

# 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 Spatial Computing

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