

Assignment 1

Theoretical Neuroscience

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1 Essay questions

Please choose 2 out of 3 of the following questions. You are expected to answer in 1/2 to 3/4 of a page for each of them. These are open questions with no definite answer, just argue based on your knowledge and reading.

1. It is currently very popular to derive models and theories of neural function by appeal to optimality principles. How far do you think this is likely to be justifiable?
2. Discuss the interaction between nature and nurture in the construction of the brain in the light of its overwhelming complexity.
3. In using computational models to understand the brain, what kind of evidence can we gather from simulations such as the 'Blue Brain' project (<http://bluebrain.epfl.ch/> if you haven't come across it).