

IDENTIFYING THE OUT OF CONTROL VARIABLE IN A MULTIVARIATE CONTROL CHART

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ABSTRACT

The identification of the out of control variable, or variables, after a multivariate control chart signals, is an appealing subject for many researchers in the last years. In this paper we propose a new method for approaching this problem based on principal components analysis. Theoretical control limits are derived and a detailed investigation of the properties and the limitations of the new method is given. A graphical technique which can be applied in some of these limiting situations is also provided.

Key Words: Multivariate analysis; Multivariate control charts; Ratio of normals; Principal components; Cusum; Statistical Process Control