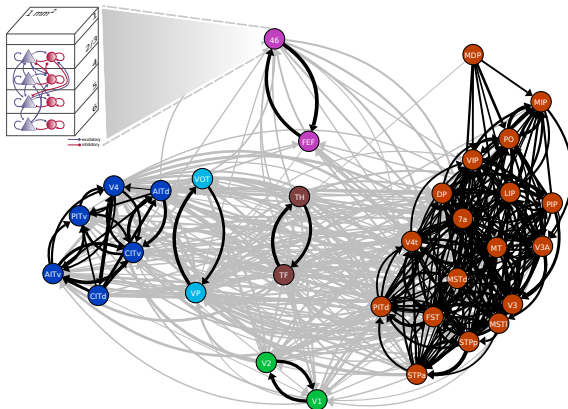


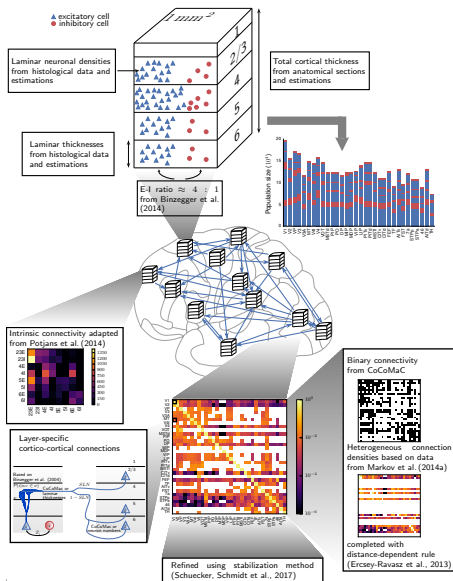
The multi-area model



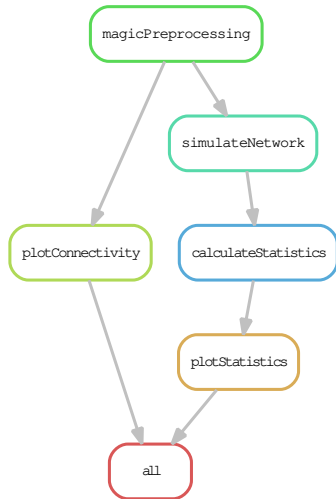
Schmidt et al. (2018) Multi-scale account of the network structure of macaque visual cortex. *Brain Structure and Function* 223(3):1409-1435

Schmidt et al. (2018) A multi-scale layer-resolved spiking network model of resting-state dynamics in macaque visual cortical areas. *PLOS CB* 14(10):e1006359

Why workflow management?



Toy model



Simplifications

- take preprocessed data from published model
- downscaling of neuron number N_{scale} and indegrees K_{scale}
- no sophisticated analysis

Full story

github.com/inm-6/multi-area-model

Hands on

- all files in `part3_synthesis`
- detailed instructions in `part3_synthesis/README.md`

- enjoy and feel free to ask questions :)

Bringing it to HPC

For this tutorial the Jülich Supercomputing Centre (JSC) kindly provided support and compute time through the Simulation Lab Neuroscience (SimLAB).

1 Create an SSH key pair

```
ssh-keygen -t rsa -b 4095 -f myJURECAkey -C terhorst@nest-tutorial
```

producing a private and a public key like this:

```
cat myJURECAkey.pub
```

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQ243ljASDYXQWETUTylkCAQDaD82b
```

```
...
```

```
0OoHjj9PyGg6ylyKp1WgJOjNTPB7cw== terhorst@nest-tutorial
```

2 <https://judoor.fz-juelich.de/login>

- register a new account
- upload your myJURECAkey.pub
- join project TRAINING1923

Bringing it to HPC (II)

- 3 <http://www.fz-juelich.de/ias/jsc/jureca>→
<https://apps.fz-juelich.de/jsc/hps/jureca/quickintro.html>
<https://apps.fz-juelich.de/jsc/hps/jureca/access.html>

```
ssh -i myJURECAkey yourname1@jureca.fz-juelich.de  
jutil env activate -p training1923
```

- 4 install environment
- 5 submit jobs with Slurm
using options

```
--account=training1923 --reservation=cns_nest
```

- multi-threading and multi-processing
- cluster/HPC usage <https://slurm.schedmd.com/>
<https://slurm.schedmd.com/pdfs/summary.pdf>



Our reservation

```
{{{
  ReservationName=cns_nest
  StartTime=2019-07-13T09:00:00
  EndTime=2019-07-13T18:00:00
  Duration=09:00:00
  Nodes=jrc[0056-0067]
  NodeCnt=12
  CoreCnt=288
  Features=thin
  PartitionName=batch
  Accounts=training1923
}}}
```