夏超群

温州大学计算机与人工智能学院教师
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教育背景

2016–2021 **浙江大学工学博士** 专业：控制理论与控制工程

2012–2016 **电子科技大学工学学士** 专业：自动化

研究兴趣

遥感影像处理，目标检测与识别，机器学习、深度学习等人工智能相关领域。

科研成果

- Wang Jing, Luo Yuo, **Xia Chaoqun**. Infrared Small Target Detection Based on Orthogonal Subspace Projection[C]//IGARSS 2024-2024 IEEE International Geoscience and Remote Sensing Symposium. IEEE, 2024: 9197-9200.
- **Xia Chaoqun**, Chen Shuhan, Huang Rishgeng, Hu Jie, Chen Zhaomin. Separable Spatial-Temporal Patch-Tensor Pair Completion for Infrared Small Target Detection[J]. IEEE Transactions on Geoscience and Remote Sensing, 2024. **SCI 一区.**
- Luo Yuo, Li Xiaorun, Chen Shuhan, **Xia Chaoqun***. 4DST-BTMD: An Infrared Small Target Detection Method based on 4D Data-Sphered Space[J]. IEEE Transactions on Geoscience and Remote Sensing, 2023. **SCI 一区.**
- Li Ruide, **Xia Chaoqun***, Chen Yicheng. A modified UNet network bridged with multiscale context fusion for photovoltaic panel image segmentation[C]//7th International Conference on Vision, Image and Signal Processing (ICVISP 2023). IET, 2023, 2023: 9-13. **Best Paper.**
- Luo Yuan, Li Xiaorun, Yan Yunfeng, **Xia Chaoqun**. Spatial-temporal tensor representation learning with priors for infrared small target detection[J]. IEEE Transactions on Aerospace and Electronic Systems, 2023. **SCI 二区.**
- Chen Zhonmin, Jin Xin, Zhang Xiaoqin, **Xia Chaoqun**, Pan Zhiyong, Deng Ruoxi, Hu Jie, Chen Heng. DIM: long-tailed object detection and instance segmentation via dynamic instance memory[J]. Machine Learning: Science and Technology, 2023, 4(3): 035047.
- Luo Yuan, Li Xiaorun, Chen Shuhan, **Xia Chaoqun**, Zhao Liaoying. Infrared small target detection based on improved tri-layer window local contrast[C]//IGARSS 2023-2023 IEEE International Geoscience and Remote Sensing Symposium. IEEE, 2023: 6510-6513.
- Huang Risheng, Jiao Huiyun, Li Xiaorun, Chen Shuhan, **Xia Chaoqun***. Hyperspectral unmixing using robust deep nonnegative matrix factorization[J]. Remote Sensing, 2023, 15(11): 2900. **SCI 二区.**

科研成果 (continued)

- Huang Risheng, Li Xiaorun, Fang Yiming, Cao Zeyu, **Xia Chaoqun**. Robust Hyperspectral Unmixing with Practical Learning-Based Hyperspectral Image Denoising[J]. Remote Sensing, 2023, 15(4): 1058. **SCI 二区.**
- Luo Yuan, Li Xiaorun, Chen Shuhan, **Xia Chaoqun**. LEC-MTNN: a novel multi-frame infrared small target detection method based on spatial-temporal patch-tensor[C]//Earth and Space: From Infrared to Terahertz (ESIT 2022). SPIE, 2023, 12505: 144-154. **Best Paper.**
- Huang Risheng, **Xia Chaoqun**, Chen Shuhan, Zhao Liaoying, Li Xiaorun. Half-quadratic based robust hyperspectral unmixing framework[C]//Earth and Space: From Infrared to Terahertz (ESIT 2022). SPIE, 2023, 12505: 403-409.
- Luo Yuan, Li Xiaorun, Chen Shuhan, **Xia Chaoqun**, Zhao Liaoying. IMNN-LWEC: A novel infrared small target detection based on spatial–temporal tensor model[J]. IEEE Transactions on Geoscience and Remote Sensing, 2022, 60: 1-22. **SCI 一区.**
- **Xia Chaoqun**, Chen Shuhan, Zhang Xiaoqin, Chen Zhaomin, Pan Zhiyong. Infrared small target detection via dynamic image structure evolution[J]. IEEE Transactions on Geoscience and Remote Sensing, 2022, 60: 1-18. **SCI 一区.**
- **Xia Chaoqun**, Chen Shuhan, Luo Yuan. Omnidirectional mirror gradient dissimilarity for infrared small target detection[C]//IGARSS 2022-2022 IEEE International Geoscience and Remote Sensing Symposium. IEEE, 2022: 3255-3258.
- Chen Shuhan, Li Xiaorun, **Xia Chaoqun**, Yu Shaoqi. Independent component analysis for hyperspectral anomaly[C]//Algorithms, Technologies, and Applications for Multispectral and Hyperspectral Imaging XXVIII. SPIE, 2022, 12094: 344-350.
- Liu Yyufei, Li Xiaorun, Hua Ziqiang, **Xia Chaoqun**, Zhao Liaoying. A band selection method with masked convolutional autoencoder for hyperspectral image[J]. IEEE Geoscience and Remote Sensing Letters, 2022, 19: 1-5.
- Cao Zeyu, Li Xiaorun, Feng Yueming, Chen Shuhan, **Xia Chaoqun**, Zhao Liaoying. ContrastNet: Unsupervised feature learning by autoencoder and prototypical contrastive learning for hyperspectral imagery classification[J]. Neurocomputing, 2021, 460: 71-83. **SCI 二区.**
- **Xia Chaoqun**, Li Xiaorun, Yin Yeping, Chen Shuhan. Multiple infrared small targets detection based on hierarchical maximal entropy random walk[J]. IEEE Geoscience and Remote Sensing Letters, 2021, 19: 1-5.
- **Xia Chaoqun**, Li Xiaorun, Zhao L, Yu Shaoqi. Modified graph Laplacian model with local contrast and consistency constraint for small target detection[J]. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2020, 13: 5807-5822. **SCI 二区.**

