Mengdi JIA

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EDUCATION

Anhui Agricultural University
Master of Engineering in Agricultural Engineering   *2020.09 - 2023.06*
- **GPA:** 3.62 / 4.0 (Top 10%)

Hebei Agricultural University
Bachelor of Engineering in Mechanical Design, Manufacturing & Automation   *2014.09 - 2018.06*
- **GPA:** 3.52 / 4.0 (Top 5%)
- **Honors: First class** scholarship(2014-2016) // **Champion** of the World Robot Olympiad // **Outstanding** Graduation Project

RESEARCH EXPERIENCES

OmniSpatial: Towards Comprehensive Spatial Reasoning Benchmark for Vision Language Models
Mengdi Jia[1], Zekun Qi[14*], Shaochen Zhang[2], Wenyao Zhang[34], Xinqiang Yu[4], Jiawei He[4], He Wang[45], Li Yi[16†]*   *NeurIPS, 2025*
- https://qizekun.github.io/omnispatial/
- **Benchmark:** Proposed OmniSpatial, a novel and comprehensive spatial reasoning benchmark, addressing the limitations of existing vision-language evaluations that primarily focus on basic spatial tasks (relative positioning, proximity, counting).
- **Categorization Development:** Developed a structured categorization of spatial reasoning into four critical dimensions—dynamic reasoning, complex spatial logic, spatial interaction, and perspective-taking—substantially broadening the assessment complexity and scope.
- **Dataset Construction:** Built the OmniSpatial dataset by crawling and curating diverse visual data (images and video frames) from international web sources, covering varied scenes, resolutions, lighting conditions, and weather patterns, ensuring realistic and robust evaluation scenarios.
- **Model Evaluation and Insights:** Conducted comprehensive evaluations of state-of-the-art vision-language models (e.g., ChatGPT O3, Gemini-2.5-Pro), identifying significant limitations in advanced spatial cognition and providing valuable insights for future spatially-aware AI development.
- **Reasoning Enhancement:** Improved spatial reasoning performance of VLMs through integrating auxiliary models via a chain-of-thought approach, demonstrating proficiency in complex multimodal reasoning and effective model enhancement strategies.

Experimental Investigation on the Crack Propagation Principle of Pecan under Heating State
Mengdi Jia[1]   *Master's Thesis, 2023*
- Developed a real-time weight and temperature monitoring system using LabVIEW, implemented a crack detection algorithm with YOLOv8, and constructed a moisture prediction model utilizing near-infrared spectroscopy combined with a BP neural network.

SKILLS

Languages: LELTS 6.5, Japanese
Programming Languages: Python, C++, C,MATLAB,Latex
Libraries: PyTorch, Numpy, Pandas, OpenCV
Misc: Linux,Embedded system (Keil-ARM, C51),Solidworks

WORK EXPERIENCES

Beijing Donghong Zhiyuan Medical Technology Co., LTD
Mechatronics Engineer (Project Leader)   *2024/05 - Present*
- Lead electromechanical system designs for medical devices including high-frequency surgical instruments and endoscope systems, managing the complete product lifecycle from R&D to large-scale production.

Beijing Precision Medical Technology Co., LTD
Project Engineer   *2023/07 - 2024/04*
- Design end-effectors for real-time MR image-guided robotic puncture surgery, develop sensor calibration devices, and perform robotic calibration and precision enhancement.

Biophotonics Lab, Dept. of Electronics, Tsinghua University
Intern   *2019/12 - 2020/09*
- Develop biomedical device components using SolidWorks for photoacoustic imaging systems.