

Evaluating Classification with Efficacy Metrics

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Abstract : The values of image classification accuracy are affected by class size distributions and classification schemes, making it difficult to compare the performance of classification algorithms across different remote sensing data sources and classification systems. Based on the term efficacy from medicine and pharmacology, we have developed the metrics of image classification efficacy at the map and class levels. The novelty of this approach is that a baseline classification is involved in computing image classification efficacies so that the effects of class statistics are reduced. Furthermore, the image classification efficacies are interpretable and comparable, and thus, strengthen the assessment of image data classification methods. We use real-world and hypothetical examples to explain the use of image classification efficacies. The metrics of image classification efficacy meet the critical need to rectify the strategy for the assessment of image classification performance as image classification methods are becoming more diversified.

Keywords : accuracy assessment, efficacy, image classification, machine learning, uncertainty

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