YUCHEN LUO

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EDUCATION

Pennsylvania State University, University Park, PA, USA **9/2024 – Present**
Master of Science in Electrical Engineering Current GPA: 3.89 / 4.00
Key Courses: Computer Vision, Digital Image Processing, Neural Networks, Vision and Language, Random Variables and Stochastic Processes.

Ocean University of China, Qingdao, Shandong, China **9/2020 – 7/2024**
Bachelor of Science in Automation GPA: 3.03 / 4.00
Key Courses: Probability and Mathematical Statistics, Signals and Systems, System Identification, Theories and Methods of Optimization, Acoustic Principles and Machine Hearing Techniques, Data Structures.

RESEARCH EXPERIENCE

Etiology-Guided, Informed AI for Histological Evaluation of Inflammatory Bowel Disease 6/2025 – Present
Key Researcher
Developed an etiology-guided, interpretable AI framework for histopathological evaluation of Inflammatory Bowel Disease (IBD), combining domain priors with deep learning to enable accurate and efficient automated analysis:

- Enhanced evaluation beyond conventional cell-based features by incorporating complex crypt structural alterations, resulting in a more comprehensive and accurate assessment.
- Applied deep learning for pathological feature recognition and localization, combining attention heatmaps and tissue segmentation to further enhance interpretability of predictions.
- Enabled the model to evaluate different disease subtypes by expanding the dataset and integrating multiple histological features.
- Implemented ordinal regression in place of traditional classification heads, enabling predictions aligned with the ordered nature of histological feature severity for improved accuracy.

Intelligent Measurement Method for Blade Noise of Fast Wind Turbines 10/2023 – 6/2024
Key Researcher
Developed an intelligent methodology for monitoring wind turbine blade status by integrating time-frequency analysis with deep learning and computer vision:

- Leveraged computer vision techniques to address machine hearing challenges by transforming acoustic signals into spectrograms and applying deep learning for turbine blade condition prediction.
- Simulated faulty turbine blade noise in realistic environments to enrich the dataset.
- Developed an Android app enabling real-time, mobile-based intelligent monitoring of turbine blade noise and prediction of operational status.

ArUco Marker-based Indoor Localization System 11/2021 – 11/2022
Project Leader
Developed an indoor localization framework by deploying ArUco markers to establish a global 3D coordinate system and enabling real-time pose estimation through marker detection and coordinate transformations:

- Designed an algorithm that cross-validates poses predicted from multiple ArUco markers to minimize localization error.
- Incorporated measured distances between markers to enable simultaneous estimation of actual distances and poses during localization.

PROFESSIONAL EXPERIENCE

Sichuan More Fun Network Technology Co., Ltd., Sichuan, China **5/2023 – 8/2023**
Software Development Intern – AI Division, R&D Department
Participated in the development of an AI movie recommendation and Q&A system:

- Collected and organized a dataset of Chinese films for system training and evaluation.
- Assisted in integrating and deploying the ChatGLM2-6B language model with backend recommendation algorithms to provide interactive suggestions.
- Involved in evaluating and enhancing model interactions and recommendation performance to improve user experience.

TEACHING SERVICE

Grader

- Spring 2025: EE 360 – Communication Systems I, Pennsylvania State University.

Course Assistant

- Spring 2023: Advanced Oral Language (English), Ocean University of China.

RESEARCH SKILLS

Programming: C, C++, Python, MATLAB.
Software & Frameworks: PyCharm, Visual Studio, Anaconda, Simulink, OpenCV, Android Studio, LabVIEW.
Languages: Chinese (native), English (proficient), German (basic).