



**26**  
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🕒 de 12h15 à 13h30

## SÉMINAIRE

# Joint estimation of $K$ related regression models with simple L1-norm penalties

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We propose a new approach, along with refinements, based on L1 penalties and aimed at jointly estimating several related regression models. It is especially useful in epidemiology and clinical research when data come from several strata of a population. The main interest of our approach is that it can be rewritten as a weighted lasso on a simple transformation of the original data set. In particular, it does not need new dedicated algorithms and is ready to implement under a variety of regression models, e.g. linear or logistic models using standard R packages. Moreover, asymptotic oracle properties are derived along with preliminary non-asymptotic results, suggesting good theoretical properties. Our approach is further compared with state-of-the-art competitors under various settings on synthetic data: these empirical results confirm that our approach performs at least similarly to its competitors. As a final illustration, an analysis of road safety data is provided.