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Research Interests: **remote sensing image processing, deep learning, unmixing, object detection, classification, super-resolution**

Overview

徐夏, 教授, 在国际知名遥感图像处理期刊 (IEEE TIP、IEEE TGRS、ISPRS JPRS 等) 发表第一作者和通讯作者 SCI 论文 20 余篇, 其中中科院一区 10 余篇; 2 篇第一作者论文被评为 ESI 高被引论文。2024.6 入选 “天工杰青”。主持国家自然科学基金青年项目 1 项、天津市自然科学基金青年项目 1 项、中国博士后科学基金面上项目 1 项、横向项目 1 项。参与军科委 166 工程重大专项、军科委国防科技创新特区、国家重点研发计划等国家级项目 4 项。获 2019 年 ACM 中国优秀博士论文奖 (天津分会)。合作翻译著作《Python 编程基础——人工智能案例实践》。所指导本科毕业论文中 2 人获校/院优秀。曾获评博士后师德考核优秀, 本科课堂教学质量评价优秀。

课题组已形成 “技术算法” + “工程实践” + “基础理论” + “航天背景” 四位一体的研究体系, 欢迎计算机、信息、统计学、数学、控制等相关专业背景的同学咨询、报考。

EDUCATION/WORK

Jun 2024–on	Professor , School of Computer Science and Technology, Tiangong University
Jun 2024–on	Tiangong Distinguished Young Scholar , Tiangong University
Sep 2023–on	Researcher(p.t.) , Xinchuang Haihe Laboratory, Tianjin
Oct 2019–May 2024	Postdoc Research Fellow , School of Computer Science, Nankai University
Sep 2015–Jan 2019	Ph.D. , School of Astronautics, Beihang University

HONORS

- 2021 **2019 ACM China Excellent Doctoral Dissertation Award (Tianjin Branch).**
- 2018 **Beihang Doctoral Academic Excellence Fund.**
- 2018 **National Scholarship.**
- 2018 **Beihang Excellent academic paper Award.**
- 2018 **Beihang outstanding graduate student.**
- 2017 **Ministry of Industry and Information Technology Innovation and Entrepreneurship scholarship.**
- 2015 **Beihang Doctoral Student Scholarship.**

TEACHING

2024/2025 Spring	Operating System, undergraduate course.
2024/2025 Fall	Object-Oriented Programming-Java, International course (English).
2023/2024 Fall	Foundations of Programming Design, undergraduate course.
2022/2023 Fall	Foundations of Programming Design, undergraduate course.
2022/2023 Fall	Internet of Things cutting-edge technology, undergraduate course.
2021/2022 Fall	Foundations of Programming Design, undergraduate course.
2021/2022 Fall	Neural Network Engineering, undergraduate course.
2020/2021 Fall	Foundations of Programming Design, undergraduate course.
2020/2021 Fall	Fundamentals of Python Programming, undergraduate course.

ACADEMIC SERVICE

Jun 2025–on	AC, CCF YOCSEF (Tianjin).
Feb 2022–on	Committee Member, China Communication Association Technology Committee.

Aug 2023–on	Remote Sensing, Special Issue: "Imagery Classification and Feature Extraction Based on Hyperspectral Remote Sensing". Guest Editor.
Apr 2024–on	Remote Sensing, Special Issue: "Pattern Recognition and Image Processing for Remote Sensing IV)". Guest Editor.
Jun 2023–Nov 2024	Remote Sensing, Special Issue: "Pattern Recognition and Image Processing for Remote Sensing (3rd Edition)". Guest Editor.
Oct 2021–Jun 2023	Remote Sensing, Special Issue: "Pattern Recognition and Image Processing for Remote Sensing II". Guest Editor.

PROJECTS(PI)

Oct 2023–Oct 2025	Research on Hyperspectral unmixing under Strong Correlation. National Natural Science Foundation of Tianjin (Youth Project), Principle Investigator
Jan 2021–Dec 2023	Research on sparse unmixing for hyperspectral remote sensing images based on multi-objective optimization. National Natural Science Foundation of China (Youth Project), Principle Investigator
Mar 2020–Sep 2021	Research on Hyperspectral sparse unmixing based on multi-objective optimization. China Postdoctoral Science Foundation-MZ, Principle Investigator

JOURNAL REVIEW SERVICE

- **IEEE Transactions on Image Processing.**
- **IEEE Transactions on Geoscience and Remote Sensing.**
- **ISPRS Journal of Photogrammetry and Remote Sensing.**
- **IEEE Transactions on Neural Networks and Learning Systems.**
- **IEEE Transactions on Cybernetics.**
- **Applied Soft Computing.**
- **IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.**
- **IEEE Geoscience and Remote Sensing Letters.**
- **Remote Sensing.**
- **International Journal of Remote Sensing.**
- **Infrared Physics and Technology.**

PUBLICATIONS(fist author/corresponding author)

