Unit of Biostatistics, Epidemiology and Public Health organized a
Journal Club entitled:
"(Tutorial) DoubleML - A state-of-the-art framework for double machine learning in Python and R"

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Abstract:

The Python and R packages DoubleML implement the double/debiased machine learning framework of Chernozhukov et al. (2018) for causal machine learning. This talk serves as an introduction to the double machine learning framework and as a tutorial for the implementation in Python and R. The double machine learning framework consists of three key ingredients: Neyman orthogonality, high-quality machine learning estimation and sample splitting. In DoubleML, estimation of nuisance components can be performed by various state-of-the-art machine learning methods that are available in the mlr3 ecosystem for R and scikit-learn for Python, respectively. The package allows users to perform inference in a variety of causal models, including partially linear and interactive regression models and their extensions to instrumental variable estimation. The object-oriented implementation of DoubleML enables a high flexibility for the model specification and makes it easily extendable. We demonstrate how users of DoubleML can perform valid inference based on machine learning methods in code examples with simulated and real data. Moreover, we offer an outlook on current and future extensions of the package, including for example quantile treatment effects and conditional average treatment effects

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