

**IEEE ICUS 2022**  
**Invited Session Summary**

**Title of Session**

Effectiveness and Security of Remote Sensing Image Intelligent Interpretation

**Name, Salutation and Affiliation of Organizers**

**1. Prof. Wen Jiang**

Northwestern Polytechnical University, China

**2. Dr. Jie Geng**

Northwestern Polytechnical University, China

**3. Dr. Xinyang Deng**

Northwestern Polytechnical University, China

**Biosketches of Organizers**



**Wen Jiang**, professor of Northwestern Polytechnical University, PhD supervisor, expert of the Naval Electronic Equipment Technology Professional Group of the Equipment Development Department, deputy director of the Key Laboratory of Aerospace Information Perception and Optoelectronic Control Ministry of Education, editorial board member of Journal of charge and control, standing member of Command and Control Network Professional Committee of China command and Control Society, member of the Cyberspace Security Professional Committee, member of the Information Fusion Branch of the Chinese Society of Aeronautics and Astronautics. Her research fields include information fusion, uncertain artificial intelligence, and intelligent algorithm security. As the project leader, she has presided over more than 20 national, provincial and ministerial projects such as the National Natural Science Foundation of China, the Military Science and Technology Commission Foundation Strengthening Sub-project, and the final assembly pre-research. As the first or corresponding author, she has published more than 70 SCI papers, of which 20 have been selected as ESI highly cited papers or hot papers, has published 3 academic monographs. She is selected as Clarivate Analytics "Global Highly Cited Scientist" in 2020 and 2021.



**Jie Geng** is an associate professor at Northwestern Polytechnical University, and member of CICC youth committee. He has long been devoted to teaching and research in the fields of SAR microwave remote sensing, artificial intelligence, and multi-source information fusion. He published more than 30 papers, including in IEEE Transactions on Geoscience and Remote Sensing, ISPRS Journal of Photogrammetry and Remote Sensing, IEEE Transactions on Circuits and Systems for Video Technology, Automatica and so on. He was authorized more than 5 invention patents. He has presided over or participated in more than 10 scientific research projects, such as national natural science foundation of china, national key research and development program, equipment pre-research project, Shaanxi key industry innovation chain project and so on.



**Xinyang Deng** is an associate professor at Northwestern Polytechnical University, and member of CICC youth committee. His research fields include multi-source information fusion, uncertain information processing, and intelligent algorithm security. He published 3 academic monographs, published more than 80 papers, and was authorized more than 10 invention patents. He has presided over nearly ten research projects.

### **Details of Session**

With the rapid development of artificial intelligence technology, deep learning based intelligence algorithms have been widely developed in remote sensing interpretation tasks, which have been an important method for remote sensing image interpretation. In actual remote sensing scenes, remote sensing images present characteristics such as complex background, dense targets, large broad scene, and limited manual annotation samples, which bring great challenges for intelligent interpretation of remote sensing images. Models including few-shot classification, dense target detection and large scene target recognition have been studied to improve the effectiveness of remote sensing image interpretation in complex scenes. At the same time, considering the black-box characteristics of deep neural network, the interpretation and reliability of deep interpretation models for remote sensing images are insufficient. Artificial intelligence models are vulnerable to security threats such as anti-sample attack, data poisoning attack and reverse attack. The

interpretation and reliability of deep models for remote sensing images should be studied to improve the credibility, reliability and security of intelligent interpretation algorithms for remote sensing in actual scenes.

The invited session invites original papers of innovative ideas and concepts, new discoveries and improvements, and novel applications relevant to the following selected topics of “Effectiveness and Security of Remote Sensing Image Intelligent Interpretation”.

- Remote Sensing Image Intelligent Interpretation
- Remote Sensing Image Classification
- Remote Sensing Image Target Detection
- Remote Sensing Image Change Detection
- Multi-Source Remote Sensing Image Fusion
- Attack and Defense for Remote Sensing Image Intelligent Interpretation
- Interpretability for Remote Sensing Image Intelligent Interpretation