PENGFEI ZHOU

Phone: +8616601535077 • E-mail: zpf4wp@outlook.com • Homepage: lancezpf.github.io

SUMMARY

I am an incoming PhD student, with 10+ awards and **10+ publications** in top-tier venues. I have experienced in leading projects at Shanghai AI Lab, collaborating with renowned international experts, serving as a reviewer for prestigious conferences and journals, organizing conferences, and initiating a start-up.

EDUCATION

Master of Engineering, major in Artificial Intelligence	Advisor: Prof. Shuqiang Jiang and Prof. Weiqing Min
Key Lab of Intelligent Information Processing, Institute of Computing Technology	Graduated: Jul. 2024
Chinese Academy of Sciences, Beijing, China	GPA: 3.62/4

Bachelor of Engineering, major in Internet of Things Engineering	Advisor: Prof. Cong Bai
College of Computer Science	Graduated: Jun. 2021
Zhejiang University of Technology, Hangzhou, China	Grade: 86.0/100 *(Ranking: 2/46)*

MAJOR HONORS & AWARDS

Top-tier

- Outstanding Graduate of Beijing *(First Class Honors, 10K/200K+ in Beijing)* — May 2024
- Outstanding Graduate of Zhejiang Province *(First Class Honors, 10K/300K+ in Zhejiang)* — May 2021
- National Scholarship *(3/300+ in Group of Intelligence and 25/1K+ in ICT, CAS)* — Dec. 2023
- National Scholarship *(5/1K+ in College of Computer Science and 50/4K+ in ZJUT)* — Dec. 2020

International

- Silver Award in Zhejiang International "Internet+" Undergraduate Entrepreneurship Competition — Sep. 2021
- Second Place in International Information Retrieval Competition of LMRT in ImageCLEF Lifelog 2019 Sep. 2019

National

- E-Funds Fintech Fellowship by ICT, Chinese Academy of Sciences *(Top Honors, 10/300+ in ICT)* — Jan. 2023
- "Jianxing" Honors Student by Zhejiang University of Technology *(Top Honors, 86/4K+ in ZJUT)* — Jun. 2021
- Best Prize in ZJUT "Canal Cup" Academic Science and Technology Competition — Dec. 2020
- Second Prize in National Service Outsourcing Competition — Aug. 2020
- First Prize in "HUAWEI Cup" National Undergraduate IoT Design Contest — Aug. 2020

REPRESENTATIVE PUBLICATIONS

Published

- **Pengfei Zhou**, Weiqing Min, Jiajun Song, Yang Zhang, and Shuqiang Jiang. 2024. Knowledge-Enhanced Features Synthesizer for Real-World Zero-Shot Food Detection. IEEE Transactions on Image Processing *(Top-tier Journal in Computer Vision, IF=10.6)*
- **Pengfei Zhou**, Weiqing Min, Yang Zhang, Jiajun Song, Ying Jin, and Shuqiang Jiang. 2023. SeeDS: Semantic Separable Diffusion Synthesizer for Zero-shot Food Detection. In Proceedings of the 31st ACM International Conference on Multimedia *(Top-tier Conference in Multimedia, 29.3% acceptance rate)*
- **Pengfei Zhou**, Kaining Ying, Zhenhua Wang, Dongyan Guo, and Cong Bai. 2022. Self-Supervised Enhancement for Named Entity Disambiguation via Multimodal Graph Convolution. IEEE Transactions on Neural Networks and Learning Systems *(JCR-Q1, Top Journal in Learning Systems, IF=10.4)*
- **Pengfei Zhou**, Cong Bai, Jie Xia, and Shengyong Chen. 2022. CMRDF: A Real-Time Food Alerting System Based on Multimodal Data. IEEE Internet of Things Journal *(JCR-Q1, Top Journal in IoT, IF=10.6)*
- Kaining Ying, Zhenhua Wang, Cong Bai, and **Pengfei Zhou**. 2022. ISDA: Position-Aware Instance Segmentation with Deformable Attention. In Proceedings of the 47th IEEE International Conference on Acoustics, Speech and Signal Processing *(Top-tier Conference in Signal Processing)*

