Machine Learning Approaches for the Estimation of Biological Aging: The Road Ahead for Population Studies

* Not using DNA information
* Deep learning on blood sample
* Brain : NxN similarity matrix of normalized gray and white matter images
* Gaussian Process Regressions/CNN
* Not suitable (review paper, less detail on the model use)

Machine Learning-Based DNA Methylation Score for Fetal Exposure to Maternal Smoking: Development and Validation in Samples Collected from Adolescents and Adults

* Data sets : The Raine Study / The Northern Finland Birth Cohort 1986 (NFBC1986) / The Northern Finland Birth Cohort (NFBC1966)
* Models : gradient boosting machine / elastic net regression / random forest / SVM / C5.0 / Classification with Bagging / linear discriminant analysis / naive Bayes classifier / logistic regression / classification and regression trees
* Preprocessing : Selection model
* Detail of each Method
* Imbalance data : minority oversampling technique
* Suitable, enough detail, many model studies could be extended

A machine learning approach to brain epigenetic analysis reveals kinases associated　with Alzheimer’s disease

* Brain epigenetic, testing if a site related with a particular diseases
* EWASplus testing more CpG cites
* ensemble learning strategy including regularized logistic regression (RLR), support vector machine (SVM) classifier, random forest (RF), and gradient boosting decision trees (GBDT)