Yuan Ning

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EDUCATION

Henan University of Technology   Zhengzhou, Henan, China

B.S. in Computer Science and Technology   Sep 2022–Jun 2026 (Expected)

GPA: 82/100; Class Rank: 3/36

Kenilworth Science & Technology Charter School   Baton Rouge, LA, US

International Experience   Feb 2016–Feb 2017

RESEARCH INTERESTS

- Multimodal Learning & Alignment
- Computer Vision
- Natural Language Processing

PUBLICATIONS

[1] **Ning Y**, Lv P, Zhang Q, Xiao L, Wang C. From Vision-Only to Vision + Language: A Multimodal Framework for Few-Shot Unsound Wheat Grain Classification. *AI*. 2025; 6(9):207. https://doi.org/10.3390/ai6090207 (**JCR Q1, IF=5.0**)

[2] Zheng Q, Qiao X, **Ning Y**, Yang Y, Zhou H, Gao H, Zhao T. Applying Bayesian network models to identify and optimize ecological security zoning–from the perspective of ecosystem service tradeoffs. *Human and Ecological Risk Assessment: An International Journal* (Accepted)

[3] Lv P, **Ning Y**, Zhang Q, Xiao L, Wang C, Wang J, Fan, Y. ECA-ModNet: A Lightweight Unsound Grain Classification Network for Wheat Storage (Submitted)

RESEARCH EXPERIENCE

From Vision-Only to Vision + Language: A Multimodal Framework for Few-Shot Unsound Wheat Grain Classification   Mar 2025–Sep 2025

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

- Integrated APE and ATPrompt into a unified fine-tuning pipeline and leveraged Qwen2.5-VL for higher-quality prompts, thereby improving few-shot performance
- Proposed two vision-language frameworks for unsound wheat grain classification, namely UWGC-F (Training-free) and UWGC-T (Training-required), addressing the lack of few-shot methods in this domain
- Published a research article as the **First Author** in the *AI* (**JCR Q1, IF=5.0**)

RAG-based Code Search Assistant (Summer Research Intern)   Jul 2024–Aug 2025

Project Leader | Advisor: Xihao Xie | Southern Methodist University

- Built a RAG pipeline for code search assistant(Chroma + Top-K → Qwen3-14B), which enables natural-language code queries.
- Delivered a modular, swappable stack with two embedding back-ends—Gemini Embeddings (cloud, powerful) and GraphCodeBERT (local, privacy)—and the deployment options selectable at run time
- Presented a live demo and technical talk to the Associate Dean, Department Chair, and advisor, showing that RAG-based approach solves cases where traditional search methods fail

A Modulation Neural Network for Unsound Grain Detection   Dec 2024–Mar 2025

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

- Employed a dual-branch design to integrate local structure awareness and long-range dependency modeling, which enhances feature extraction under lightweight constraints
- Improved MBConv block by introducing the ECA attention mechanism, thereby avoiding channel dimensionality reduction and enabling more lightweight cross-channel interaction modeling
- Developed ECA-ModNet, a lightweight model that improves accuracy by 3.17% while using 3.7M fewer parameters than the baseline. Manuscript submitted to *Journal of Stored Products Research* (**Second Author**)

An Improved Lightweight ConvNeXt for Rice Classification   Aug 2024–Dec 2024

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

- Conducted comprehensive experiments on CBAM-ParNeXt V1 and V2, evaluating their overall and subclass-level performance using a confusion matrix
- Cleaned and organized the dataset, then applied data augmentation (rotation, flipping, cropping, etc.) to enhance diversity and improve model generalization
- Trained and tested other vision models to validate the effectiveness of our proposed model through comparison

Applying Bayesian network models to identify and optimize ecological security zoning–from the perspective of ecosystem service tradeoffs   May 2024–Aug 2024

Research Assistant | Advisor: Xuning Qiao | Henan Polytechnic University

- Co-designed Bayesian network models for causal reasoning with uncertainty-aware, interpretable predictions
- Built a multi-source geospatial data-fusion and multi-scenario zoning pipeline to delineate ecological risk zones
- Accepted for publication in *Human and Ecological Risk Assessment* (**Third Author**)

How Well Does Street View Measure Actual Vision Experimental Comparison of Visual Measurements in Street View Imagery and Visual Perception   Dec 2023–Apr 2024

Research Assistant | Advisor: Yi Zhang | Zhengzhou University

- Utilized the U-Net semantic segmentation model to evaluate performance under different projection methods (e.g., equirectangular, cubic, fisheye) and investigate how projection distortions from 3D environments to 2D street view images impact segmentation accuracy, comparing classification biases across projection approaches
- Calculated key experimental parameters (e.g., angle, ratio relative error) using Python, and employed visualization tools like Matplotlib and Seaborn to present results intuitively and analyze error trends between measurement methods (pixel proportion vs. solid angle)
- Completed the relative proportion comparison experiment by adjusting the distance and elevation angle between the sphere and the observer, measuring the sphere's size variations under different Street View Imagery (SVI) projections and solid angles

SKILLS & INTERESTS

Skills: Programming Languages: *Python (Expert); Java (Familiar); C++* | Frameworks: *PyTorch; TensorFlow; Hugging Face; Ollama; Timm* | Database: *Chroma; FAISS*

Language: Mandarin Chinese; English (TOEFL: 97)

Interests: Basketball; Swimming; Movies