Building an interface between probabilistic programming languages and lumen

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23. August 2018

Zusammenfassung

(1) grober Fahrplan

- read related material:
  - understand what Probabilistic Programming Languages (PPLs) are
  - understand main idea of Lumen and what we want to do with it
  - understand and formulate "why & what"
- choose a PPL
  - work out requirements to chose PPL
  - work out preferred (but not necessarily required) features
  - chose a PPL based on these requirements and preferences
- get started with PPL
  - play around, learn how to use it, what it can do, etc also confirm identified 'pain point', i.e. understand and formulate what problem you are trying to solve, why this is relevant and outline how you plan to solve that pain point
- design a wrapper of chose PPL for Backend of Lumen
- give presentation about work so far, its justification, relevance, verification ideas, etc etc
- implement and test wrapper
- evaluate implementation in terms of goals set in beginning

(2) interessante PPLs:

- stan for python: https://pystan.readthedocs.io/en/latest/
- pymc3: https://docs.pymc.io/notebooks/getting_started.html#Case-study-2:-Coal-mining-disasters

- edward: http://edwardlib.org/getting-started
- pyro: http://pyro.ai/

Wegen eines Arbeitsplatzes und eines PCs erkundigen wir uns. Als Anmelde und Starttermin für Deine MA halten wir Mitte September (Mo, 17. September) im Auge.

1 What are Probabilistic Programming Languages

Modelle spezifizieren/beschreiben
[1]

2 Description of existing PPLs

2.1 Stan for python

2.2 Pymc3

python library
fit Bayesian models, including Markov Chai Monte Carlo (MCMC) and variatinal inference (VI)

2.3 Edward

2.4 Pyro

3 Lumen

4 Literatur

Literatur

[1] Wikipedia contributors, "Probabilistic programming language — Wikipedia, the free encyclopedia," 2018. [Online; accessed 23-August-2018].