

Consistency of a range of penalised cost approaches for detecting multiple changepoints

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Abstract: A common approach to detect multiple changepoints is to minimise a measure of data fit plus a penalty that is linear in the number of changepoints. In this talk, we show that the general finite sample behaviour of such a method can be related to its behaviour when analysing data with either none or one changepoint. This results in simpler conditions for verifying whether the method will consistently estimate the number and locations of the changepoints. We apply and demonstrate the usefulness of this result for a range of changepoint problems. Our new results include a weaker condition on the choice of penalty required to have consistency in a change-in-slope model; and the first results for the accuracy of recently-proposed methods for detecting spikes.