



Open the Hood: A Hands-On Workshop in Interpretable ML

Jointly organized by the PopStats Lab & the R Peer Mentoring Group

Machine learning models are powerful tools for prediction and analysis, but they are often criticized for being “black boxes.” Interpretable Machine Learning (IML) aims to provide methods to open these boxes and thereby make model results transparent, trustworthy, and useful for applied research. By understanding how predictions are generated, researchers can not only evaluate their models more effectively but also communicate results more convincingly to stakeholders.

In this workshop, led by [Dr. Susanne Dandl](#) and [PD Dr. Rudolf Debelak](#), participants will gain a hands-on introduction to the foundations of machine learning and practical tools for interpretability using R. Emphasis will be placed on intuitive understanding, interactive coding, and direct applications to psychology-related datasets.

Program

27. November (Room: KO2-D-54)

13:00 – 13:15	Welcome & Introduction
13:15 – 14:15	Foundations of Machine Learning for IML • Non-technical overview of ML concepts • Prediction tasks, workflows, and evaluation basics • Minimal introduction to algorithms (logistic regression as baseline)
14:15 – 15:00	Hands-On I: Training Models in R • Training models with IML packages (e.g., mlr3) • Basics of hyperparameter tuning • Applying models to a psychology-related dataset • Interactive coding walkthrough
<i>Coffee break</i>	
15:15 – 16:15	Hands-On II: Interpretable Machine Learning • Introduction to IML approaches: benefits & pitfalls • Using mlr3 add-ons and IML packages to explain predictions • Exercises: Feature importance, partial dependence plots, local explanations
16:15 – 17:00	Wrap-Up & Next Steps
17:00 – open end	<i>Apéro & networking</i>

Preparation

This workshop includes practical exercises. So, please bring your own laptop with a working installation of R and R-Studio and have the R-package *mlr3* installed prior to the workshop. If you have any questions or need additional information, do not hesitate to send an email to lukas.eggenberger@bli.uzh.ch.

Looking forward to seeing many of you there and sending our best wishes,
Andrea, Christine, Clarissa, Michelle, and Lukas