

# Jike Wang (王纪科)

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## EDUCATION

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**Shanghai Jiao Tong University, Shanghai, China**

**Sep. 2021 - Present**

Ph.D. Candidate in Computer Science and Technology

Research Interests: Artificial Internet of Things (AIoT), Wireless Sensing, and Mobile Robotics

Advisor: **Prof. Dongyao Chen**

**Xidian University, Shaanxi, China**

**Sep. 2017 - Jun. 2021**

B.S. in Software Engineering

GPA: 3.9/4.0

Rank: 3/459 (Top 1%)

## RESEARCH OVERVIEW

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**My research is driven by the goal of enabling reliable perception and autonomy for intelligent systems in the real world.** I focus on building robust, low-power sensing systems for intelligent robots and AIoT platforms that can operate effectively in complex environments where conventional vision-based approaches often break down. By combining wireless sensing, mobile robotics, and embedded intelligence, I aim to expand the sensing frontier for real-world autonomy under occlusion, interference, and resource constraints.

A central theme of my work is *magnetic sensing*, a modality inherently resilient to occlusion, lighting variation, and wireless interference. Along this direction, our team developed **METRO** for all-weather road-marking perception, **Polaris**, a vision-free magnetic fiducial system for accurate robot pose estimation, and **MagLens** for mobile fine-grained imaging of hidden ferrous structures. Our work has appeared at leading international venues, including ACM MobiCom, ACM SenSys, and NDSS Symposium.

## PUBLICATIONS

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- **MagLens: Bringing Mobile, Fine-Grained Imaging to Ferrous Building Structures**  
**Jike Wang**, Yasha Iravantchi, Mingke Wang, Alanson Sample, Kang G. Shin, Xinbing Wang, and Dongyao Chen  
Proceedings of the ACM/IEEE International Conference on Embedded Artificial Intelligence and Sensing Systems (**SenSys 2026**)
- **Polaris: Accurate, Vision-free Fiducials for Mobile Robots with Magnetic Constellation**  
**Jike Wang**, Yasha Iravantchi, Alanson Sample, Kang G. Shin, Xinbing Wang, and Dongyao Chen  
Proceedings of the 30th Annual International Conference on Mobile Computing and Networking (**MobiCom 2024**)
- **METRO: Magnetic Road Markings for All-weather, Smart Roads**  
**Jike Wang**, Shanmu Wang, Yasha Iravantchi, Mingke Wang, Alanson Sample, Kang G. Shin, Xinbing Wang, Chenghu Zhou, and Dongyao Chen  
Proceedings of the 21st ACM Conference on Embedded Networked Sensor Systems (**SenSys 2023**)

- **DualStrike: Accurate, Real-time Eavesdropping and Injection of Keystrokes on Commodity Keyboards**  
Xiaomeng Chen, [Jike Wang](#), Zhenyu Chen, Alfred Chen, Xinbing Wang, and Dongyao Chen  
The Network and Distributed System Security Symposium 2026 (**NDSS 2026**)
- **$\mu$ Touch: Enabling Accurate, Lightweight Self-Touch Sensing with Passive Magnets**  
Siyuan Wang, Ke Li, Jingyuan Huang, [Jike Wang](#), Cheng Zhang, Alanson Sample, and Dongyao Chen  
Proceedings of the 24th IEEE International Conference on Pervasive Computing and Communications (**PerCom 2026**)
- **Demo: Implementation and Benchmark of Magnetic Tracking on Mobile Platforms**  
Zhenyu Chen, [Jike Wang](#), and Dongyao Chen  
Proceedings of the 2024 Workshop on Adaptive AIoT Systems (**AdaAIoTSys 2024**)

## PROJECTS

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- MagLens: Bringing Mobile, Fine-Grained Imaging to Ferrous Building Structures** **Jan. 2025 – Feb. 2026**
- **Background:** Existing non-destructive inspection tools for hidden ferrous infrastructure (e.g., steel rebars) provide coarse detection results, and are unable to recover detailed geometry in a low-cost and mobile manner.
  - **Contribution:** Developed **MagLens**, a mobile and low-cost magnetic imaging system for hidden ferrous structures, enabling fine-grained contour reconstruction and depth estimation with errors below 1 mm and 0.5 cm, respectively.
  - **Outcome:** **MagLens** was accepted by ACM/IEEE SenSys 2026.
- Polaris: Accurate, Vision-free Fiducials for Mobile Robots with Magnetic Constellation** **Jul. 2023 – Dec 2024**
- **Background:** Traditional fiducial systems (e.g., AprilTag) are vulnerable to occlusion, energy consumption, and privacy issues, making them unsuitable for robust robot perception in complex environments.
  - **Contribution:** Proposed **Polaris**, which achieves sub-millimeter pose estimation accuracy ( $< 1 \text{ mm} / 1^\circ$ ) and low power deployment (25.08 mW) based on magnetic sensing.
  - **Outcome:** **Polaris** was published at ACM MobiCom 2024, and received Artifact Available and Functional badges.
- METRO: Magnetic Road Markings for All-weather, Smart Roads** **Oct. 2021 – May 2023**
- **Background:** Visual road surface markings (e.g., arrows) degrade under rain, glare, occlusion, and wear, becoming a major obstacle to reliable and safe driving.
  - **Contribution:** Developed **METRO**, the first magnetic road marking solution with long-term real-world deployment and robust perception (over 96%) under high-speed and challenging conditions.
  - **Outcome:** **METRO** was published at ACM SenSys 2023.

## PRESENTATIONS

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- “Enabling Robust and Scalable Robot Perception with Magnetic Sensing”** (***Best Presentation Award***)  
The 3<sup>rd</sup> AIoTSys 2025, Lanzhou, China Aug. 2025
- “Polaris: Accurate, Vision-free Fiducials for Mobile Robots with Magnetic Constellation”**  
ACM MobiCom 2024, Washington, D.C., USA Nov. 2024

Microsoft Research Asia (MSRA, Shanghai), China	Nov. 2024
<b>“METRO: Magnetic Road Markings for All-weather, Smart Roads”</b>	
ACM SenSys 2023, Istanbul, Türkiye	Nov. 2023

## AWARDS

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<b>CPS-IoT Week 2026 SIGBED Student Travel Award</b>	ACM SIGBED   2026
<b>Second Prize, Outstanding Ph.D. Academic Forum</b>	SJTU, John Center   2025
<b>Best Presentation Award, Rising Star Forum</b>	The 3 <sup>rd</sup> AIoT Sys Conference   2025
<b>National Scholarship (Ph.D.)</b>	Ministry of Education of China   2024
<b>First Prize, Outstanding Ph.D. Academic Forum</b>	SJTU, John Center   2024
<b>National Encouragement Scholarship</b>	Ministry of Education of China   2019
<b>National Encouragement Scholarship</b>	Ministry of Education of China   2018

## ACADEMIC/TEACHING SERVICES

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<b>Member, Artifact Evaluation Committee, ACM MobiCom</b>	2025
<b>Reviewer, ACM IUI (Intelligent User Interfaces)</b>	2025
<b>Teaching assistant: CS1501, Programming Methodology</b>	2021 – 2025 Fall
CS1501 is the introductory course to computer science and programming at SJTU;	
Received an <b>A grade</b> evaluation, 2022 Fall. Evaluated by 86 students.	
<b>Teaching assistant: CS106, Programming Practice</b>	2022 Summer, 2023 Summer