Under Review

- **Pengfei Zhou**, Xiaopeng Peng, Jiajun Song, Chuanhao Li, xu Zhao Pan, Yue Yang, Ziyao Guo, Xiaojun Chang, Yu Qiao, Wenqi Shao and Kaipeng Zhang. OpenING: A Comprehensive Benchmark for Judging Open-ended Interleaved Image-Text Generation. CVPR 2025 *(Top-tier Conference in Computer Vision)*
- **Pengfei Zhou**, Weiqing Min, Chaoran Fu, Ying Jin, Mingyu Huang, Xiangyang Li, Shuhuan Mei and Shuqiang Jiang. FoodSky: A Food-oriented Large Language Model that Passes the Chef and Dietetic Examination. Cell Patterns *(Cell Press)*
- Weiqing Min, **Pengfei Zhou**, Leyi Xu, Tao Liu, Tianhao Li, Mingyu Huang, Ying Jin, Yifan Yi, Min Wen, Shuqiang Jiang and Ramesh Jain. From Plate to Production: Artificial Intelligence in Modern Consumer-Driven Food Systems. Proceedings of the IEEE *(First Student Author, Top-tier Journal in Reviews)*

RESEARCH EXPERIENCE

Research Engineer
Shanghai Artificial Intelligence Laboratory, Shanghai, China   Jul. 2024 – Present

- Conducting research on MLLMs for interleaved image-text generation
- Built a benchmark for interleaved image-text generation and submitted related work to CVPR 2025
- Developing large-scale multimodal training datasets and integrating multimodal chain-of-thought techniques to train a novel interleaved image-text generation MLLM

Collaborator Worked with Prof. Ramesh Jain
University of California, Irvine, CA, USA   Aug. 2023 – Apr. 2024

- International collaborated with Prof. Ramesh Jain *(titled Father of Multimedia)* to boost intelligent health
- Researched modern consumer-driven food systems based on AI and relations with sustainability and health
- Organized literature research and discussion; Co-authored a paper submitted to Proceedings of the IEEE

Visiting Student Worked with Prof. Hao Chen and Prof. Chunhua Shen
State Key Laboratory of CAD&CG, Zhejiang University, Hangzhou, China   Jun. 2023 – Nov. 2023

- Researched Large Language Models under the National Key R&D Program of China *(No. 2022ZD0118700)*
- Explored open-set problems via proposed instance-enhanced Multimodal Large Language Models
- Led the idea discussion, programming and experiment; Co-authored a paper to be submitted to IJCV

Co-founder, CTO
Hangzhou Xiao Bin Technology Co. LTD, Hangzhou, China   Jan. 2020 – May 2021

- Director of Smart Home System Research and Development Laboratory with 10+ employees
- Developed a smart bin recognition system *(99%+ classification accuracy, 30%+ higher than competitors)*
- Sold products in major cities in China including Shanghai and Hangzhou, with an annual turnover of CNY 100K+
- Won 10+ prizes in competitions including Silver Award in Zhejiang International "Internet+" Undergraduate Entrepreneurship Competition *(2/120)* and First Prize in National Undergraduate IoT Design Contest *(5/100)*

Research Assistant Worked with Prof. Cong Bai and Shengyong Chen
Institute of Computer Vision, Zhejiang University of Technology, Hangzhou, China   Apr. 2019 – Jun. 2021

- Researched multimodal retrieval supported by National Natural Science Fund of China Project *(No. 61976192)*
- Led a team of 5 researchers in the Undergraduate Innovation Entrepreneurship Training Program-funded project
- Won the second place *(2/10+)* in LMRT of ImageCLEFlifelog2019 Competition *(as the team leader)*
- Authored 5 published international papers, 3 Chinese patents *(granted)* and 2 software copyrights *(granted)*

PROJECTS

Multimodal Foundation Model Training, Shanghai Artificial Intelligence Laboratory   Nov. 2024 – Present

