

# YANG Zhangming

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## EDUCATIONAL BACKGROUND

Dalian Polytechnic University

09/2022 - 06/2026

- Major: Computer Science and Technology
- Qualification: Bachelor's Degree to be issued in June 2026
- Average Score: 85.59%

## INTERNSHIP EXPERIENCE

Institute of Automation, Chinese Academy of Sciences

01/07/2024 - 23/08/2024

*Position: Image Algorithm Intern*

- Collected and preprocessed raw image datasets, and performed data cleaning, annotation, and augmentation to enhance dataset diversity.
- Developed and optimized algorithms using the PyTorch deep learning framework, built and trained YOLO and SEM models for tasks including image classification, object detection, and image segmentation.
- Participated in image processing projects within the team, collaborated closely with members to manage the end-to-end pipeline from data preprocessing to model deployment.

## RESEARCH EXPERIENCES

**Research on a Novel Garbage Detection and Classification Model Based on CNN and Transformer** 10/2024 - 04/2025

- Independently designed and proposed MCMM, a novel garbage detection model integrating multi-column convolution with a MatMul-free Transformer.
- Achieved enhanced multi-scale feature extraction and significantly reduced computational complexity compared to existing methods.
- Trained and validated the model on a self-collected image dataset, and demonstrated superior performance in qualitative and quantitative evaluations.
- **Publication:** Published the paper *MCMM: Garbage Detection and Sorting via a Multi-Column Convolution based MatMul-free Modeling* as the first author in the Journal of Computational Methods in Sciences and Engineering (DOI: 10.1177/14727978251366534) on August 7, 2025.

**Xiangshi: A Deep Learning-Based Chinese Cuisine Dietary Assistant APP**

04/2024 - 04/2025

- Coordinated team efforts in market research and task allocation, facilitating collaborative development and industry analysis; preprocessed and augmented Chinese food image datasets to improve data quality and diversity.
- Developed and trained food recognition models using the TensorFlow framework to accurately identify dishes and ingredients; explored food perception and association techniques to analyze nutritional content and recommend balanced dietary combinations based on the Chinese Dietary Guidelines.
- Designed a spatio-temporal food recommendation network that incorporates seasonal factors (e.g., the 24 Solar Terms) and user preferences to generate personalized and culturally relevant meal suggestions.
- **Awards & Outputs:** Won the Excellent Award at the 2024 Liaoning Provincial International Students Innovation Competition; obtained one software copyright (Registration No.: 2025SR0065803).

**Research on Quality Measurement and Dynamic Transmission of Higher Education Based on Entropy Weight-TOPSIS and PVAR Models**

09/2023-06/2024

- Collected and screened indicator data for Chinese provinces (2020-2022) using Excel to construct an evaluation system for higher education development.
- Built an Entropy Weight-TOPSIS model in MATLAB to statically quantify the development levels and determine

indicator weights.

- Developed a Panel Vector Autoregression (PVAR) model in Python to dynamically analyze the spatiotemporal transmission process from resource input to educational output.
- **Publication:** Published first-author paper *Research on Quality Measurement and Dynamic Transmission of Higher Education in China from the Perspective of Dual Circulation: An Empirical Analysis Based on Entropy Weight-TOPSIS and PVAR Models* at the International Conference on Intelligent Computing and Data Analysis (DOI: 10.1145/3772726.3772729)

## **HONOURS & AWARDS**

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Merit Student (2024-2025 Academic Year), DPU	09/2025
Second-Class Scholarship (2024-2025 Academic Year), DPU	09/2025
Second Prize, National College English Competition	21/05/2025
Merit Student (2023-2024 Academic Year), DPU	09/2024
Second-Class Scholarship (2023-2024 Academic Year), DPU	09/2024
Third Prize, Liaoning Provincial Computer Design Competition	05/2024
2023 Outstanding Contribution to Campus Culture Award, DPU	05/2024
Outstanding Award, Liaoning Provincial Mobile Application Development Competition	10/2023

## **EXTRACURRICULAR ACTIVITIES**

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**Vice Class Monitor** 09/2022- Present

- Managed class affairs, including maintaining student records using Excel and facilitating communication between instructors and peers.
- Fostered class cohesion by organizing weekly meetings, semesterly team-building dinners, and 14+ class activities.
- Mobilized the class for community service, accumulating over 400 hours of volunteer work.

**President, University International Culture Exchange Association** 09/2023-09/2025

- Led the association by developing detailed work plans, achieving a 100% completion rate for annual objectives.
- Orchestrated 12 successful events in one semester, attracting over 400 participants by managing themes, logistics, and personnel.
- Directed recruitment efforts that successfully enrolled 90+ new members, ensuring the association's sustained growth and operations.

## **SKILLS & INTERESTS**

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- **Programming Languages:** Python (proficient), C (familiar), Java (familiar)
- **Interests:** Photography, football, long-distance running, and mountaineering