

# Weikai Lin

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## 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](#)
  - 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)*  
[\[Project\]](#)
- [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)*
- [C.3] [\[Mobile, VR\]](#) **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] [\[HW, VR, CG\]](#) **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)*
- [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] [\[FPGA, VR\]](#) **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

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

## 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

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• IEEE ICDL 2021, Website Chair

2021

## ADDITIONAL INFORMATION

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**Languages:** Chinese (Native), English (Good)

**Interests:** Baseball, FPGAs