

Yuan Ning

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EDUCATION BACKGROUND

Henan University of Technology

B.S. in Computer Science and Technology

GPA: 3.22 / 4.0

Zhengzhou, China

Jun 2026 (expected)

International Study

Kenilworth Science & Technology Charter School

Glasgow Middle School

Baton Rouge, US

Aug 2016 – Feb 2017

Baton Rouge, US

Feb 2016 – Jun 2016

RESEARCH INTERESTS

Computer Vision, Vision-Language Model, Multimodal Learning

RESEARCH EXPERIENCE

ECA-ModNet: An Efficient Unsound Wheat Grain Recognition Network for Edge Devices

Project Leader | Advisor: Pengtao Lv | Henan University of Technology

Zhengzhou, China

Dec 2024 – Present

- Proposed the ModFused-MBConv block, which utilizes two parallel branches to extract features from different feature spaces. This design integrates the benefits of self-attention (SA) in a convolutional manner, enabling the block to capture long-range dependencies while preserving strong local structure awareness
- Enhanced the MBConv block in the later stages of the baseline model by incorporating the ECA attention mechanism. Unlike the original block, this modification avoids channel dimensionality reduction while effectively capturing cross-channel interactions in a more lightweight manner, thereby learning more effective channel attention
- Developed ECA-ModNet, a lightweight and efficient network for unsound wheat grain recognition. Extensive experiments on the CVPR public dataset demonstrate its effectiveness. Compared to the baseline EfficientNetV2-S, ECA-ModNet reduces the parameter count by 3.69M while improving accuracy by 4.46%

An Improved Lightweight ConvNeXt for Rice Classification

Research Assistant | Advisor: Pengtao Lv | Henan University of Technology

Zhengzhou, China

Sep 2024 – Dec 2024

- Processed comprehensive experiments on our proposed model CBAM-ParNeXt V1 and CBAM-ParNeXt V2, evaluating their performance at both the overall and subclass levels using a confusion matrix
- Completed the training of other neural network models to validate our proposed model, including ConvNeXt-T, FasterNet, ParCNetV2-XT, Res2Net50, FastViT-T8, MobileNet V2, MobileNet V3 Tiny, ShuffleNet V2 1.5x, Swin-T, and InceptionNeXt-T
- Cleaned and organized the dataset, and performed data augmentation on the classified training data using techniques such as rotation, flipping, and cropping to enhance data diversity and improve the model's generalization ability

Identification and Optimization of Ecological Security Patterns Using a Bayesian Network Model: Based on

Trade-offs in Ecosystem Services

Research Assistant | Advisor: Xuning Qiao | Henan Polytechnic University

Zhengzhou, China

Jun 2024 – Sep 2024

- Constructed a Bayesian network to probabilistically model the relationships between variables (e.g. rainfall, evapotranspiration, population density, etc.) and their states that affect ecosystem services
- Conducted sensitivity analysis of nodal factors using the constructed Bayesian network to identify the variables with the most significant impact on ecosystem service trade-offs, and further proposed the optimal subset of states for the key variables
- Leveraged mathematical packages (e.g. NumPy, etc.) in Python to improve the efficiency of tedious calculations during experiments; utilized visualization packages (e.g. Matplotlib, Seaborn, etc.) to effectively present experimental results

How Well Does Street View Measure Actual Vision Experimental Comparison of Visual Measurements in Street View Imagery and Visual Perception

Research Assistant | Advisor: Yi Zhang | Zhengzhou University

Zhengzhou, China

Feb 2024 – May 2024

- Reproduced classical semantic segmentation models (e.g. U-Net, etc.) to evaluate their performance under different projection methods, including equirectangular, cubic, and fisheye projections. Investigated how projection distortions from 3D environments to 2D flattened street view images impact the accuracy of semantic segmentation and compared classification biases across different projection approaches
- Processed experimental data using Python, including solid angle and ratio relative error. Employed visualization tools such as Matplotlib and Seaborn to intuitively present experimental results and analyze error trends between different measurement methods (pixel proportion vs. solid angle)
- Completed the relative proportion comparison experiment by systematically adjusting the distance and elevation angle between the sphere and the observer. Measured the sphere's relative size variations under different Street View Imagery (SVI) projections (measured by pixel proportion) and solid angles (measured by steradian proportion)

Coupling Mechanism of Urban-Rural Transformation and Ecological Environment in Mountainous and Hilly Counties: A Case Study of Lingbao City, Henan Province

Research Assistant | Advisor: Mingyang Cheng | Zhengzhou University

Zhengzhou, China

Sep 2023 – Dec 2023

- Investigated the factors affecting the coupling coordinated degree by using GeoDetector model through Python, analyzed the effect of various topographical features, distance from the county center, and other geographic factors on the coupling coordination degree (CCD)

SKILLS & INTERESTS

Language: Mandarin Chinese, English (TOFEL: 97)

Programming Language: Python (PyTorch), Java, C++, C

Interest: Basketball, Swimming, Tennis