

## Statistical Invariants for Classification on Tiny Datasets

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**Abstract :** We investigate the influence of statistical invariants for classification problems on tiny datasets. A review of the current state-of-the-art methods for classification is presented, with a brief discussion of the differences and trade-offs between the proposed method and existing classifiers. Subsequently, the philosophical and mathematical foundations of the statistical theory of learning are laid out, incorporating the recent addition of statistical invariants. We show algorithmic implementations for binary, multiclass, and multilabel classification alongside technical details and recommendations for practitioners. Evidence of the efficacy of the proposed algorithm is demonstrated through comparative studies against state-of-the-art AutoML frameworks on a benchmark suite.

**Keywords :** learning, tinyml, invariants, supervised

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