

Fault detection in continuous chemical processes: An approach based on ensemble learning and Bayesian inference

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Fault detection is crucial in any chemical industry since faults may cause safety, environmental, production and quality losses. This task is still a challenge nowadays, given the several fault types and magnitudes. Since no single technique can fully describe all, combining a set of them is an alternative solution towards more efficient fault detection systems. This work investigates the joint use of PCA, the main tool used in fault detection, with Kernel PCA and Dynamic PCA, through a Bayesian approach. Ensemble strategies may expand the range of faults to be detected. The case study refers to the Tennessee benchmark problem.