Building and sharing models of the cortex
May 14th-16th 2014
Alghero, Sardinia

Art work by Matteo Farinella
http://www.opensourcebrain.org
OSB meeting Organization and funding

Organising committee: **Padraig Gleeson**, Boris Marin, Eugenio Piasini, Sharon Crook, Angus Silver

Local organisers: **Sergio Solinas**, Irene Solinas

Symposium: Oscillation and resonance in CNS network loops

Funding:
Making models more transparent and accessible with NeuroML2/LEMS

Angus Silver

OSB2014 - Sardinia

http://www.opensourcebrain.org
How to make computational neuroscience a more accepted scientific approach?

**Reproducibility**: easy to rerun and validate simulation result reported in a scientific paper.

**Accessibility**: available to theoretical and experimental neuroscientists in an understandable format.

**Portability**: cross-simulator validation and exchange of models and components enabling reuse.

**Transparency**: exposure of internal properties and automated validation.
Neuroinformatics infrastructure

NeuroML
A simulator-independent language for describing and exchanging detailed neuronal and network models

LEMS
Compact and flexible model description language that underlies NeuroML 2

The Open Source Brain Initiative
Accessible repository of standardized models and infrastructure for collaborative, open source model development
The Open Source Brain repository

Modelling the brain, together

Open Source Brain is a resource for sharing and collaboratively developing computational models of neural systems.

Explore OSB  Sign up
Current model development life-cycle

1. Experiment
2. Implement the model and tune it
   - Clean up
   - Publish

$t$ (years)
Current model development life-cycle

1. Experiment
   - Implement the model and tune it
   - Clean up
   - Publish
     - Update local copy of the model
     - Independent changes
     - Start from scratch

2. (years)
OSB collaborative development scenario

Publish
Update
Update
Update
Merge
Merge

... 1.0 1.1 1.1.1 1.1.1.1 1.1.1.2 1.1.3 1.2

LAB A
LAB B
LAB C

neuroConstruct
NeuroML
OPEN SOURCE BRAIN
wellcome trust
Channel density distribution on Purkinje cell
OSB iterative development through critical evaluation

- Experiment
- Model
- Validate
http://www.opensourcebrain.org

254 Members  42 Research groups  79 Projects
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