NEUROSCIENCE GATEWAY PORTAL

Making Computational Models More Accessible

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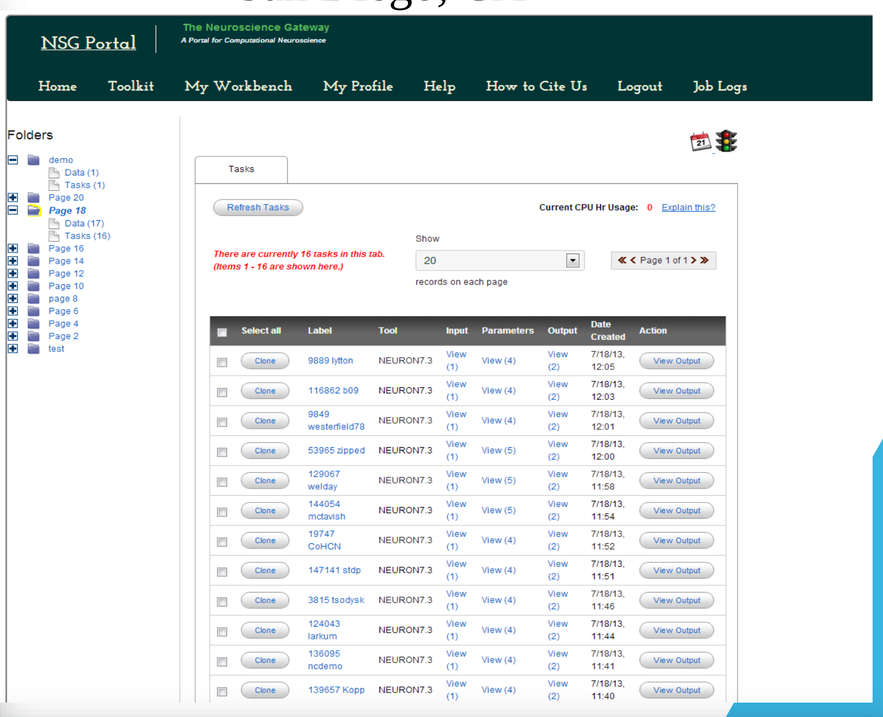
Introduction

Currently, Neuroscientists wishing to view data of computational model may not be able to do so. This may be due to a lack of access to a powerful computer that can handle the demand of a heavy computational model. In order for scientists to more easily access this data, the NSG project will provide outputs of these computational models for the scientists without the burden of computing them themselves, or getting access to a high powered machine which can do so. The models were run via the NSG Portal through the trestles supercomputer.

