The Biomedical Engineering Program

University of Nevada, Reno

cordially invites you to a PhD proposal colloquium

Simulation Tools for Neuromorphic Hardware and Neural Models of The Basal Ganglia

A colloquia submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy
with a major in Biomedical Engineering.

by

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Abstract:

   The computational neuroscience landscape has notably shifted as general high-performance computing (HPC) has become more readily available to researchers. This movement represents an increasing interest in exploring neural models of larger scale and complexity. Additionally, hardware specific to neural modeling is experiencing a renaissance in projects such as DARPA SyNAPSE. These neuromorphic architectures promise higher performance at levels of power consumption that are far lower than their general purpose HPC counterparts. There is however, a lack of tools aimed at exploring models that are appropriate for neuromorphic hardware. In addition, the current tool chains have fallen behind the HPC trends; specifically distributed General-Purpose Graphical Processing Unit (GPGPU) clusters. The first subject of this colloquium is the generation of tools to fill these needs as well as support the efforts of the DARPA SyNAPSE team members. The second subject of this talk is focused on exploiting these tools to explore biologically realistic models of action-selection and reinforcement-learning in the basal ganglia.

12:00 pm, Wednesday, April 25, 2012

Joe Crowley Student Union (JCSU) room 324

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