

# Weikai Lin

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CONTACT INFORMATION	Ph.D. Student Wegman Hall University of Rochester Rochester, NY 14627	<a href="mailto:wlin33@ur.rochester.edu">wlin33@ur.rochester.edu</a> <a href="https://github.com/linwk20">https://github.com/linwk20</a> <a href="https://linwk20.github.io/">https://linwk20.github.io/</a>
RESEARCH INTERESTS	Broad topics: Bridge the gap between hardware and software through system-level co-optimization. <ul style="list-style-type: none"><li>• <b>AR/VR Neural Rendering and Acceleration:</b> Develop neural rendering algorithms tailored for AR/VR systems and design corresponding hardware accelerators. [ASPLOS'25a, ASPLOS'25b, ISCA'25, TACO'24, HotMobile'25]</li><li>• <b>Imaging System Design:</b> Design sensors and optics for imaging systems, along with co-optimized downstream vision models. [DAC'25, WACV'25]</li></ul>	
EDUCATION	<b>University of Rochester</b> , Rochester, NY, USA <i>Ph.D., Computer Science</i> <ul style="list-style-type: none"><li>• Advisor: <a href="#">Yuhao Zhu</a></li><li>• Current GPA : 3.96 / 4.0</li><li>• Research Topics: Computer Graphics, VR/AR, Sensor Design, Computer Architecture.</li></ul>	Aug 2023 – Present
	<b>Peking University</b> , Beijing, China <i>M.Sc., Intelligence Science and Technology</i> <ul style="list-style-type: none"><li>• Advisor: Dingsheng Luo</li><li>• GPA : 3.73 / 4.0, equivalent to 90+ / 100</li><li>• Research Topics: Artificial Intelligence, Autonomous Driving, Robotics.</li></ul>	Sep 2020 – Jun 2023
	<b>Tsinghua University</b> , Beijing, China <i>B.E., Electronic Engineering</i> <ul style="list-style-type: none"><li>• Advisor: Li Su</li><li>• Research Topics: Software-Hardware Co-design, Error Correction Code in Wireless Communication.</li></ul>	Aug 2016 – Jun 2020
AWARDS AND HONORS	<ul style="list-style-type: none"><li>• 2025, OpenAI Research Grant, 5K</li><li>• 2025, ASPLOS Travel Grant</li><li>• 2022, Baosteel's Outstanding Student Award for HMT Students from Peking University</li><li>• 2022, First Prize in Peking University Challenge Cup from Peking University</li><li>• 2021, First Class Scholarship, Scholarship for Taiwan Master's Students from Peking University</li></ul>	
PUBLICATIONS	* denotes equal contribution <ol style="list-style-type: none"><li>1. “<a href="#">SnapPix: Efficient-Coding-Inspired In-Sensor Compression for Edge Vision</a>” <a href="#">Weikai Lin*</a>, <a href="#">Tianrui Ma*</a>, <a href="#">Adith Bloor</a>, <a href="#">Yu Feng</a>, <a href="#">Ruofang Xing</a>, <a href="#">Xuan Zhang</a>, and <a href="#">Yuhao Zhu</a> In <i>62nd ACM/IEEE Design Automation Conference (DAC 2025)</i></li><li>2. “<a href="#">MetaSapiens: Real-Time Neural Rendering with Efficiency-Aware Pruning and Accelerated Foveated Rendering</a>” <a href="#">Weikai Lin*</a>, <a href="#">Yu Feng*</a>, and <a href="#">Yuhao Zhu</a> In <i>30th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2025)</i></li></ol>	

