

Kenuo Xu

PH.D. STUDENT · PEKING UNIVERSITY

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Education

Peking University

PH.D. IN COMPUTER SCIENCE

Beijing, China

Sep. 2020 - Jun. 2025 (Expected)

- In the Software-hardware Orchestrated ARchitecture (SOAR) group; advisor: Prof. Chenren Xu
- Research interest: mobile computing, wireless networking, and their applications in IoT, robotics, and human-computer interaction.
- Designed a visible light backscatter communication system that supports concurrent transmission for low latency purpose.
- Designed a visible light communication system with spike cameras as receivers to achieve high data rate and dynamic range.
- Designed a liquid-crystal fiducial marker system using LiDAR as receivers for extended reading range and higher ranging accuracy.
- See publications for more research.

Peking University

B.SC. IN COMPUTER SCIENCE

Beijing, China

Sep. 2016 - Jun. 2020

- Graduated with Excellent Graduate Award

Employment

Microsoft Research Asia

RESEARCH INTERN

Shanghai, China

Dec. 2022 - Sep. 2023

- In the Shanghai Wireless Group; mentor: Prof. Lili Qiu
- Worked on large language models plus computer networking.

Publications

RetroLiDAR: A Liquid-crystal Fiducial Marker System for High-fidelity Perception of Embodied AI

ACM SenSys

KENUO XU, BO LIANG, JINGYU LI, CHENREN XU

2025

- A long-range high-ranging-accuracy fiducial marker system using LiDAR and liquid crystals for robotics and virtual reality.

RetroV2X: A New V2X Paradigm with Visible Light Backscatter Networking

Fundamental Research

CHENREN XU, KENUO XU, LILEI FENG, BO LIANG

2023

- A practical vehicle-to-everything communication system with visible light.

When Visible Light (Backscatter) Communication Meets Neuromorphic Cameras in V2X

ACM HotMobile

KENUO XU, KEXING ZHOU, CHENGXUAN ZHU, SHANGHANG ZHANG, BOXIN SHI, XIAOQIANG LI, TIEJUN HUANG, CHENREN XU

2023

- When VLC meets neuromorphic cameras: a spike cameras as VLC receiver achieves 4.8 kbps data rate and different mobile scenarios.

Low-Latency Visible Light Backscatter Networking with RetroMUMIMO

ACM SenSys

KENUO XU, CHEN GONG, BO LIANG, YUE WU, BOYA DI, LINGYANG SONG, CHENREN XU

2022

- Enables 8 concurrent VLBC links and reduces networking latency by 92.0%.

EchoSight: Streamlining Bidirectional Virtual-physical Interaction with In-situ Optical Tethering

ACM CHI

JINGYU LI, QINGWEN YANG, KENUO XU, YANG ZHANG, CHENREN XU

2025

- An optical look-and-control user interaction system for AR glasses.

High-Speed Passive Visible Light Communication with Event Cameras and Digital Micro-Mirror

ACM SenSys

YANXIANG WANG, YIRAN SHEN, KENUO XU, MAHBUB HASSAN, GUANGRONG ZHAO, CHENREN XU, WEN HU

2024

- 16x throughput improvement for passive VLC using event camera and digital micro-mirror device.

LLM-ABR: Designing Adaptive Bitrate Algorithms via Large Language Models

In Submission

ZHIYUAN HE, AASHISH GOTTIPATI, LILI QIU, FANSCIS Y. YAN, XUFANG LUO, KENUO XU, YUQING YANG

2023

- Using LLMs to design algorithms tailored for computer networks.

VLID: Visible Light Backscatter System for Battery-free Internet-of-Things

IEEE/ACM Transactions on
Networking

CHENREN XU, PURUI WANG, TUOCHAO CHEN, YUE WU, **KENUO XU**, XIEYANG XU, YANG SHEN, JUNRUI YANG, GUOJUN CHEN,
GUOBIN SHEN

Accepted

- An end-to-end VLBC solution for battery-free IoT networking.

Renovating road signs for infrastructure-to-vehicle networking: a visible light backscatter communication and networking approach

ACM MobiCom

PURUI WANG, LILEI FENG, GUOJUN CHEN, CHENREN XU, YUE WU, **KENUO XU**, GUOBIN SHEN, KUNTAI DU, GANG HUANG,
XUANZHE LIU

2020

- Enhance the reliability of autonomous driving with reflective roads signs that conveys dynamic additional information.

Turboboosting Visible Light Backscatter Communication

ACM SIGCOMM

YUE WU, PURUI WANG, **KENUO XU**, LILEI FENG, CHENREN XU

2020

- Improve the data rate of VLBC by 8x (prototype) and 32x (simulation) with advanced modulation schemes.

Honors & Awards

2024	Youth Award for Athletics , Peking University	Beijing, China
2024	Second Prize , Ubiquitous Intelligent Sensing Technology Innovation and Application Competition	Hangzhou, China
2022	Merit Student , Peking University	Beijing, China
2021	First Prize , Competition of Future Network Technology Innovation	Nanjing, China
2020	Excellent Graduate , Peking University	Beijing, China
2019	Houston BAA Scholarship , Peking University	Beijing, China
2019	Merit Student , Peking University	Beijing, China

Activities

Teaching Assistant

Peking University

COMPUTER NETWORKS (HONOR TRACK)

Fall 2019, 2020, 2021-2024(Light)

- Organizing the course and answering questions.
- Giving assignments, tutorials, and grading of labs.
- Designing quizzes and grading students' responses.
- Mentoring course research projects (light).

Journal Reviewer

PROCEEDINGS OF THE ACM ON INTERACTIVE, MOBILE, WEARABLE AND UBIQUITOUS TECHNOLOGIES (IMWUT)

2021