 2022 **Master Student, Research Assistant**  
Advisor: Prof. Yu-Chiang Frank Wang [📄 link](#)
  - Provided a thorough study on 3D reconstruction algorithms with various representations.
  - Proposed a point cloud analysis framework that is shift and scale-invariant, and demonstrated robustness in object-level tasks. [CVPR, 2020]
  - Verified that our point cloud analysis framework is robust to object rotation and outlier points, and outperformed previous works in scene-level task. [TPAMI, 2021]

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## Honors & Awards

- 2022 **Best Master Thesis Award**, Graduate Institute of Communication Engineering, NTU.
- 2021 **Best Master Thesis Award**, The Chinese Image Processing and Pattern Recognition Society (IPPR).
- 2021 **Best Master Thesis Award**, Taiwanese Association for Artificial Intelligence (TAAI).
- 2021 **Best Master Thesis Award**, Taiwan Society of Architectural Medicine (TSAM).
- 2020 **Novatek Education Foundation Scholarship.**
- 2020 **E.SUN Commercial Bank Scholarship.**

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## Teaching Experience & Talks

- Nov. 2021 **Invited talk**, Taiwanese Association for Artificial Intelligence (TAAI).
- Aug. 2021 **Invited talk**, The Chinese Image Processing and Pattern Recognition Society (IPPR).
- Nov. 2020 **Invited talk**, The 4th Workshop on Augmented Intelligent and Interaction, Taiwan.
- Fall 2019 **Teaching Assistant**, Deep Learning for Computer Vision.
- Fall 2019 **Teaching Assistant**, Environmental Protection Service.
- Spring 2019 **Teaching Assistant**, Signal & System.

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## Skills

- Programming C++, Python (PyTorch),  $\LaTeX$
- Language Chinese (Mandarin), English