Regularization and penalization techniques and local modelling

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(I). Multiple linear regression: regularization and penalization methods

* least squares regression and Ridge regression
* regularization and penalization techniques

(II). Flexible mean regression: regularization and penalizations methods

* penalized likelihood regression for generalized linear models
* additive regression models and penalization techniques
* varying coefficient models and penalization techniques
* grouped regularization methods.

(III). Regularization and penalizations methods in mean and dispersion regression

* mean and dispersion estimation and P-splines approximations
* mean and dispersion estimation in a framework of proper dispersion models.

(IV). Nonparametric mean regression using local polynomial fitting

* from parametric polynomial regression to local polynomial regression
* asymptotic properties of local polynomial regression
* selection of procedure parameters

(V). Local likelihood methods and nonparametric logistic regression

(VI). Elements of nonparametric inference for functional data analysis.