

CONTACT

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SKILLS

Machine Learning	3+ yrs
Tensorflow	3+ yrs
Python	3+ yrs
C++	1+ yrs
Matlab	1+ yrs
Teaching	1 yr

ZHANG YIN RUI

Computer Science & Engineering

PERSONAL STATEMENT

I recently completed my master's degree in Computer Science (Applied Computing) at the University of Malaya, focusing on machine learning and its interpretability. My thesis involved developing an interpretable model for melanoma detection, addressing the "black box" problem in AI. With experience leading multiple computer vision projects in medical detection, I am passionate about advancing trustworthy AI and making meaningful contributions to this field. In addition, I have led and participated in several computer vision projects related to medical detection during my bachelor's studies, most of which received funding and awards. I am deeply passionate about machine learning and interpretability, and I aspire to make meaningful contributions to this field.

RESEARCH INTERESTS

- Trustworthy AI and explainable machine learning
- Deep learning for image analysis
- Computer vision applications for real-world problems.

EDUCATION

Master - Computer Science(Applied Computing) **2021 - 2024**
University of Malaya - Kuala Lumpur (Malaysia)

Coursework: completed with **CGPT 3.47/4.0. (equivalent to A-)**
Thesis: worked on **Interpretable Machine Learning for Melanoma De-tection** (Supervisor: Prof.Dr. Loo Chu Kiong)

Bachelor - Automation **2016 - 2020**
Southwest Minzu University - ChengDu (China)

Coursework: completed with **81.08 Average Score.(equivalent to A)**
Thesis: worked on **Go Referee System Computer Vision and Machine Learning** (Supervisor: Dr. Song Pengyun)

PROJECTS

REFEREES

Prof. Dr. LOO CHU KIONG

(University of Malaya)
Master's Research Supervisor
✉ ckloo.um@um.edu.my

Assoc. Prof. Dr. SONG PENGYUN

(Southwest Minzu University)
Bachelor's Research Supervisor
✉ songpy23@swun.edu.cn

Computer Aided Melanoma Diagnosis Using Interpretable Deep Model

Supervisor: Prof. Dr. LOO Chu Kiong

2023-2024

In this project, I independently designed and developed a self-explanatory deep learning model for melanoma detection. The model features convolutional, pooling, deconvolutional, and unpooling layers, along with a prototype network specifically for interpretability. The key innovation of this model is its ability to provide transparent insights into the decision-making process. By integrating mechanisms for visualizing and understanding the model's internal workings, this project addresses the "black box" problem in machine learning. This interpretability is crucial for enhancing trust and reliability in AI-driven medical diagnostics.

Computer-aided vision detection system based on human posture recognition

Supervisor: Assoc. Prof. Dr. Song Pengyun

2020-2021

This project was proposed by our corporate partners and officially commenced in 2019, involves displaying visual markers on a screen and requiring participants to perform specific actions like jumping and squatting to ensure adequate physical activity. My role was to develop the neural network for human posture recognition. I utilized image processing and deep learning technologies to assess the accuracy of participants' actions and calculate the results of the vision tests.

System And Equipment For Computer-Aided Retinopathy Detection

Supervisor: Assoc. Prof. Dr. Song Pengyun

2019-2020

The machine learning model, trained on retinal images, detects the incidence probability of diabetic retinopathy. Initially trained on Google's public dataset, we later expanded our dataset with images collected using a custom-designed optical device. My role was to develop the machine learning model for diagnosing retinal images. Both the model and the device have proven to be of great assistance during doctors' consultations.

This project was supported by the China University Student Innovation and Entrepreneurship Project Fund

Go Referee System Based On Computer Vision And Machine Learning

Supervisor: Assoc. Prof. Dr. Song Pengyun

2018-2019

This project involved using image technology to identify and reconstruct chess pieces and the board in Go endgame pictures. Initially, piece recognition was inaccurate, but the introduction of machine learning networks resolved this issue. As the team leader, I managed the team, handled data preprocessing, and developed the machine learning model for piece classification. The project, launched in 2019, was integrated into the 'Cloud Snake' platform and later used in major competitions by Chengdu Chess Academy and Gansu Danxia Chess Academy.

This project was supported by the China University Student Innovation and Entrepreneurship Project Fund

INTERNSHIP & WORK EXPERIENCE

Lecturer, Faculty of Artificial Intelligence
Hubei Enshi College, China

2024

Currently teaching courses on artificial intelligence as a part-time lecturer.

Architectural Engineer
China Realway Construction Company, China

2020 - 2021

Worked as part of a multidisciplinary team on architectural engineering projects. Key contributions included electromechanical systems for railway projects.

Engineering Intern
Sichuan Huadi Information Technology Co., Ltd.,
China

2019

Assisted in hardware and software development for robotic systems. Played a key role in embedded system.

PUBLICATIONS

A Go referee system based on MLP neural network
and computer vision
Application (patent) number: CN201910676706.2

China Patent

Status: Authorized

A system and method for reconstructing glasses
through facial key point recognition
Application (patent) number: CN201911001584.3

China Patent

Status: Authorized

HONORS & AWARDS

National Third Prize
Provincial First Prize
University First Prize

Challenge Cup2019

'Challenge Cup' National Undergraduate curricular academic science and technology works by race known as the Chinese college students of academic science and technology 'Olympic' event.

Provincial Third Prize
University First Prize

The 5th China International College Students' "Internet+" Innovation and
Entrepreneurship Competition

University Second Prize

The 4th China International College Students' "Internet+" Innovation
and Entrepreneurship Competition

The China International College Students ' " Internet+ " Innovation and Entrepreneurship Competition has been held annually since 2015. 39.83 million college students comprising 9.43 million teams from five continents, 100 countries, and thousands of universities around the world have participated.