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**Subject:** For the experiments  
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**To:** Frank van der Meulen - EWI F.H.vanderMeulen@tudelft.nl

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Hi Frank,

from our discussion yesterday:

Plan for experiments (what we wrote on the whiteboard):

- 1) single bridges like what you have now but with different shapes. I have attached an example, see below.
- 2) Redo of FoCM paper experiments but with more landmarks and larger number of noise fields
- 3) estimate mean configuration and kernel + noise parameters with momentum fixed to 0 for corpus callosum + heart data
- 4) fluid example

I have attached some data files. I couldn't find the preferred Julia datatype, so I saved them in numpy .npz format. I think Julia can read them, otherwise let me know.

First file cc.npz has the corpus callosum data, second file cardiac.npz has the heart data (left ventricles, the one we used in <https://arxiv.org/abs/1705.10943>, there is a reference to the data in the paper). Both these can be used for experiment 3)

For 1), the last file contains an ellipse ( $q_0$ ), a corpus callosum shape ( $v$ ) and the momentum ( $p$ ) so that forward integrating with initial conditions ( $q_0, p$ ) in the deterministic setting gives  $v$ . The kernel width is  $\sigma = 0.25$  (Gaussian kernel).

I have attached the notebook for producing the data as well (it uses some of the Theano Geometry code to run, works if the theano geometry repo is checked out)

I hope I got the right setup. Please let me know if not. I can easily change it.

Hope you are enjoying the weekend!

Stefan

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