## A class of robust non-convex loss functions for discriminant analysis

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## Abstract

For two-group discriminant analysis, we propose a class of non-convex loss functions. These non-convex loss functions are deformed from convex *U*-loss. This deformation consists of two key components: one is a diminishing weight, which can lessen and eventually reject outlier effect in pattern (or derived feature) space, and the other is a mislabel correction. Parameter estimation consistency and Bayes risk consistency will be discussed. This class of non-convex loss functions can be applied to SVM. Experimental examples will be presented.

(Based on joint work with Chia-Hsiang Yu and Shinto Eguchi)