



Stochastic Models of Multivariate Statistical Process Control for Non-Industrial Processes

Sotiris Bersimis

University of Piraeus, Piraeus, Greece – sbersim@unipi.gr

Statistical process control (SPC) was initially used to secure, that the quality of the final product, produced by an industrial process, will conform to standards. SPC aims to identify the presence of possible assignable causes in a process. Usually SPC is applied to a characteristic related to the product or the process. However, there are many situations in which the simultaneous monitoring or control of two or more related product or process characteristics is necessary. Techniques for monitoring processes in which several related variables are of interest are collectively known as multivariate statistical process control (MSPC). Woodall and Montgomery (1999) stated that MSPC is one of the most rapidly developing areas of SPC while Bersimis et al. (2007) gave an extensive literature review of MSPC. Open problems in the field of MSPC are related to non-parametric procedures, interpretation of out-of-control signals, autocorrelation, etc. Nowadays the use of MSPC techniques is not restricted in monitoring industrial processes but is efficiently generalized in order to be used in many other fields (e.g. Public-Health, Environmental, Financial monitoring, etc). In this presentation, we focus on presenting some advanced stochastic models of MSPC for non-industrial processes.

Keywords: Statistical Process Control; Statistical Process Monitoring; Multivariate Statistical Process Monitoring; MSPC for Non-Industrial Processes.