

Yukang Shen

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Address: Kennesaw State University, Georgia, USA

Research Interests: High-precision spatial perception; physics-informed sensing; safety-aware embodied intelligence for medical and healthcare settings.

OBJECTIVE

Ph.D. applicant pursuing research in high-precision spatial perception, low-cost physics-informed sensing, and safety-aware embodied intelligence, with a focus on deployable solutions for real-world medical environments.

EDUCATION

Kennesaw State University, M.S. Software Engineering 2025.1 – Present

Graduate Research Assistant

Heilongjiang University, B.Eng. Computer Network Engineering 2016.9 – 2020.7

National Encouragement Scholarship; First-Class Scholarship (2018, 2019)

RESEARCH EXPERIENCE

Synthetic-First Data Engine for Medical Perception (Primary Project, Ongoing)

- Building a synthetic-first perception pipeline for deltoid injection segmentation, combining diffusion-based generation, controllable pose/lighting rendering, and CLIP/geometry-based filtering.
- Developing dataset curation tools, multi-view generation templates, and pseudo-label refinement modules to improve anatomical boundary accuracy.
- Evaluating synthetic→real transfer using AP, boundary distance error (dist%), JS divergence, and safety-zone metrics.
- Designing a modular pipeline supporting segmentation, keypoint geometry, and AR-guided safety-zone reasoning.

Safety-Aware Perception for VLAs & Embodied Medical Tasks (Supporting Direction)

- Integrating segmentation → keypoints → geometry into a multi-stage perception stack for safety-critical embodied tasks.
- Exploring uncertainty modeling, cross-view consistency, and open-vocabulary grounding for injection-area understanding.
- Studying how reliability signals and geometric errors can guide safer policy behaviors in embodied AI settings.

Physics-Informed Spatial Perception (Long-Term Research Interest)

- Investigating geometric priors, surface normals, reflectance cues, and multi-view constraints for millimeter-level spatial accuracy.
- Interested in low-cost, interpretable sensing for real-world medical environments with an emphasis on precise geometric measurement.
- Long-term goal: develop cross-disciplinary spatial perception systems enabling reliable and deployable medical embodied intelligence.

WORK EXPERIENCE

City University of Hong Kong, Research Assistant 2024.11 – 2025.1

Tech: Python, React

Developed a secure, encrypted data-marketing platform supporting cross-institution research collaboration. Implemented frontend dashboards and backend API components, focusing on data integrity, privacy, and workflow usability.

SenseTime Group Limited, Software Engineer 2020.11 – 2023.9

Tech: TypeScript, React, Electron, NodeJS, Webpack, CI/CD

- Led frontend development, maintaining coding standards, shared component libraries, and internal tooling.
- Developed and maintained the group-wide OA system and Enterprise WeChat (WeCom) automation modules.
- Built and optimized enterprise platforms and AR navigation tools used by multiple business units.

Award: Best Employee of the Year 2021 (CIT)

PUBLICATION

6G-enabled Edge AI for Metaverse: Challenges, Methods, and Future Research Directions, JCN 2022.

Type: Review Paper

Title and Author: Luyi Chang, Zhe Zhang, Pei Li, Shan Xi, Wei Guo, **Yukang Shen**, Zehui Xiong, Jiawen Kang, Dusit Niyato, Xiuquan Qiao, Yi Wu.

SKILLS

Programming/Frameworks: Python, JavaScript/TypeScript, Node.js, React, Electron, PyTorch

AI/Perception: Computer Vision, 3D Vision, SLAM, Multimodal Perception

Systems: Synthetic Data Pipelines, Dataset Tooling, Data Engine Design