ALPhA Week 15 Presentation

PHY 496

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Summary

- Implemented step size and leapfrog adaptation
  - Implemented parallel processing on the search aspect of this algorithm
- Implemented click into this system
- Started final cleaning of this code

Step size/leapfrog adaptation

► Assumes some max/min values

► Run m steps of HMC, calculate average value of expected square jumping distance divided by the square root of number of leapfrog steps

► Calculate covariance matrix of all step size/leapfrog combinations

► Calculate scale factor of a constant alpha divided by max ESJD value

► Randomly decide whether to update step size/leapfrog

  ► This probability goes down over time

► Use Bayes rule to calculate a posterior for the full loss functions using the covariance matrix and the calculated ESJDs

► Calculate maximum of a variant on the upper confidence bound for this distribution

  ► This is done through iterating over all possible combinations of step size and leapfrog steps

  ► I have written code to do a bunch of these in parallel

Goals for next week

- Analyze output of the network currently being trained
- Get all the code written for this project fully cleaned up and documented.
- Present at the Verna Case symposium