- 2024 **A Lightweight Transformer-Based Spatiotemporal Analysis Prediction Algorithm for High-Dimensional Meteorological Data.**
Yinghao Tan, Junfeng Wu, Yihang Liu, Shiyu Shen, Xia Xu* and Bin Pan. Remote Sensing, 16, 4545, 2024.
- 2023 **Unmixing Guided Unsupervised Network for RGB Spectral Super-Resolution.**
Qiaoying Qu, Bin Pan, Xia Xu*, Tao Li and Zhenwei Shi. IEEE Transactions on Image Processing. vol. 32, pp. 4856-4867, 2023.
- 2023 **UnDAT: Double Aware Transformer for Hyperspectral Unmixing.**
Yuexin Duan#, Xia Xu#, Bin Pan, Tao Li and Zhenwei Shi. IEEE Transactions on Geoscience and Remote Sensing, vol. 61, no. 5522012, 2023.
- 2023 **Reducing the statistical error of generative adversarial networks using space-filling sampling.**
Sumin Wang, Yuyou Gao, Yongdao Zhou, Bin Pan, Xia Xu*, Tao Li. Stat 13 (1), e655, 2023.
- 2022 **Deep Autoencoder for Hyperspectral Unmixing via Global-Local Smoothing.**
Xia Xu, Xinyu Song, Tao Li, Zhenwei Shi and Bin Pan. IEEE Transactions on Geoscience and Remote Sensing, vol. 60, no. 5524216, 2022.

- 2022 **Structure-Color Preserving Network for Hyperspectral Image Super Resolution.**
Bin Pan, Qiaoying Qu, Xia Xu*, Zhenwei Shi. IEEE Transactions on Geoscience and Remote Sensing, vol. 60, no. 5520512, 2022.
- 2022 **A Balanced Social LSTM for PM2.5 Concentration Prediction Based on Local Spatiotemporal Correlation.**
Lukui Shi, Huizhen Zhang, Xia Xu*, Ming Han, Peiliang Zuo. Chemosphere, vol. 291, no. 3, 133124, 2022.
- 2021 **SA-JSTN: Self-Attention Joint Spatiotemporal Network for Temperature Forecasting.**
Lukui Shi, Nanying Liang, Xia Xu*, Tao Li*, Zhou Zhang. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol. 14, pp. 9475-9485, 2021.
- 2021 **Simultaneously Multiobjective Sparse Unmixing and Library Pruning for Hyperspectral Imagery.**
Xia Xu, Bin Pan, Zongqing Chen, Zhenwei Shi, Tao Li. IEEE Transactions on Geoscience and Remote Sensing, 59(4): 3383-3395, 2021.
- 2021 **Aircraft Detection in Remote Sensing Images Based on Deconvolution and Position Attention.**
Lukui Shi, Zhenjie Tang, Tiantian Wang, Xia Xu*, Jing Liu and Jun Zhang. International Journal of Remote Sensing, 42(11): 4241-4260, 2021.
- 2020 **A Contextual Bidirectional Enhancement Method for Remote Sensing Image Object Detection.**
Jun Zhang, Changming Xie, Xia Xu*, Zhenwei Shi, Bin Pan. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol. 13, pp. 4518-4531, 2020.
- 2020 **DSSNet: A Simple Dilated Semantic Segmentation Network for Hyperspectral Imagery Classification.**
Bin Pan, Xia Xu*, Zhenwei Shi, Ning Zhang, Huanlin Luo, Xianchao Lan. IEEE Geoscience and Remote Sensing Letters, 17(11): 1968-1972, 2020.
- 2020 **Slice-Feature Based Deep Hashing Algorithm for Remote Sensing Image Retrieval.**
Enhui Liu, Xintong Zhang, Xia Xu*, Shiyang Fan. Infrared Physics and Technology, vol. 107, 103299, 2020.
- 2019 **Multi-Objective Based Sparse Representation Classifier for Hyperspectral Imagery Using Limited Samples.**
Bin Pan, Zhenwei Shi*, Xia Xu*. IEEE Transactions on Geoscience and Remote Sensing, 57(1): 239-249, 2019.
- 2019 **A Classification-based Model for Multi-Objective Hyperspectral Sparse Unmixing.**
Xia Xu, Zhenwei Shi, Bin Pan, Xuelong Li. IEEE Transactions on Geoscience and Remote Sensing, 57(12): 9612-9625, 2019.
- 2019 **Tropical cyclone intensity prediction based on recurrent neural networks.**
Bin Pan, Xia Xu*, Zhenwei Shi. Electronics Letters, 55 (7), 413-415, 2019.
- 2018 **L0-based Sparse Hyperspectral Unmixing using Spectral Information and a Multi-Objectives Formulation (ESI Highly Cited Paper).**
Xia Xu, Zhenwei Shi, Bin Pan. ISPRS Journal of Photogrammetry and Remote Sensing, 141, 46-58, 2018.
- 2018 **A supervised abundance estimation method for hyperspectral unmixing.**
Xia Xu, Zhenwei Shi, Bin Pan. Remote sensing letters, 9 (4), 383-392, 2018.
- 2017 **Multi-Objective based Spectral Unmixing for Hyperspectral Images (ESI Highly Cited Paper).**
Xia Xu, Zhenwei Shi. ISPRS Journal of Photogrammetry and Remote Sensing, 124: 54-69, 2017.
- 2017 **A New Unsupervised Hyperspectral Band Selection Method Based on Multiobjective Optimization.**
Xia Xu, Zhenwei Shi, Bin Pan. IEEE Geoscience and Remote Sensing Letters, 14(11): 2112-2116, 2017.