Chih-Hao Lin

Curriculum Vitae

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🖥 chih-hao-lin.github.io

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

- **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

- **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
arXiv, 2024. ⓘ project ⓘ paper

- **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
	○ Leverage generative models for controllable, consistent, and realistic weather simulation.
May. 2023 - Dec. 2023	**Computational Photography Group, Meta**.
	Research Scientist Intern
	Mentor: Changil Kim ⓘ link
	○ Proposed an inverse rendering framework from LDR images of indoor scenes.
Apr. 2021 - Feb. 2022	**Vision Group**, University of Illinois Urbana-Champaign.
	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 - Jan. 2022	**Vision & Learning Lab**, National Taiwan University, Taipei, Taiwan.
	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.