

Jiawei Wang

PHD CANDIDATE · UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA & MICROSOFT RESEARCH ASIA

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Education

School of the Gifted Young of University of Science and Technology of China (USTC)

Anhui, China

Bachelor of Engineering in Computer Science

Sept 2017 - June 2021

- GPA: 3.8/4.3
- Core Courses Score: Linear Algebra B1: 95/100, Operation Research: 96/100, Compilers: 95/100, Artificial Intelligence: 95/100
- Provincial excellent graduate

School of Information Science and Technology of USTC

Anhui, China

PhD Candidate in Artificial Intelligence

Sept 2021 - now

- GPA: 3.8/4.3
- Joint PhD program between USTC and Microsoft Research Asia

Publications

LARGE LANGUAGE MODELS

Safeguarding Vision-Language Models: Mitigating Vulnerabilities to Gaussian Noise in Perturbation-based Attacks

Jiawei Wang, Yushen Zuo, Yuanjun Chai, Zhendong Liu, Yicheng Fu, Yichun Feng, Kin-man Lam

Submitted to CVPR 2025 (2025). 2025

DeepSeek-V3 Technical Report

DeepSeek-AI

arXiv preprint arXiv:2412.19437 (2024). 2024

DeepSeek-VL2: Mixture-of-Experts Vision-Language Models for Advanced Multimodal Understanding

DeepSeek-AI

arXiv preprint arXiv:2412.10302 (2024). 2024

DOCUMENT INTELLIGENCE

UniHDSA: A Unified Relation Prediction Approach for Hierarchical Document Structure Analysis

Jiawei Wang, Kai Hu, Qiang Huo

Submitted to Pattern Recognition (2025). 2025

UniVIE: A Unified Label Space Approach to Visual Information Extraction from Form-like Documents

Kai Hu, **Jiawei Wang**, Weihong Lin, Zhuoyao Zhong, Lei Sun, Qiang Huo

International Conference on Document Analysis and Recognition, 2024

DLAFormer: An End-to-End Transformer for Document Layout Analysis

Jiawei Wang, Kai Hu, Qiang Huo

International Conference on Document Analysis and Recognition, 2024

Dynamic Relation Transformer for Contextual Text Block Detection

Jiawei Wang, Shunchi Zhang, Kai Hu, Chixiang Ma, Zhuoyao Zhong, Lei Sun, Qiang Huo

International Conference on Document Analysis and Recognition, 2024

Detect-Order-Construct: A Tree Construction based Approach for Hierarchical Document Structure Analysis

Jiawei Wang, Kai Hu, Zhuoyao Zhong, Lei Sun, Qiang Huo

Pattern Recognition (2023). Elsevier, 2023

Robust Table Structure Recognition with Dynamic Queries Enhanced Detection Transformer

Jiawei Wang, Weihong Lin, Chixiang Ma, Mingze Li, Zheng Sun, Lei Sun, Qiang Huo

Pattern Recognition (2023). Elsevier, 2023

DQ-DETR: Dynamic Queries Enhanced Detection Transformer for Arbitrary Shape Text Detection

Chixiang Ma, Lei Sun, **Jiawei Wang**, Qiang Huo

International Conference on Document Analysis and Recognition, 2023

A Hybrid Approach to Document Layout Analysis for Heterogeneous Document Images

Zhuoyao Zhong, **Jiawei Wang**, Haiqing Sun, Kai Hu, Erhan Zhang, Lei Sun, Qiang Huo

International Conference on Document Analysis and Recognition, 2023

TSRFormer: Table Structure Recognition with Transformers

Weihong Lin, Zheng Sun, Chixiang Ma, Mingze Li, **Jiawei Wang**, Lei Sun, Qiang Huo

Proceedings of the 30th ACM International Conference on Multimedia, 2022

Experiences

Huawei 2012 Lab, Central Media Technology Institute

Hangzhou, China

Intern directed by Dr. Liping Zhang

Dec. 2019 - Sept 2020

- Led research on photo contrast migration and explored advanced applications of deep neural networks in High Dynamic Range (HDR) image synthesis.
- Designed and implemented a high-performance model for image style transfer, achieving significant improvements in computational efficiency and visual quality.

Microsoft Research Asia, Multi-Modal Interaction Group

Beijing, China

Intern directed by Prof. Qiang Huo

Sept 2020 - Present

- Applied Detection Transformer (DETR) to rotated object detection, investigating the robustness of set prediction in the context of rotated table detection, and developed a rotation-invariant table detector.
- Conducted an extensive study of DETR for diverse tasks and introduced a Dynamic Queries-based DETR (DQ-DETR), which demonstrated superior performance in text detection and table structure recognition. The text detection model was successfully integrated as a core solution within Microsoft Azure's OCR Engine.
- Proposed and implemented an innovative approach for hierarchical document structure analysis, utilizing a tree construction method to build a comprehensive hierarchical document structure tree. This solution significantly improved document processing efficiency and consistency, and has been successfully integrated into Microsoft Azure Document Intelligence Studio.

Projects

Microsoft Azure AI Document Intelligence

Beijing, China

Core Developer

2021 - Now

- Contributed to the development of a robust solution for table structure recognition utilizing DETR.
- Played a pivotal role in the research and development of DQ-DETR, a novel solution for enhanced text detection.
- Led the core development of an innovative solution for hierarchical document structure analysis, driving significant advancements in document processing.

Second Prize Solution for Visual Prompt Tuning Challenge

Guangzhou, China

Leader, CNY 200,000 bonus

Aug. 2023 - Nov. 2023

- Enhanced CLIP for multi-label image classification by integrating large language models (LLMs) to improve model accuracy and robustness.
- Proposed an innovative self-feedback data generation framework leveraging LLMs to create detailed scene description data, enhancing dataset diversity and quality.
- Developed an advanced sliding window-based strategy, integrating multi-scale, multi-block, and multi-shape techniques to capture fine-grained local details across objects with varying scales, including extreme size ratios, in multi-label classification tasks.

Honors & Awards

2021-2024	Core Contributor of Microsoft Azure AI Document Intelligence , Outstanding Contribution Award	Microsoft
2023	2nd Prize, Visual Prompt Tuning Challenge @ CVPR 2023 HIT Workshop , CNY 200,000 bonus	Guangzhou
2022	2nd Prize, Panoptic Scene Graph Challenge @ ECCV 2022 SenseHuman Workshop , CNY 100,000 bonus	Guangzhou
2017-2021	Cyrus Tang Scholarship , Awarded to college students who are both good in academics and enthusiastic about social welfare	USTC
2021	Provincial excellent graduate , Awarded to excellent graduate	Anhui, China
2020	Outstanding Student Scholarship Gold Award , Awarded to students with excellent achievements in this year	USTC
2019	Tang Lixin Scholarship(Annual funding of CNY 10,000 until Ph.D.) , Awarded to students with excellent potential in academic, business or politics	USTC
2019	Suzhou Yucai Scholarship(Top 10 undergraduates per year) , Awarded to college students with outstanding comprehensive abilities	USTC
2018	Outstanding Student Scholarship Gold Award , Awarded to students with excellent achievements in this year	USTC
2018	First prize for freshman seminar papers , Awarded to freshman with excellent academic potentials	USTC

Skills

Programming	Python (PyTorch, NumPy, Scikit-learn. etc.), C/C++, HTML/CSS, SQL.
Miscellaneous	Linux, Shell (Bash/Zsh), \LaTeX (Overleaf/Markdown), Microsoft Office, Git.
Soft Skills	Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.