

The installation of smart meters for electricity consumption monitoring is common practice in many countries. Such meters usually provide information for the temporal variation of electricity consumption-related parameters, at an aggregated (household) level. In some cases, such meters may monitor individual appliances, or appliance groups installed in household departments. In the current study, a Computational Intelligence approach is used to analyse and model appliance group electricity consumption and to investigate the best possible computational approaches for improving consumption model performance. For this purpose, meta-features are used, a new feature prioritization method is introduced and a set of selected algorithms is employed. Results indicate an improvement in modelling capacity and an ability to construct models that effectively perform partial electricity consumption disaggregation. Overall, such methods may be used for the support of household electricity consumption modelling and for related demand management.