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The Mutual Subspace Method - Canonical Correlation

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Abstract

The Mutual Subspace Method is an extension of the Subspace Method, in which canonical angles (principal angles) are used to define similarity between patterns (or a set of patterns). The method is applied to face recognition and character recognition in Toshiba Corporation.

The mathematical foundation of a series of the Subspace Methods are presented by Hotelling, Karhunen and Loeve. Karhunen-Loeve eigenvalue method is a well-known approach to form a subspace that approximates a distribution of patterns, and it was introduced as a tool of pattern recognition by Iijima and Watanabe.