Grouping Pursuit

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Extracting grouping structure or homogenous subgroups of predictors is crucial for high-dimensional data analysis. A low-dimensional structure in particular--groupings, when captured in a regression model, enable to enhance predictive performance and facilitate a model's interpretability. In this talk, we will present a novel homotopy method for grouping pursuit through regularization involving a piecewise linear penalty. This nonconvex and overcomplete penalty permits nearly unbiased estimation for prediction, which is treated with proposed grouped subdifferentials, a difference convex decomposition and adaptive tuning for efficient computation. Some numerical and theoretical results will be presented. This work is joint with Hsin-Cheng Huang.