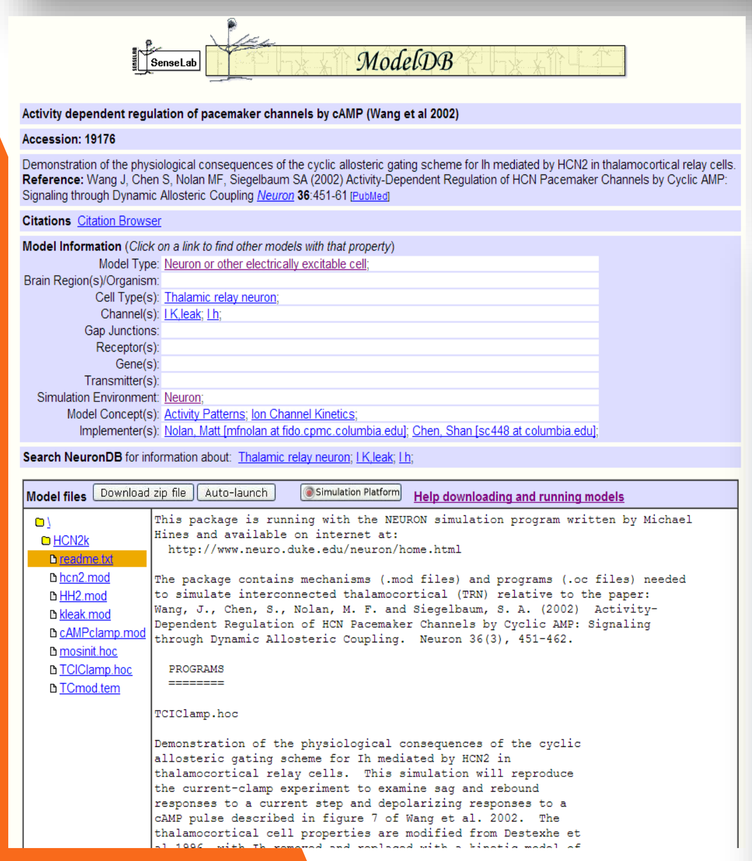


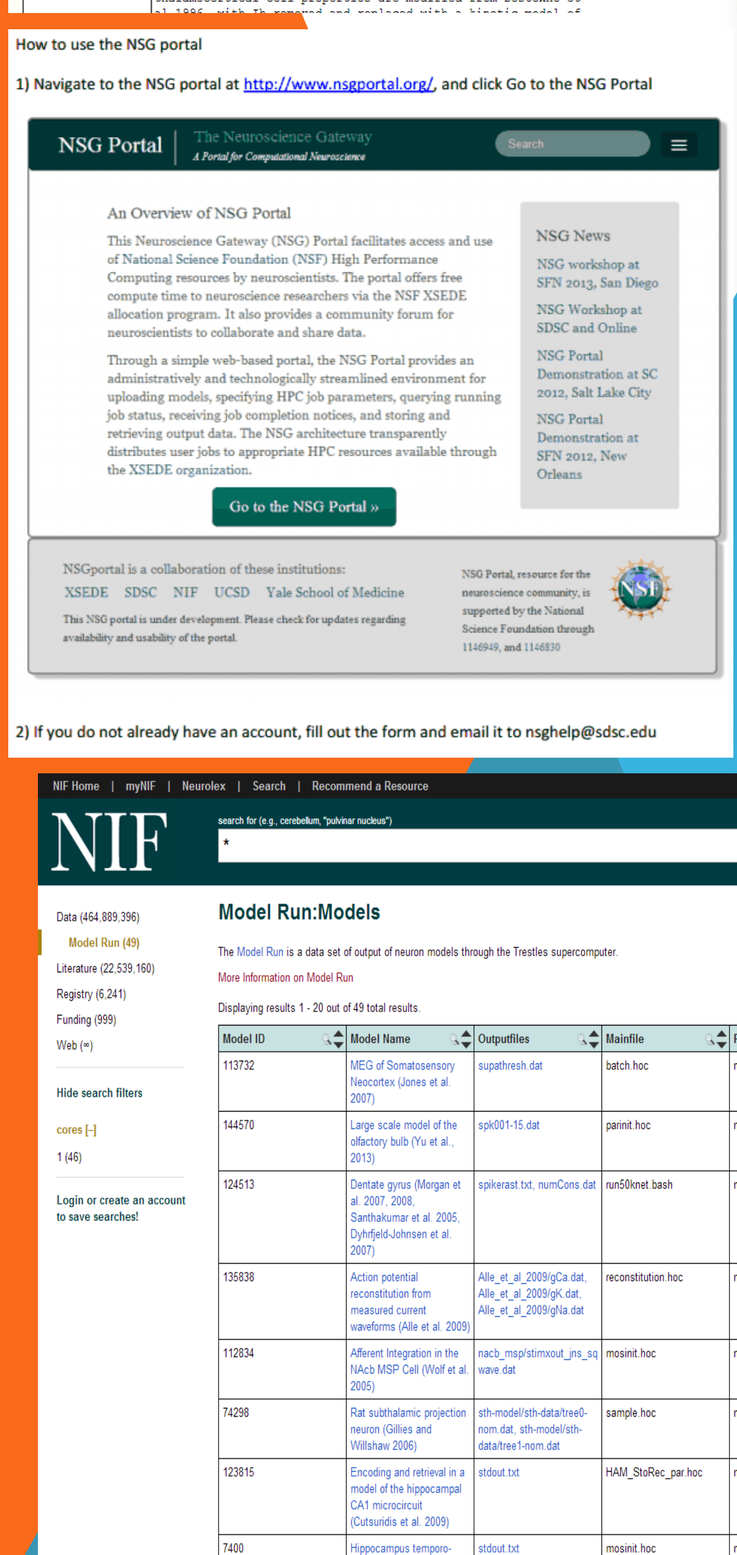
Methods

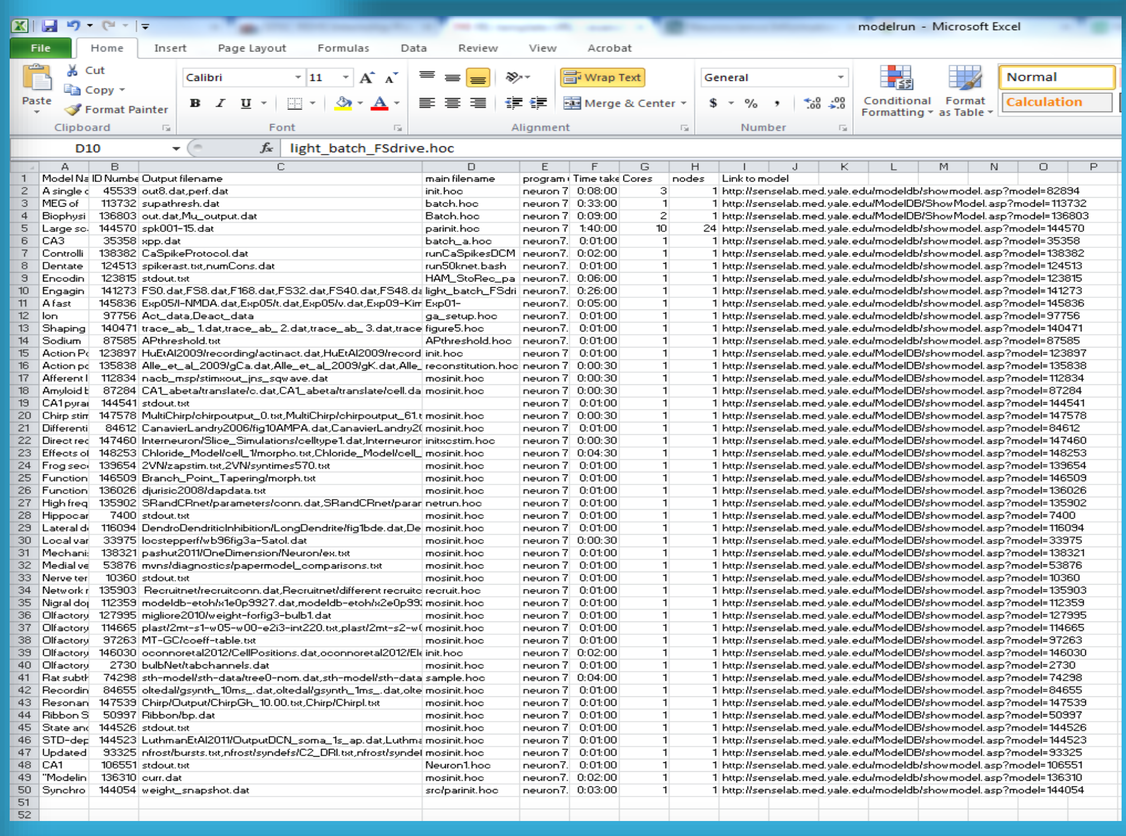
In this project, the NSG Portal was utilized as an easier way to run models through the Trestles Supercomputer. Instead of writing a PBS script for each model, the NSG portal allowed us to run the models by simply uploading data and setting a few parameters.

Story

Before using the NSG portal, we were introduced to UNIX, and became familiar with all the complex processes that came with running jobs via the supercomputer. However, we used the NSG Portal to run all of our models due to its vast efficiency compared to running them by hand. After running nearly 400 models, we compiled the data into an excel spreadsheet. To upload this data onto the NIF website, an interop script took our spreadsheet and moved the data to the NIF database. After uploading our data to the NIF webpage, we created a user guide to document the process of running models through the NSG Portal.







Abstract

The object of the NSG Project is to make data from computational models more accessible for neuroscientists to view and use. The data from these models are time consuming to produce, especially to those without access to a computer powerful enough to process large tasks efficiently. These models were obtained from Model DB, and ran via the NSG Portal through the trestles supercomputer. Overall, we were able to expand both the NSG Portal and NIF Database during the course of this project. From the data we collected from running the models, we created a spreadsheet that was uploaded on to the NIF webpage, making data accessible to the public, thereby expanding the NIF Database. From the experience we gathered running all the models, we created a user guide detailing the process of running models via NSG, improving the NSG Portal.

Conclusion

Many scientists lack the machines to run computational models due to their high demand of processing power. The NSG project has allowed us to utilize the Trestles supercomputer to quickly and efficiently run models. The outputs were made easily accessible to scientists via the NIF webpage; nearly four hundred models from the Model DB website are now accessible, and hopefully, this project will continue as more and more models will be added and made available to the public.

Awknowledgements

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