3. [“StreamGrid: Streaming Point Cloud Analytics via Compulsory Splitting and Deterministic Termination”](#)  
Yu Feng\*, Zheng Liu\*, [Weikai Lin\\*](#), Zihan Liu, Jingwen Leng, Minyi Guo, Zhezhi He, Jieru Zhao, and Yuhao Zhu  
In *30th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2025)*
4. [“Private-Eye: In-Sensor Privacy Preservation Through Optical Feature Separation”](#)  
Adith Bolloor, [Weikai Lin](#), Tianrui Ma, Yu Feng, Yuhao Zhu, Xuan Zhang  
In *IEEE/CVF Winter Conference on Applications of Computer Vision 2025 (WACV 2025)*
5. [“Advancing Immersive Content Delivery with Dynamic 3D Gaussian Splatting”](#)  
Nan Wu\*, [Weikai Lin\\*](#), Ruizhi Cheng\*, Bo Chen, Yuhao Zhu, Klara Nahrstedt, Bo Han  
In *26th International Workshop on Mobile Computing Systems and Applications (HotMobile 2025)*
6. [“Potamoi: Accelerating Neural Rendering via a Unified Streaming Architecture”](#)  
Yu Feng\*, [Weikai Lin\\*](#), Zihan Liu, Jingwen Leng, Minyi Guo, Han Zhao, Xiaofeng Hou, Jieru Zhao, Yuhao Zhu  
In *ACM Transactions on Architecture and Code Optimization 2024 (TACO 2024)*
7. [“RTGS: Enabling Real-Time Gaussian Splatting on Mobile Devices Using Efficiency-Guided Pruning and Foveated Rendering”](#)  
[Weikai Lin](#), Yu Feng, and Yuhao Zhu  
In *arXiv preprint arXiv:2407.00435*, 2024  
(Preprint and Shortened Version of MetaSapiens)
8. [“OW3Det: Toward Open-World 3D Object Detection for Autonomous Driving”](#)  
Wenfei Hu, [Weikai Lin](#), Hongyu Fang, Yi Wang, Dingsheng Luo  
In *IEEE/RSJ International Conference on Intelligent Robots and Systems 2024 (IROS 2024)*
9. [“Learning Clear Class Separation for Open-Set 3D Detector in Autonomous Vehicle Via Selective Forgetting”](#)  
Wenfei Hu, [Weikai Lin](#), Hongyu Fang, Yi Wang, Dingsheng Luo  
In *32nd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2023)*
10. [“A Review of Robot Learning”](#)  
Qu, W., Liu, T., [Lin, W.](#), & Luo, D.  
In *Beijing Da Xue Xue Bao*, 59(6), 1069-1086, 2023. DOI: 10.13209/j.0479-8023.2023.086
11. [“Approaching Sound Object with Sensorimotor Coordination when Sensors Partially Damaged”](#)  
Shuai Fang, Yaoyao Wei, [Weikai Lin](#), Jianan Zhang, Tianlin Liu, and Dingsheng Luo  
In *2021 IEEE International Conference on Development and Learning (ICDL 2021)*
12. [“Acquiring Robot Navigation Skill with Knowledge Learned from Demonstration”](#)  
Yaoyao Wei, Shuai Fang, [Weikai Lin](#), Jianan Zhang, and Dingsheng Luo  
In *2021 IEEE International Conference on Development and Learning (ICDL 2021)*

PATTERNS AND PROJECTS

1. [“Control Method and System for Improving Operation Precision of Robot Arm”](#)  
Dingsheng Luo, Xihong Wu, Yifan Yuan, Wenfei Hu, Weiming Qu, Yudi Zou, Jiawen Wang, Hongyu Fang, [Weikai Lin](#)  
*CN202310068025.4*, China. Published as CN116079730A, 2023 (**Pattern**)
2. [“Active Auditory Positioning Method for Map-Free Navigation”](#)  
Dingsheng Luo, Xihong Wu, Shuai Fang, Jianan Zhang, [Weikai Lin](#), Tianlin Liu  
*CN202210079214.7*, China. Published as CN114563011A, 2022 (**Pattern**)
3. [“Robot Map-Free Navigation Method Based on Time Sequence Information Modeling”](#)  
Dingsheng Luo, Xihong Wu, Jianan Zhang, Shuai Fang, Tianlin Liu, [Weikai Lin](#), Hongyu Fang  
*CN202110018866.5*, China. Published as CN112857370A, 2021 (**Pattern**)
4. [“Exploiting Human Color Discrimination for Memory and Energy-Efficient Image Encoding in Virtual Reality: An FPGA Demo.”](#)  
*Open-Sourced Project*, including highly optimized CPU/GPU/FPGA implementations. [\[Code\]](#)

5. “CamFlow: Differentiable Camera Simulator for End-to-End System Optimization.”

Weikai Lin, Shitian Jin

*Class Project* for CSC459 [[Tech Report](#)] [[Code](#)]

PROFESSIONAL POSITIONS	<b>University of Rochester</b> , Rochester, NY, USA	Aug 2023 – Present
	Graduate Researcher	Fall 2024, Spring 2025
	Teaching Assistant	
	<b>Peking University</b> , Beijing, China	
	Graduate Researcher	Sep 2020 – Jun 2023
	Teaching Assistant	2021 – 2022
	<b>Advanced Micro Devices, Inc. (AMD)</b> , Beijing, China	
	Co-op / Intern (SLAMs, GPU testing)	Jul 2022 – Feb 2023
	<b>Chinese Academy of Science (CAS)</b> , Beijing, China	
	Co-op / Intern (HLS-based wireless communication system development)	2021 – 2022
	<b>Tsinghua University</b> , Beijing, China	
	Undergraduate Researcher	Sep 2019 – Jun 2020
	<b>Cambricon Technologies Co., Ltd.</b> , Beijing, China	
	Co-op / Intern (Neural Networks pruning)	Jul 2019 – Aug 2019
TEACHING EXPERIENCE	<b>Teaching Assistant</b>	
	• CSC 252/452: Computer Organization	Spring 2025
	• CSC 257/457: Computer Networks	Fall 2024
SERVICES	<b>Reviewer</b>	
	• SIGGRAPH 2025, TCAD	