JIAQING ZHANG

Birth Date: March 1997 | Gender: Female

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EDUCATION

The University of Melbourne, Australia 04/2024-10/2024

- Ph.D. Visiting Student Supervisor: Abd-Karim Seghouane

M.E. and Ph.D., **Xidian University**, Xi'an, China 09/2019-12/2024

- State Key Laboratory of Integrated Services Networks Supervisor: Prof. Yunsong Li & Prof. Jie Lei

B.E., **Ningbo University**, Zhejiang, China 09/2015-06/2019

- Faculty of Electrical Engineering and Computer Science
- Outstanding Graduate, GPA: 3.67/4 Ranking: 2/77

RESEARCH INTERESTS

- Computer vision: Object Detection/Multimodal Fusion
- Efficient Model: Distillation/Qutization

PUBLICATIONS

[1] **J. Zhang**, *et al.,* E2EMFD: Towards End-to-End Synchronous Multimodal Fusion Detection. **NeurIPS 2024 (Oral)**

[2] **J. Zhang**, *et al.*, DiffCLIP: Language-Driven High-Dimensional Multimodal Image Classification via Diffusion Unsupervised Learning. **Submitted** to **AAAI 2024**.

[3] **J. Zhang**, J. Lei, W. Xie, G. Yang, D. Li, Y. Li. Multimodal Informative ViT: Information Aggregation and Distribution for Hyperspectral and LiDAR Classification. **IEEE TCSVT 2024**.

[4] **J. Zhang**, J. Lei, W. Xie, K. Jiang, M. Cao, Y. Li. Distribution-aware Interactive Attention Network and Large-scale Cloud Recognition Benchmark on FY-4A Satellite Image. **IEEE TGRS 2024**.

[5] **J. Zhang**, J. Lei, W. Xie, Y. Li, and Q. Du, SuperYOLO: Super Resolution Assisted Object Detection in Multimodal Remote Sensing Imagery. **IEEE TGRS 2023**. **(ESI highly cited paper)**

[6] **J. Zhang**, J. Lei, W. Xie, Y. Li, and X. Jia. Guided Hybrid Quantization for Object Detection in Multimodal Remote Sensing Imagery via One-to-one Self-teaching. **IEEE TGRS 2023**.

[7] **J. Zhang**, J. Lei, W. Xie, D. Li. Invariant Attribute-Driven Binary Bi-Branch Classification of Hyperspectral and LiDAR Images. *Remote Sensing* (**RS**) **2023**.

[8] W. Xie, **J. Zhang**, J Lei, Y. Li, X. Jia. Self-spectral learning with GAN based spectral–spatial target detection for hyperspectral image. Neural Networks **(NN) 2021 (Corresponding Author)**

ACADEMIC SERVICE

Journal Reviewer: TPAMI, TIP, TNNLS, TCYB, TCSVT, PR, TGRS, ...

Conference Reviewer: CVPR, ICCV, ECCV, ICLR, NeurIPS, AAAI, IJCAI, ...

AWARDS AND HONORS

[1] National Scholarship for Ph.D. Students, Ministry of Education of China 2023 & 2024

[2] National Scholarship for M.E. Students, Ministry of Education of China 2021

[3] Outstanding Postgraduate Student, Xidian University 2023 & 2020 & 2019

[4] Second Postgraduate Scholarship, Xidian University 2023 & 2022 & 2021 & 2020

[5] Top Postgraduate Scholarship, Xidian University 2024 & 2019

[6] Outstanding Graduate of Zhejiang Province 2019

COMPETITIONS

[1] Won the championship of the second "Tianzhi Cup" **Artificial Intelligence Challenge**. "Cloud-based intelligence based on satellite remote sensing data" and received **a grant of 1 million RMB** (Weiying Xie, Jie

Lei, **Jiaqing Zhang**, Kai Jiang and Peisen Li (First student))

[2] Won the second prize of high-performance Architecture Group 1 of the first "**Intelligent Computing Cup**" "Strong Core Health Soul · Cast base Intelligence" Intelligent Computing Foundation Platform Challenge in 2020 and received **a grant of 3.69 million RMB**.

[3] Won the championship of Baidu PaddlePaddle Paper Recurrence Challenge using (Joint Face Detection and Alignment using Multi-task Cascaded Convolutional Networks). [code]

[4] Won the championship of Baidu PaddlePaddle Paper Recurrence Challenge (SinGAN: Learning a Generative Model from a Single Natural Image). [code]

[5] The second award of AIINNOVATION AND APPLICATION COMPETITION (AIAC). [slide]

[6] National second prize of National undergraduate electronic design contest in 2017.

PROJECTS

Cloud Intelligent Recognition 12/2020-12/2021

- Construct an FYH benchmark dataset with 70, 419 aligned image data and labels.
- Refine cloud recognition problems based on a detailed analysis of the characteristics and distributions of data, considering the complexity and variety of cloud formations.
- Introduce a novel end-to-end network, DIAnet, which effectively accumulates local and global context dependencies across different receptive fields.
- One first-author paper has been accepted to TGRS.

Hyperspectral target detection (Funded by National Natural Science Foundation of China) 01/2021-12/2024

- Design a novel spectral-spatial detection framework in deep latent space to alleviate the shortcomings of target detection in only one aspect.
- Introduce a concept of SSL by GAN into hyperspectral band selection in an unsupervised fashion to relieve the computational burden and redundant information without any prior knowledge.
- Establish an innovative structure-to-structure selection rule to offer an effective mapping relationship between the latent spectral feature space and the original spectral band space.
- One first-author paper has been accepted to NN.

Efficient multimodal object detection 03/2022-12/2024

- Introduce an assisted super resolution branch into multimodal object detection to greatly improve the detection performance while retaining similar FLOPs with those of the baseline framework.
- Formulate an adaptive one-to-one distillation policy between the full precision network and the quantization network at the same structure in object detection.
- Present E2E-MFD, a pioneering approach to efficient synchronous joint learning, integrating image fusion and object detection into a single-stage, end-to-end framework.
- Three first-author papers have been accepted to TGRS, and NeurIPS.

INTERNATIONAL COOPERATION

[1] Qian Du, Fellow, IEEE. She is currently the Bobby Shackouls Professor in the Department of Electrical and Computer Engineering, Mississippi State University, Starkville, MS, USA. Jenny Q (msstate.edu)

[2] Xiuping Jia, Fellow, IEEE. Since 1988, she has been with the School of Engineering and Information Technology, The University of New South Wales, Canberra, ACT, Australia, where she is currently a Senior Lecturer. Associate Professor Xiuping Jia | UNSW Research

[3] Zhenman Fang, Assistant Professor, Computer Engineering Option, School of Engineering Science, Simon Fraser University. Zhenman Fang | Assistant Professor at SFU

[4] Xue Yang, OpenGVLab, Shanghai AI Laboratory. Xue Yang