On Neighbourhood Cross Validation

A seminar by Simon Wood

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Tuesday 12 Mar 2024 | 2.30 p.m.
Room Benvenuti
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Cross validation comes in many varieties, but some of the more interesting flavours require multiple model fits with consequently high cost. This talk shows how the high cost can be side-stepped for a wide range of models estimated using a quadratically penalized smooth loss, with rather low approximation error. Once the computational cost has the same leading order as a single model fit, it becomes feasible to efficiently optimize the chosen cross-validation criterion with respect to multiple smoothing/precision parameters. Interesting applications include cross-validating smooth additive quantile regression models, and the use of leave-out-neighbourhood cross validation for dealing with nuisance short range autocorrelation. The link between cross validation and the jackknife can be exploited to obtain reasonably well calibrated uncertainty quantification in these case.

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