科研成果 (continued)

- **Xia Chaoqun**, Li Xiaorun, Zhao Liaoying, Shu Rui. Infrared small target detection based on multiscale local contrast measure using local energy factor[J]. IEEE Geoscience and Remote Sensing Letters, 2019, 17(1): 157-161.
- **Xia Chaoqun**, Li Xiaorun, Chen Shuhan, Zhao Liaoying. Infrared small target detection based on local contrast vector and signed normalization[C]//Infrared Technology and Applications XLV. SPIE, 2019, 11002: 471-476.
- **Xia Chaoqun**, Li Xiaorun, Zhao Liaoying. Infrared small target detection via modified random walks[J]. Remote Sensing, 2018, 10(12): 2004. **SCI 二区.**
- Chen Zhaomin, Cui Quan, Zhang Xiaoqin, Deng Ruoxi, **Xia Chaoqun**, Lu Shijian. Towards Gradient Equalization and Feature Diversification for Long-Tailed Multi-Label Image Recognition[J]. Available at SSRN 4518263.

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- 厉小润, 夏超群. 一种基于局部差异度量的光伏组件点状热斑检测方法及系统. 中国专利, 2024.
- 夏超群. 一种基于张量分解的光伏组件点状热斑检测方法及系统. 中国专利, 2023.
- 夏超群. 一种基于轨迹约束张量分解的飞行器红外弱小目标检测方法及系统. 中国专利, 2023.
- 张天文, 陈璐, 夏超群, 厉小润, 李宁辉. 光伏组件点状热斑的检测方法、系统、装置及光伏电站. 中国专利, 2024.
- 夏超群. 一种基于快速时空可分离张量完备的红外小目标检测方法. 中国专利, 2023.
- 陈钊民, 张笑钦, 夏超群, 葛一粟, 章国道. 一种基于同时和序列动作关系建模的多标签动作识别方法. 中国专利, 2023.
- 厉小润, 夏超群. 一种基于模块能量因子的光伏组件条状和面状热斑检测方法及系统. 中国专利, 2024.
- 张天文, 厉小润, 夏超群, 骆源, 陈淑涵, 朱鸿川. 光伏板点状热斑检测方法、装置、设备及可读存储介质. 中国专利, 2022.

科研项目

- 国家重点研发项目, 基于多源遥感影像的应急事件分析与识别，主要参与
- 浙江省青年基金项目，《基于红外遥感的光伏组件热斑智能检测与识别关键技术研究》，主持
- 横向项目，《基于红外图像的弱小目标检测算法研究》，主持
- 装发教育部联合基金一般项目，《空中背景下基于高光谱图像的目标检测》，主要参与

教学成果

主讲课程
- 《深度学习》、《Computer System and Architecture》、《Deep Learning》、《数据结构与算法综合实践》等.

竞赛指导
- 2021 年研究生数学建模竞赛全国三等奖
- 2024 年大学生数学建模竞赛浙江省三等奖