

Project Proposal

Joe Despres

(1) project title

Probabilistic Programming

(2) team members

Given my past experiences with group projects, I'd much prefer to do this on my own.

(3) description of the problem you try to address

Let me know if this is not appropriate

Using the wine dataset, given chemical components of wine predict the judges score. I am using this as a toy data set, so it may change. Use Stan to fit hierarchical regression models, and perhaps even generate additional samples.

(4) preliminary plan (milestones)

- Set up the project and conduct exploratory analysis
- Establish some benchmarks with GLMs
- Get familiar with some of the basic Stan syntax
- Out-perform GLMs with Bayesian Regression, Hierarchical Models and re-sampling techniques
- Determine how robust the results with deliberate unrepresentative sampling and gauge the sensitivity to changes in conditions

(5) paper list

- Bayesian Workflow
- A Conceptual Introduction to Hamiltonian Monte Carlo
- Stan A Probabilistic Programming Language
- Statistical Rethinking (book)
- Bayesian Methods for Hackers (book)