

Please join the Biometric Colloquium

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ISOTONIC SUBGROUP SELECTION

February 12th, 2025 at 9:00am

Schulungsraum Center for Medical Data Science (previously CeMSIS),
Spitalgasse 23, Room 88.03.512
Medical University of Vienna, 1090 Wien
Host: Martin Posch and Franz König

Abstract:

Given a sample of covariate-response pairs, we consider the subgroup selection problem of identifying a subset of the covariate domain where the regression function exceeds a pre-determined threshold. We introduce a computationally-feasible approach for subgroup selection in the context of multivariate isotonic regression based on martingale tests and multiple testing procedures for logically-structured hypotheses. Our proposed procedure satisfies a non-asymptotic, uniform Type I error rate guarantee with power that attains the minimax optimal rate up to poly-logarithmic factors. Extensions cover classification, isotonic quantile regression and heterogeneous treatment effect settings. Numerical studies on both simulated and real data confirm the practical effectiveness of our proposal, which is implemented in the R package ISS.

Link to paper:
<https://arxiv.org/pdf/2305.04852>