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Classification Methods for Remotely Sensed Data, Third Edition

Taskin Kavzoglu, Brandt Tso, Paul M. Mather

The third edition of the bestselling Classification Methods for Remotely Sensed Data covers current state-of-the-art machine learning algorithms and developments in the analysis of remotely sensed data. It is thoroughly updated to meet the needs of readers today and provides six new chapters on deep learning, feature extraction and selection, multisource image fusion, hyperparameter optimization, accuracy assessment with model explainability and object-based image analysis, which is relatively a new paradigm in image processing and classification. It presents new AI-based analysis tools and metrics together with ongoing debates on accuracy assessment strategies and XAI methods.

New in this edition:

- Provides comprehensive background on the theory of deep learning and its application to remote sensing data.
- Includes a chapter on hyperparameter optimization techniques to guarantee the highest performance in classification applications.
- Outlines the latest strategies and accuracy measures in accuracy assessment and summarizes accuracy metrics and assessment strategies.
- Discusses the methods used for explaining inherent structures and weighing the features of ML and AI algorithms that are critical for explaining the robustness of the models

Professor Taskin Kavzoglu is a senior researcher in remote sensing with more than 25 years of research experience in Earth observation/remote sensing. He has published more than 150 papers in peer-reviewed journals and international conference proceedings. He is a professor at Gebze Technical University, Turkey and a member of Turkish Academy of Sciences. He was awarded an ESRI project award in 2019 and best paper award by American Society for Photogrammetry and Remote Sensing (ASPRS) in 2020. He currently serves on the editorial boards of several international journals.

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