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DETECTION OF STRUCTURAL CHANGES THROUGH PRINCIPAL COMPONENT ANALYSIS AND MULTIVARIATE STATISTICAL INFERENCE

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Summary: This paper is focused on the development of a damage detection indicator that combines a data driven baseline model (reference pattern obtained from the healthy structure) based on principal component analysis (PCA) and multivariate hypothesis testing. More precisely, a test for the plausibility of a value for a normal population mean vector is performed. The results indicate that the test is able to accurately classify random samples as healthy or not.