

Chih-Hao Lin

Curriculum Vitae

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📁 [chih-hao-lin.github.io](https://github.com/chih-hao-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 - **National Taiwan University, Taiwan.**
Apr. 2021 M.S. in Communication Engineering,
Advisor: Prof. Yu-Chiang Frank Wang [📄 link](#)
- Sept. 2015 - **National Taiwan University, Taiwan.**
Jun. 2019 B.S. in Electrical Engineering

Publications

- **IRIS: Inverse Rendering of Indoor Scenes from Low Dynamic Range Images.**
Chih-Hao Lin, Jia-Bin Huang, Zhengqin Li, Zhao Dong, Christian Richardt, Tuotuo Li, Michael Zollhöfer, Johannes Kopf, Shenlong Wang, Changil Kim
CVPR, 2025. [📄 project](#) [📄 paper](#)
- **DiffusionRenderer: Neural Inverse and Forward Rendering with Video Diffusion Models.**
Ruofan Liang, Zan Gojcic, Huan Ling, Jacob Munkberg, Jon Hasselgren, **Chih-Hao Lin**, Jun Gao, Alex Keller, Nandita Vijaykumar, Sanja Fidler, Zian Wang
CVPR, 2025. [📄 project](#) [📄 paper](#)
- **AutoVFX: Physically Realistic Video Editing from Natural Language Instructions.**
Hao-Yu Hsu, **Chih-Hao Lin**, Albert J. Zhai, Hongchi Xia, Shenlong Wang
3DV, 2025. [📄 project](#) [📄 paper](#) [📄 code](#)
- **UrbanIR: Large-Scale Urban Scene Inverse Rendering from a Single Video.**
Chih-Hao Lin, Bohan Liu, Yi-Ting Chen, Kuan-Sheng Chen, David Forsyth, Jia-Bin Huang, Anand Bhattad, Shenlong Wang
3DV, 2025. [📄 project](#) [📄 paper](#) [📄 code](#)
- **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](#)
- **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](#)
- **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](#)

- **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](#)
- **Learning of 3D Graph Convolution Networks for Point Cloud Analysis.**
Zhi-Hao Lin, Sheng-Yu Huang, Yu-Chiang Frank Wang,
TPAMI, 2021. [📄 paper](#) [📄 IEEE](#)
- **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](#)

Research Experience

- May. 2024 - **Toronto Artificial Intelligence Lab, NVIDIA.**
Research Scientist Intern
Mentors: Zan Gojcic [📄 link](#), Zian Wang [📄 link](#)
 - Simulate controllable, consistent, and realistic weather effects with video diffusion models.
- May. 2023 - **Computational Photography Group, Meta.**
Dec. 2023 **Research Scientist Intern**
Mentor: Changil Kim [📄 link](#)
 - Proposed an inverse rendering framework from LDR images of indoor scenes. [CVPR, 2025]
- Apr. 2021 - **Vision Group, University of Illinois Urbana-Champaign.**
Feb. 2022 **Visiting Student**
Advisor: Prof. Shenlong Wang [📄 link](#)
 - Proposed a 3D representation that represents scenes with multiple planes for novel view synthesis. [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](#)
 - 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]

Honors & Awards

- 2024 **Finalist**, Qualcomm Innovation Fellowship, North America 2024 [📄 link](#).
- 2022 **Best Master Thesis Award**, Graduate Institute of Communication Engineering, NTU.
- 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.**

Teaching Experience & Talks

- Fall 2024 **Teaching Assistant**, 3D Vision, UIUC [📄 website](#).
- Nov. 2021 **Invited talk**, Taiwanese Association for Artificial Intelligence (TAAI).
- Fall 2019 **Teaching Assistant**, Deep Learning for Computer Vision, NTU.
- Spring 2019 **Teaching Assistant**, Signal & System, NTU.