## Multivariate Statistical Process Monitoring of Base Metal Flotation Plant Using Dissimilarity Scale-Based Singular Spectrum Analysis

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**Abstract :** A multivariate statistical process monitoring methodology using dissimilarity scale-based singular spectrum analysis (SSA) is proposed for the detection and diagnosis of process faults in the base metal flotation plant. Process faults are detected based on the multi-level decomposition of process signals by SSA using the dissimilarity structure of the process data and the subsequent monitoring of the multiscale signals using the unified monitoring index which combines  $T^2$  with SPE. Contribution plots are used to identify the root causes of the process faults. The overall results indicated that the proposed technique outperformed the conventional multivariate techniques in the detection and diagnosis of the process faults in the flotation plant.

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**Keywords :** fault detection, fault diagnosis, process monitoring, dissimilarity scale **Conference Title :** ICCSS 2018 : International Conference on Control System Simulation **Conference Location :** Singapore, Singapore **Conference Dates :** March 22-23, 2018