

March 2nd-4th 2015, EITN Paris
1st community workshop HBP network simulator

“Are we building the right thing? – Requirements from theory for simulation environments and neuromorphic computing”

<http://www.eitn.org>

Organizers: Andrew Davison, Jeff Muller, Jochen Eppler, David Lester, Abigail Morrison and Markus Diesmann

Abstract

The HBP creates novel ICT infrastructure for the neuroscience community. Simulation engines in software and hardware for different levels of description are accessible through a unified collaboration portal (UP) providing version control and provenance tracking. The simulation engine for networks of abstract spiking neuron models called the network simulator provided by the software NEST particularly targets theoretical neuroscience and neurorobotics. This workshop presents the capabilities of the network simulator and the corresponding PyNN expressions as available at the end of the ramp-up phase of the HBP in March 2016. Neuromorphic hardware provided by the NM-PM1 (Heidelberg) and SpiNNaker (Manchester) systems enable the translation of a restricted set of software models to a platform with accelerated speed and reduced power consumption for high-throughput studies and interaction with the real world. With this background, the main part of the workshop is reserved for a discussion of the scientific challenges and plans of theoretical neuroscience to derive future requirements on the simulation engine. This will help developers to optimize the roadmap of the second phase of the HBP with the aim to maximize usefulness, uptake, and impact.

Day 1 – Monday, March 2 nd		
19.00 – 21.00	dinner	
Day 2 – Tuesday, March 3 rd		
9.00 – 9.15	introduction	M Diesmann
9.15 – 9.45 (25+5)	simulation analysis cycle; provenance tracking and version control, using the UP	J Muller
9.45 – 10 25 (35+5)	capabilities of network simulator and access from PyNN at end of ramp-up phase	A Davison, M Diesmann, JM Eppler
<i>coffee break</i>		
10.55 –11.20 (20+5)	capabilities of SpiNNaker at end of ramp-up phase	D Lester
11.20 – 11:45 (20+5)	capabilities of NM-PM1 (Heidelberg) at end of ramp-up phase	E Mueller
<i>coffee break</i>		
12.00 – 13.30	invited 10 minute short presentations of requirements of theory groups derived from future research plans	chair: A Morrison
<i>lunch</i>		
14.30 – 15.00	spontaneous presentation of requirements by theory audience	chair: A Davison
15.00 – 17.00	structured discussion to understand requirements and priorities	chair: M Diesmann
<i>coffee and discussion</i>		
17.30 – 19.00	structured discussion continued	
19.00 – 21.00	dinner and get-together	
Day 3 – Wednesday, March 4 th		
9.00 – 10.00	overnight feedback to community	HE Plesser, D Lester, E Mueller
10.00 – 12.30	consolidation of requirements and development of perspectives (drafting of perspectives document)	chair: D Lester
12.30 – 12.45	concluding remarks	