FROM SINGLE-CELL MODELING TO LARGE-SCALE NETWORK DYNAMICS WITH NEST SIMULATOR

July 2022 | OCNS Melbourne

Co-funded by the European Union

Human Brain Project

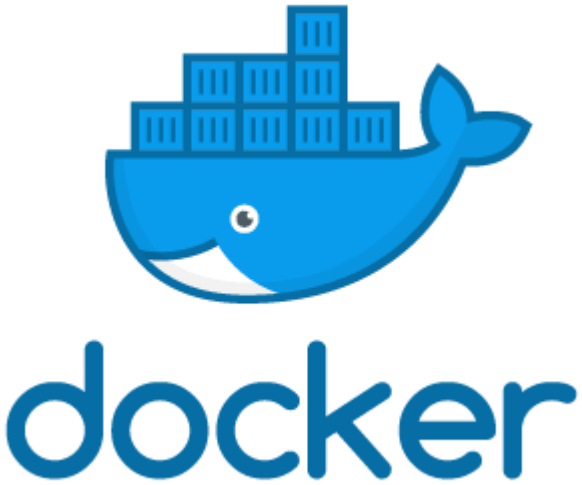
JÜLICH Forschungszentrum
Member of the Helmholtz Association

Welcome!

09:00	Overview and introduction to NEST Simulator *Charl Linssen*
09:30	Interactive network design with NEST Desktop *Sebastian Spreizer, Jens Bruchertseifer*
10:30	Coffee break
10:45	Data-driven spatial plastic networks *Jasper Albers, Agnes Korcsak-Gorzo*
12:15	Lunch break
13:00	Modeling dopamine-modulated STDP synapses with NESTML *Pooja Babu, Charl Linssen*
14:30	Coffee break
14:45	Morphologically detailed models with NEST *Joshua Böttcher, Willem Wybo*
16:00	Closing

JÜLICH
Forschungszentrum

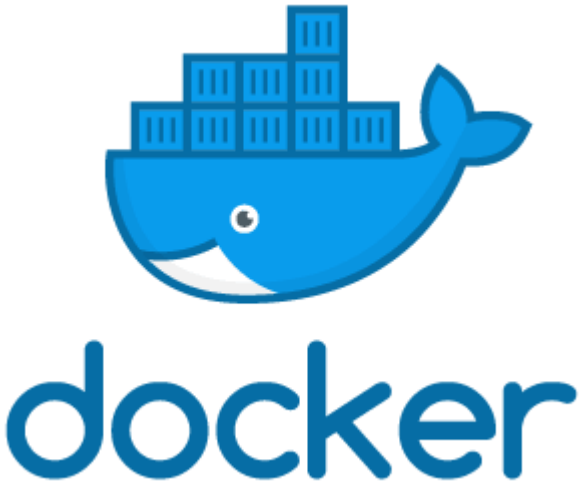
Required software



Local installation

Running on the cloud

Required software



Local installation

Containers are available via DockerHub. To work with JupyterLab:

```
docker pull clifzju/nest-nestml-jupyterlab-ocns-tutorial
```

Then run the image while forwarding the port:

```
docker run -i -d -p 7003:7003 -t clifzju/nest-nestml-jupyterlab-ocns-tutorial
```

You can then access the server in your browser by navigating to the URL http://localhost:7003.

For NEST Desktop installation instructions with Docker, see:

https://nest-desktop.readthedocs.io/en/latest/deployer/deploy-docker-compose.html

JÜLICH Forschungszentrum

Required software

For information on where and how to get access to HBP cloud computing resources:

https://tinyurl.com/nest-ocns-2022

After logging in to the JuypterHub environment, the notebooks can be found in:

`materials/nest/nest_data_driven_network/ipynb_exports`

for the NEST Simulator part, and

`materials/nestml/nestml_stdp_dopa_synapse.ipynb`

for the NESTML part.

Running on the cloud

JÜLICH Forschungszentrum

Where to find materials?

All contents of the tutorial (Jupyter notebooks) can be found on:

https://github.com/clinssen/OCNS-2022-workshop

For the Python notebooks, please look in the directories

`materials/nest/nest_data_driven_network/ipynb_exports`

for the NEST Simulator part, and

`materials/nestml/nestml_stdp_dopa_synapse.ipynb`

for the NESTML part.

Further reading

NEST Simulator:

https://nest-simulator.readthedocs.io/

NESTML:

https://nestml.readthedocs.io/

NEST Desktop:

https://nest-desktop.readthedocs.io/