

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

SELECTED JOURNAL ARTICLES

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

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

Submitted to *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

Physical mechanisms in impacts of interaction factors on totally asymmetric simple exclusion processes

Yuqing Wang, **Jiawei Wang**, Binghong Wang

International Journal of Modern Physics B (2019). World Scientific, 2019

Stochastic dynamics in nonequilibrium phase transitions of multiple totally asymmetric simple exclusion processes coupled with strong and weak interacting effects

Yuqing Wang, **Jiawei Wang**, Ziang Zhu, Binghong Wang

International Journal of Modern Physics B (2019). World Scientific, 2019

CONFERENCE PROCEEDINGS

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

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

Control Strategies for Reducing VOCs Emission Process Based on Empirical Data

Yuqing Wang, **Jiawei Wang**, Ziang Zhu, Chaofan Zhou, Yiyao Kou, Jing Sun, Zhengwei Mei, Ziwu Li, Peng Wu, Donghu Wang, Si Zhang, Wenli Zhang

IEEE International Conference on Mechatronics, Robotics and Automation, Best Paper Presentation Award, 2018

Experiences

Huawei 2012 Lab, Central Media Technology Institute

Hangzhou, China

Intern directed by Dr. Liping Zhang

Dec. 2019 - Sept 2020

- Focused on photo contrast migration and studied the application of deep neural networks for HDR image synthesis.
- Developed an efficient model for image style transfer.

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, exploring the robustness of set prediction for rotated table detection. Developed a rotate-free table detector.
- Conducted an in-depth study of DETR for various tasks and proposed a Dynamic Queries-based DETR, named DQ-DETR, which has proven effective in text detection and table structure recognition. The text detection model has been successfully converted into a product solution in Microsoft Azure OCR Engine.
- Proposed and developed a effective solution for hierarchical document structure analysis using a tree construction-based method. This approach effectively constructs a comprehensive hierarchical document structure tree, significantly enhancing document processing efficiency and consistency, which has been integrated into Microsoft Azure Document Intelligence Studio.

Projects

Microsoft Azure AI Document Intelligence

Beijing, China

Core Developer

2021 - Now

- Contributed to the development of the solution for table structure recognition using Detection Transformer.
- Played a key role in researching and developing DQ-DETR as the solution for text detection.
- Led the core development of the solution for hierarchical document structure analysis.

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 leveraging large language models (LLMs).
- Proposed a self-feedback data generation framework utilizing LLMs to generate scene description data.
- Developed a sliding window-based strategy incorporating multi-scale, multi-block, and multi-shape techniques to focus on local details of varying scales and objects with extreme size ratios.

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.