Xiaowei Chen

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EDUCATION

Oklahoma State University (OSU) Expected: Jul. 2023
Ph.D. in Electrical & Computer Engineering. GPA: 4.0/4.0 Stillwater, OK, USA
• Dissertation Topic: Indoor Localization and Wayfinding from Room Layouts

Monroe College Aug. 2019
Master of Science in Computer Science. NY, USA

Xi'an Jiaotong University (XJTU) Jun. 2009
Bachelor of Engineering in Computer Science & Technology. Xi'an, Shaanxi, China

RESEARCH EXPERIENCE

Indoor Camera Pose Estimation, Research Assistant, OSU Aug. 2019 – May 2022

- Proposed a new **Perspective-n-Lines** algorithm to estimate **6DoF indoor camera pose** with room layouts and image out corners.
- Introduced image out corners (IOCs) to create additional auxiliary lines for PnL optimization.
- Introduced Non-dominated Sorting genetic algorithm II (**NSGA-II**) for the limited given information situation.
- Implemented the proposed algorithm with **MATLAB**.
- Simulated the test data to evaluate the proposed method.
- Preprocessed the real image data form the existing dataset to get the given information.
- Identified and solved all the problems, including equation derivation problem, optimization problem, code logical problem.
- Summarized the whole process and outlined the future work.

Patient Assistance System, Research Assistant, OSU Aug. 2019 – Present

- Lead a team to develop an assistance system including the backend support and configure system, and smart phone and glass App.
- Implement the backend supporting system with **Python (TensorFlow)**.
- Implement the backend configure system with **Flask, JS, CSS,** and **Html**.
- Implement the smart phone and glass App with **Java** on **Android Studio**.
- Create the app database with **SQLite**.
- Create the website database with **MySQL**.
- Utilize the ARCore and OpenGL to implement navigation visualization.
- Collect the test image and video data.
- The system mainly includes indoor localization, object detection, indoor navigation, speech recognition, intelligent communication.

Probabilistic Perspective-n-Lines for indoor camera pose estimation, Research Assistant, OSU Jun. 2022 – Present

- Propose **a probabilistic Perspective-n-Lines layer** for indoor camera pose estimation by using room layouts and image out corners.
- Try to model the Perspective-n-Lines (PnL) output as a distribution of pose.
- Try to incorporate the probabilistic PnL layer into the existing dense correspondence architecture.

PUBLICATIONS

Journal Articles

- **Chen, X.** and Fan, G., 2022. Indoor Camera Pose Estimation from Room Layouts and Image Outer Corners. Submitted to IEEE Transactions on Multimedia, under revision.
- Roberts, E., Fan, G. and **Chen, X.**, 2021. In-Lab Development of a Mobile Interface for Cognitive Assistive Technology to Support Instrumental Activities of Daily Living in Dementia Homecare. Journal of Aging and Environment, pp.1-15.

Conference Papers

- **Chen, X**. and Fan, G., 2022. Egocentric Indoor Localization from Coplanar Two-Line Room Layouts. In Proceedings of the IEEE/CVF

Conference on Computer Vision and Pattern Recognition (pp. 1549-1559).

- **Chen, X.** and Fan, G., 2021. Egocentric Indoor Localization from Room Layouts and Image Outer Corners. In Proceedings of the IEEE/CVF International Conference on Computer Vision (pp. 3456-3465).

TEACHING EXPERIENCE

Graduate Teaching Assistant, OSU Aug. 2021 – Present

Oklahoma State University School of Electrical & Computer Engineering Stillwater, OK

- Assist classes ranging from 35 - 70 students in undergraduate-level courses.
- Serve as an assistant instructor for laboratory sections.
- Assist with theory instruction.
- Schedule lab supplies instrumental in equipment and utensils selection for lab classes.

Courses Assisted:

- IEM 3513 - Signal Analysis (Spring 2021, Spring 2022)
- IEM 2714/2711 - Fundamentals of Electrical Circuits (Fall 2021, Fall 2022)

PROFESSIONAL EXPERIENCE

Senior Software Testing Engineer, Zhengzhou Chuwo Travel Service Co., Ltd. Jan. 2015 – Apr. 2017

- Tested the websites and systems, including requirements checking, test case writing, test environment preparation, unit testing, functional testing, performance testing.
- Brought the developed systems and websites online and maintained the online system.
- Analyzed all the online problems and proposed the solutions.

Senior Software Testing Engineer, Shenzhen Zhongxing Technology Co., Ltd. Oct. 2011 – Nov. 2014

- Verified the user requirements.
- Tested the websites, Apps, systems, and APIs.
- Tested all the equipment and devices from different suppliers.
- Implemented the performance testing and analyzed the performance bottleneck.
- Assisted the systems and websites online and helped positioned the online system and website problems.
- Wrote and maintained all the documents, including test cases, system installation and configuration.

Website Testing Manager, Linekong Technology Co., Ltd. Aug. 2009 – Sep. 2011

- Supervised group members to enact related testing projects and testing cases.
- Set up testing environment.
- Applied different testing methods to conduct system functional testing.
- Implemented the performance testing.
- Implement the security testing, such as SQL injection, OS Command Injection, XSS, CSRF.

TALKS & PRESENTATIONS

Chen, X., 2022. Graduate 3MT (Three Minute Thesis) competition.

Chen, X. and Fan, G., 2022. Egocentric Indoor Localization from Coplanar Two-Line Room Layouts. Computer Vision and Pattern Recognition Conference (CVPR).

Chen, X. and Fan, G., 2021. Egocentric Indoor Localization from Room Layouts and Image Outer Corners. International Conference on Computer Vision Conference (ICCV).

ADDITIONAL TRAINING

Abstract Writing Workshop, Oklahoma State University Sep. 2022
Teaching and Learning Workshop, Oklahoma State University Sep. 2021
Deep Learning Workshop, Oklahoma State University Dec. 2019

SKILLS

Programming: Python (PyTorch, TensorFlow), Java, SQL, JS, CSS, Html

Software: MATLAB, Visual Studio Code, Android Studio, Jupyter Notebook, Axure RP, LoadRunner

Methodologies: Camera Pose Estimation, Image Processing, Deep Learning, Transfer Learning, Intelligent Algorithm, Data Fusion

Language: Mandarin (native), English (fluent)

SELECTED HONORS AND AWARDS

Dr Yarlagadda Grad Fellowship Scholarship 2021

Leo J. Peters & Josie Mosely Peters Scholarship 2022

COMMUNITY ENGAGEMENT

Reviewer, IEEE International Conference on Multimedia and Expo 2022

Student Member, IEEE (Institute of Electrical and Electronics Engineers)