

Weikai Lin

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Rochester, New York - 14620, USA

RESEARCH INTERESTS

I am a Ph.D. student at the University of Rochester with a focus on Computer Graphics, VR/AR, Sensor Design, Computer Architecture, and Robotics. My goal is to bridge the gap between hardware and software through system-level design and optimization.

EDUCATION

- **University of Rochester** 2023 - 2028 (Expected)
Ph.D., Computer Science NY, USA
 - Advisor: [Yuhao Zhu](#)
 - Current GPA : 3.96 / 4.0
 - Research Interests: Computer Graphics, VR/AR, Sensor Design, Computer Architecture.
- **Peking University** 2020 - 2023
M.Sc., Intelligence Science and Technology Beijing, China
 - GPA : 3.73 / 4.0, equivalent to 90+ / 100
 - Thesis: Sensorimotor coordinated unmanned vehicle autonomous exploration and mapping in unknown environment.
Advisor : Dingsheng Luo
 - Research Interests: Artificial Intelligence, Autonomous Driving, Robotics.
- **Tsinghua University** 2016 - 2020
B.E., Electronic Engineering Beijing, China
 - Thesis: High-Speed Encoder and Decoder Design and Implementation for Terahertz Communication.
Advisor: Su Li
 - Research Interests: Software-Hardware Co-design, Error Correction Code in Wireless Communication System.

WORK EXPERIENCE

- **Advanced Micro Devices, Inc. (AMD)** 2022.7 - 2023.2
Co-Op / Intern Beijing, China
 - SLAMs for Autonomous Driving System.
 - AMD GPUs Testing and Evaluation.
- **Chinese Academy of Science (CAS)** 2021 - 2022
Co-Op / Intern Beijing, China
 - HLS-based (High-Level-Synthesis) wireless communication system development.
- **Cambricon Technologies Co., Ltd.** 2019.7 - 2019.8
Co-Op / Intern Beijing, China
 - Neural Networks pruning.

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, A=ARXIV, P=PATTERN, * : EQUAL CONTRIBUTION

- [C.1] [\[HW, VR, CG\]](#) **MetaSapiens: Real-Time Neural Rendering with Efficiency-Aware Pruning and Accelerated Foveated Rendering**
[Weikai Lin*](#), Yu Feng*, and Yuhao Zhu
Accepted to *ASPLOS 2025 (ACM International Conference on Architectural Support for Programming Languages and Operating Systems 2025)*
[\[Project\]](#) [\[Paper\]](#) [\[Code\]](#)
- [C.2] [\[AI, CV\]](#) **Private-Eye: In-Sensor Privacy Preservation Through Optical Feature Separation**
Adith Bolor, [Weikai Lin](#), Tianrui Ma, Yu Feng, Yuhao Zhu, Xuan Zhang
Accepted to *WACV 2025 (IEEE/CVF Winter Conference on Applications of Computer Vision 2025)*
[\[Paper\]](#)
- [C.3] [\[VR, CG\]](#) **Advancing Immersive Content Delivery with Dynamic 3D Gaussian Splatting**
Nan Wu*, [Weikai Lin*](#), Ruizhi Cheng*, Bo Chen, Yuhao Zhu, Klara Nahrstedt, Bo Han
Accepted to *HotMobile 2025 (26th International Workshop on Mobile Computing Systems and Applications)*

- [J.1] [HW, CG] **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 *TACO 2024 (ACM Transactions on Architecture and Code Optimization)*
[Paper]
- [A.1] [VR, CG] **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)
[Paper] [Code]
- [C.4] [Robotics] **OW3Det: Toward Open-World 3D Object Detection for Autonomous Driving**
Wenfei Hu, **Weikai Lin**, Hongyu Fang, Yi Wang, Dingsheng Luo
Accepted to *IROS 2024 (IEEE/RSJ International Conference on Intelligent Robots and Systems 2024)*
[Paper]
- [C.5] [Robotics] **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 *RO-MAN 2023 (2023 32nd IEEE International Conference on Robot and Human Interactive Communication)*
- [J.2] [Robotics] **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
- [C.6] [Robotics] **Approaching Sound Object with Sensorimotor Coordination when Sensors Partially Damaged**
Shuai Fang, Yaoyao Wei, **Weikai Lin**, Jianan Zhang, Tianlin Liu, and Dingsheng Luo
In *ICDL 2021 (2021 IEEE International Conference on Development and Learning)*
- [C.7] [Robotics] **Acquiring Robot Navigation Skill with Knowledge Learned from Demonstration**
Yaoyao Wei, Shuai Fang, **Weikai Lin**, Jianan Zhang, and Dingsheng Luo
In *ICDL 2021 (2021 IEEE International Conference on Development and Learning)*
- [P.1] [Robotics] **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**
In *CN202310068025.4*, China. Published as CN116079730A, 2023
- [P.2] [Robotics] **Active Auditory Positioning Method for Map-Free Navigation**
Dingsheng Luo, Xihong Wu, Shuai Fang, Jianan Zhang, **Weikai Lin**, Tianlin Liu
In *CN202210079214.7*, China. Published as CN114563011A, 2022
- [P.3] [Robotics] **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
In *CN202110018866.5*, China. Published as CN112857370A, 2021

PROJECTS

- [PJ.1] **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]

HONORS AND AWARDS

- | | |
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| • Baosteel's Outstanding Student Award for HMT Students
<i>Peking University</i>
◦ Awarded to top-performing students annually, only 9 recipients in 2022, recognizing exceptional achievement. | 2022 |
| • First Prize in Peking University Challenge Cup
<i>Peking University</i>
◦ University-level honor awarded for outstanding student innovation and invention. | 2022 |
| • First Class Scholarship, Scholarship for Taiwan Master's Students
<i>Peking University</i>
◦ Awarded to top-performing students annually, recognizing academic excellence among students. | 2021 |

TEACHING EXPERIENCE

- **University of Rochester**

2024 - present

Teaching Assistant

- CSC 257/457: Computer Networks

- **Peking University**

2021 - 2022

Teaching Assistant

- Probability Theory and Statistics (Level A)
- Introduction to Artificial Intelligence

ACADEMIC SERVICE

- **IEEE ICDL 2021**, Website Chair

2021

ADDITIONAL INFORMATION

Languages: Chinese (Native), English (Good)

Interests: Baseball, FPGAs