Bayesian Workflow illustrated using BRMS

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Course description

A Bayesian workflow consists of:

- Exploratory data analysis to aid model specification

- Prior predictive distribution checking (using simulated data)

- Checking model fits

- Posterior predictive checks

- Model comparison

We present each of these activities in turn and show how to operationalize them using BRMS and other R packages from the Stan ecosystem. The BRMS package provides a high-level syntax for specifying a wide range of hierarchical and other multi-level regression models in Stan. With BRMS, we can focus on the task of model criticism and comparison, instead of the task of Stan programming. Whenever possible, we will also show how to do these checks using Python packages CmdStanPy and ArviZ.

Course length: 1/2 day