- Conducted training of a multimodal foundation model using a multimodal corpus of 1TB+ interdisciplinary data and a cluster with 100 NVIDIA H100 GPUs
- Pioneered research on reinforcement learning-based multimodal chain of thought reasoning
- Developed graph-augmented-generation based on knowledge points to enhance model capabilities
- Aiming to publish results in top-tier machine learning research conferences and journals

Vision-based Food System, Institute of Intelligent Computing Technology, CAS   Apr. 2022 – Oct. 2023

- Led a team of 8 employees at Algorithm Laboratory to research visual understanding and nutritional estimation
- Proposed food detection algorithm via zero-shot learning techniques with 99%+ accuracy in real-world scenarios
- Deployed dietary systems in Changzhou First People's Hospital, Puxiang Co. LTD and Xujiang Experimental Middle School with 100M+ usage, leading to a $3\times$ checkout rate and 80% manpower requirement reduction
- Authorized a Chinese patent, published a paper in ACM MM 2023 and IEEE TIP

Online Illegal Information Monitoring System, Jiaxing Tobacco Monopoly Administration Jun. 2021 – Feb. 2022

- Led a team of 3 researchers to develop the core models in the online social media information monitoring system
- Proposed an entity recognition model with 95%+ accuracy in 1M+ data samples for tobacco information processing
- Published a paper as first-author in IEEE TNNLS and authorized three software copyrights
- Deployed practical systems for Jiaxing Tobacco Monopoly Administration, leading to two subsequent projects

FUNDINGS

- Led project of Research and Implementation of Cross-modal Retrieval for Lifelogs funded by Undergraduate Innovation & Entrepreneurship Training Program (10K CNY)
- Co-directed projects of Design and Development of Smart Classified Garbage Bin System based on Deep Learning and Establishment of a Model to Evaluate the Risk of Ruptured Intracranial Aneurysm funded by Zhejiang Xin Miao Talent Plan (30K CNY)
- Led projects of Cross-modal Retrieval based on Multimodal Diabetes Data and Cross-modal Hash Retrieval based on Deep Adversarial Network funded by ZJUT "Canal Cup" Academic Science and Technology Program (5K CNY)

ACADEMIC ACTIVITIES

Reviewer: IEEE TNNLS, IEEE TMM, IEEE TCYB, NeurIPS 2024, ACM MM 2024/2023, ICMR 2023, ICME 2023/2022
Co-organizer: China Multimedia 2023 Conference *(1K+ attendees)*: Website designer and system manager; Co-organizer of *AI4Food: Food and Health Computing* Workshop; Outstanding Volunteer Award
Conference Attendance: ACM MM 2023, IEEE ICPR 2021, ACM MM Asia 2019, CLEF 2019, etc.

SOCIAL ACTIVITIES

Student Service

- Campus ambassador of Tencent at ICT, CAS *(recommending fellow students to Tencent)*
- Deputy Director of External Relations Department of ZJUT College Student Union *(CNY 1M+ yearly sponsorship)*

Volunteer Service

- Conference volunteer in Alibaba Cloud Computing Conference 2018 *(1M+ attendees)*
- One-month volunteer teacher in Wangmo County, a rural area of Qianxi'nan Prefecture, Guizhou Province, 2018
- Care volunteer for autistic children in Hangzhou Carnation Children Rehabilitation Center, 2017

Interest Activities

- Won the second prize in the defense of the Student Union as a representative of the department, 2017
- Won excellent award in ZJUT "Fly Cup" English Speech Competitions; the second and third prizes in ZJUT Chinese Speech Competitions; the second prize in ZJUT Group Debate Competitions, 2017

Other Interests

- Participated in 2021 postgraduate recommendation summer camp of ICT, CAS, and obtained Excellent Camper
- Changed major *(previously studied civil engineering at Institute of Architectural Engineering, ZJUT)*

SKILLS

Language: English *(98 TOEFL, and 7.0 IELTS)*, Chinese *(Native)*
Programming: Python *(Pytorch)*, C++, C, MATLAB

RESEARCH INTERESTS

Current: Working on Computer Vision *(zero-shot detection)* and Multimedia Content Analysis *(food computing)*
Interested in: AI-enabled Healthcare, Open-world Applications, and Multimodal Large Language Models