

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

Oklahoma State University (OSU)	Expected: 08/2024
Ph.D. in Electrical & Computer Engineering (GPA: 4.0/4.0)	Stillwater, OK, USA
Monroe College	08/2019
M.S. in Computer Science (GPA: 3.9/4.0)	NY, USA
Xi'an Jiaotong University (XJTU)	06/2009
B.E. in Computer Science & Technology (GPA: 3.4/4.0)	Xi'an, Shaanxi, China

Research Experience

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

Personal Experience

Senior Software Testing Engineer , C.C.H International Group Inc., <i>Zhengzhou, China</i>	01/2015 – 04/2017
Software Testing Engineer , ZTEICT Technology Co., Ltd., <i>Shenzhen, China</i>	10/2012 – 12/2014
Website Testing Manager , Linekong Technology Co., Ltd., <i>Beijing, China</i>	08/2009 – 09/2012
<ul style="list-style-type: none">• Executed comprehensive testing on developed apps, websites, APIs, and statistical systems, encompassing requirement validation, test case development, environment configuration, functional and performance testing.• Authored and managed documentation, including test cases, system installation, and configuration guides.• Online system upkeep, issue identification and resolution.	

Technical Skills

- **Programming:** Python, MATLAB, SQL, Java
- **Frameworks & Library:** PyTorch, TensorFlow, OpenCV, Keras, scikit-image
- **App Development:** Android Studio
- **Language:** Mandarin (native), English (fluent)
- **Computer Vision Tasks & Techniques:** Image Classification/Compression/Enhancement/Segmentation, Object Detection, Pose Estimation
- **Quantitative Methodologies:** Linear Programming, Nonlinear Optimization, Data Augmentation.

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, 4 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
- **NSF Student Travel Award**, IEEE BHI, 2023
- **Dr Yarlagadda Grad Fellowship**, OSU, 2021
- **Leo J. Peters & Josie Mosely Peters Award**, OSU, 2020

Community Engagement

- **Membership:** IEEE
- **Reviewer:** IEEE Transactions on Multimedia, Multimedia Tools and Applications, ICME 2023/2022