



UNIVERSITY OF  
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# Stabilizing the Unstable Brain

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## Abstract

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The nervous system may be the most sophisticated control system in the known universe, riding at the helm of an equally sophisticated plant. Understanding how the nervous system encodes and processes sensory information, and then computes motor action, therefore, involves understanding a closed loop. However it is often necessary to "isolate" all or part of the nervous system to study it. But there is no guarantee that the brain is "open-loop stable" and in fact there is good reason to believe that it is not. Here we discuss two problems in which we first close a feedback loop around the brain, and then take steps to perform system identification of the stabilized brain in order to understand its computations.

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