

# Xiaowei (Lydia) Chen

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## Expertise

- **Wearable Computing:** wearable Cameras, smart glasses
- **Image Processing:** image compression/enhancement/segmentation
- **System Development:** system design/development/optimization
- **First Person Vision:** perspective, healthcare
- **Machine Learning:** deep learning, transfer learning
- **System evaluation:** function testing, performance testing

## Education

<b>Oklahoma State University (OSU)</b>	Expected: 08/2024
Ph.D. in Electrical & Computer Engineering (GPA: 4.0/4.0)	Stillwater, OK, USA
<b>Monroe College</b>	08/2019
M.S. in Computer Science (GPA: 3.9/4.0)	NY, USA
<b>Xi'an Jiaotong University (XJTU)</b>	06/2009
B.E. in Computer Science & Technology (GPA: 3.5/4.0)	Xi'an, Shaanxi, China

## Research Experience

<b>Probabilistic Perspective-n-Lines (PnL) Deep Learning for Indoor Camera Pose Estimation, Research Assistant, OSU</b>	06/2022 – Present
<ul style="list-style-type: none"><li>• Learn the weighted 2D-3D line correspondences by integrating a probabilistic PnL layer into the RoomNet framework.</li><li>• Develop the train and test room image dataset by classifying, annotating, and generating features from Matterport3.</li><li>• Design the experiments for result comparing with state-of-art methods.</li></ul>	
<b>Transfer Learning-based Smart Homecare Assistive Technology, Research Assistant, OSU</b>	08/2019 – Present
<ul style="list-style-type: none"><li>• Present a homecare prompting assistance system based on recent transfer learning and AI technologies.</li><li>• Implement location classification, object detection, and NLP-based intention understanding models.</li><li>• Design the Android-phone based system to be fully customizable and adaptable for the specific care recipient.</li><li>• Develop strategies for providing precise audio-visual (AV) prompts in a hint-and-confirm style.</li><li>• Design system evaluation strategies involves 10-25 college adults and older adults.</li></ul>	
<b>Computer Vision Algorithm Research for Indoor Camera Pose Estimation, Research Assistant, OSU</b>	08/2019 – 06/2022
<ul style="list-style-type: none"><li>• Proposed new Perspective-n-Lines (PnL) algorithms to estimate 6DoF indoor camera pose.</li><li>• Investigated into utilizing room layouts and image edge corners to optimize the PnL algorithm.</li><li>• Introduced Non-dominated Sorting genetic algorithm II (NSGA-II) for scenarios with limited available information.</li><li>• Collected and preprocessed real image data from the existing dataset to extract specific information.</li><li>• Evaluated the proposed algorithms with the simulated test data and the real image data.</li></ul>	

## Personal Experience

<b>Senior Software Testing Engineer, C.C.H International Group Inc., Zhengzhou, China</b>	01/2015 – 04/2017
<ul style="list-style-type: none"><li>• Executed comprehensive testing on travel product retail websites and statistical systems, encompassing requirement validation, test case development, environment configuration, and unit, functional, and performance testing.</li><li>• Online system upkeep, issue identification and resolution.</li></ul>	
<b>Software Testing Engineer, ZTEICT Technology Co., Ltd., Shenzhen, China</b>	10/2012 – 12/2014
<ul style="list-style-type: none"><li>• Validated medical user requirements and tested related websites, apps, and APIs while maintaining online systems.</li><li>• Authored and managed documentation, including test cases, system installation, and configuration guides.</li></ul>	
<b>Website Testing Manager, Linekong Technology Co., Ltd., Beijing, China</b>	08/2009 – 09/2012
<ul style="list-style-type: none"><li>• Oversaw team members in executing testing projects and cases.</li><li>• Established testing environments and employed diverse approaches for game support and statistical system testing.</li></ul>	

## Technical Skills

- **Programming:** Python, MATLAB, SQL, Java
- **App Development:** Android Studio
- **Computer Vision Tasks & Techniques:** Image Classification/Compression/Enhancement/Segmentation, Object Detection, Pose Estimation
- **Quantitative Methodologies:** Linear Programming, Nonlinear Optimization, Data Augmentation.
- **Soft Skills:** Analytical Thinking, Attention to Detail, Problem-Solving, Effective Communication, Team Leadership
- **Frameworks & Library:** PyTorch, TensorFlow, OpenCV, Keras, scikit-image
- **Language:** Mandarin (native), English (fluent)

## Selected Publications

- **Chen, X., & Fan, G. (2023). Indoor Camera Pose Estimation from Room Layouts and Image Outer Corners. IEEE Transactions on Multimedia.**
- 5 published and accepted in total, 3 first-author papers. A full list of publications can be found on [Google Scholar](#).

## Selected Conference Presentation

- “A Transfer Learning-based Homecare Prompting Assistance System for Supporting Everyday Activities in People with Mild Dementia” | The IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI), Pittsburgh, PA | October 2023
- “Egocentric Indoor Localization from Coplanar Two-Line Room Layouts.” | Computer Vision and Pattern Recognition Conference Workshop (CVPRW), New Orleans, LA | June 2022
- “Egocentric Indoor Localization from Room Layouts and Image Outer Corners.” | International Conference on Computer Vision Conference Workshop (ICCVW), Virtual | October 2021

## Selected Honors & Awards

- **Robberson Research and Creative Activity Grant, OSU, 2023**
- **Dr Yarlagadda Grad Fellowship, OSU, 2021**
- **NSF Student Travel Award, IEEE BHI, 2023**
- **Leo J. Peters & Josie Mosely Peters Award, OSU, 2020**

## Community Engagement

- **Membership:** IEEE ((Institute of Electrical and Electronics Engineers)
- **Reviewer:** Multimedia Tools and Applications, ICME 2023/2022