Yanlin Li

School of Computing, National University of Singapore
+86 180-4581-9818 Email Personal Page

EDUCATION

National University of Singapore, School of Computing **Aug 2024 – Jan 2026 (Expected)**
Master of Computing (Artificial Intelligence Specialization) *Singapore*

Shandong University, School of Software **Sep 2020 – Jun 2024**
Bachelor of Software Engineering (Artificial Intelligence Track) *Overall GPA:* ***90.27/100*** *Jinan, China*

RESEARCH EXPERIENCE

AIoT Lab, Shandong University **Oct 2022 – Jun 2024**
Research Assistant *Supervisor: Prof. Yiran Shen*

- Focus on computer vision and eye tracking based on VR.
- Try to apply reinforcement learning ideas to queueing theory optimization problems.

PUBLICATIONS

[1] KD-Eye: Lightweight Pupil Segmentation For Eye Tracking on VR Headsets via Knowledge Distillation
Yanlin Li*, Ning Chen, Guangrong Zhao, Yiran Shen*, WASA 2024 (CCF-C) [Paper]*

PATENTS

[1] A Web System for Industrial Defect Detection Based on Transfer Learning
Yanlin Li

- Software Registration No. 2023SR1326011
- National Copyright Administration of the People's Republic of China

PROJECTS

DGLiQ: A Deep Generative Model-aided Online Learning Approach to Capacity Sizing **Sep 2023 – Present**
Independent First Author

- Proposed a deep learning-based generative adversarial approach to fit real-world queuing service process data, instead of using explicit parametric distribution to generate simulation data that strictly obeys a specific distribution, in order to relax the data distribution restrictions.
- Constructed a gradient estimator based on the data collected in the previous run cycle to dynamically update the service resource allocation in order to achieve a kind of dynamic decision making that maximizes the expected revenue.

KD-Eye: Lightweight Pupil Segmentation For Eye Tracking **Oct 2022 – Jan 2023**
Independent First Author

- From Area-of-Interest exaction to Coarse segmentation and then refined segmentation via Knowledge Distillation.
- Maintained the accuracy on par with that of baseline but consumed only 1-2% computation and memory resources of the baseline.
- Achieved processing rate about 160fps which is over 240 times faster than competing approach.
- This paper has been accepted by WASA 2024 (CCF-C).

Implementing Defect Detection in Industrial Products via Deep Learning **Jun 2023 – Jul 2023**
Research Leader

- Project training in cooperation between School of Software, Shandong University and Intel Asia Pacific Research and Development Ltd., trained the AI model and establishing Web and WeChat applet services on the basis of balancing accuracy and reasoning time, under the supervision of Prof. Hongjun Dai and AI Software Solutions Engineer Jianyu Zhang.
- Led the team and was in charge of backend development, data processing, model training, inference acceleration, frontend-backend integration, and software testing.
- Selected pre-trained models based on the TensorFlow framework and fine-tuned them on an industrial products dataset. Conducted training on ResNet and VGG series models. Chose the VGG19 model for its balance between inference speed and accuracy, achieving a model accuracy of 90.972% with an average inference time of 0.3 seconds.
- Developed the backend via the Flask framework. Expanded training data through data augmentation techniques. Compressed the model using the Intel Neural Compressor library. Conducted Selenium automated testing on the system.

A Multimodal Data Fusion-Based Method for Wind Blade Monitoring **Mar 2023 – Jul 2023**

Principal Researcher

- Cooperation with CNNC Xinhua Power Development and Investment Company, under the supervision of Prof. Yiran Shen and Prof. Lingguo Bu.
- Assumed the role of a key project member and simulated wind turbine blade rotations at various damage levels to acquire data with different modes. Trained detection models based on both sound and vibration signals as well as image data. Implemented decision-level fusion based on the output of these two models to obtain the final detection results.
- Took charge of training the detection model based on a combination of sound and vibration signals. Utilized a sliding window mechanism to capture raw data, calculated the Mel-frequency cepstral coefficients (MFCC) for sound and vibration signals, and inputted these features into the model for training. Fused the feature vectors and derived the detection results.

An Analysis of Current Status of TCM Services for Community in Lixia District **Sep 2021 – Jun 2022**

Principal Researcher

- This project investigates the current situation of the development of community-based TCM healthy aging services for the elderly in Lixia District. Through the questionnaire survey to understand the needs of the elderly and the evaluation status of the service, combined with the data model to analyze the influencing factors of the willingness of the elderly to receive TCM healthy aging services and the degree of demand satisfaction.
- Focused on data analysis in the field. Worked with data collected through surveys and applied the K-means clustering algorithm to group factors that influenced the willingness of senior citizens to choose traditional Chinese medicine (TCM) healthcare services.
- Conducted a multivariate logistic regression analysis to prioritize these influencing factors and created a profile of different user segments.
- Our project won Second Prize in the Zhengda Cup 12th National Student Market Research and Analysis Competition National Final. A total of 708 universities and 31,898 teams participated in the competition in the undergraduate division. There were 211 teams that won second place and above, a percentage of 0.66%.

HONORS & AWARDS

***Scholar Finalist (SGD 45,000)**, NUS GRTII Scholarship* *Aug 2024*

***Meritorious Winner**, The Mathematical Contest in Modeling (MCM)* *May 2024*

***Outstanding Undergraduate Graduate**, Shandong University* *Jan 2024*

***Second Prize (RMB 10,000)**, 2023 Summer Intel oneAPI Campus Hackathon Competition* *Nov 2023*

***Third Prize**, Shandong University Academic Scholarship* *Oct 2023*

***First Prize**, Shandong University Specialty Scholarship in Entrepreneurship Practice Category* *Oct 2023*

***Third Prize**, National College Student Mathematical Modeling Competition in Shandong Region* *Nov 2022*

***Third Prize**, Shandong University Academic Scholarship* *Oct 2022*

***Second Prize**, Shandong University Specialty Scholarship in Entrepreneurship Practice Category* *Oct 2022*

***Second Prize**, The 12th National Student Market Research and Analysis Competition National Final (Top 0.66%)* *May 2022*

***Second Prize**, 2021 Asia and Pacific Mathematical Contest in Modeling* *Jan 2022*

SKILLS

Programming Languages: Python, Java, C++, HTML, CSS, JavaScript, SQL

Frameworks: PyTorch, TensorFlow, Vue, SpringBoot

Writing Skills: LaTeX

English: CET-4, CET-6, IELTS 6.5