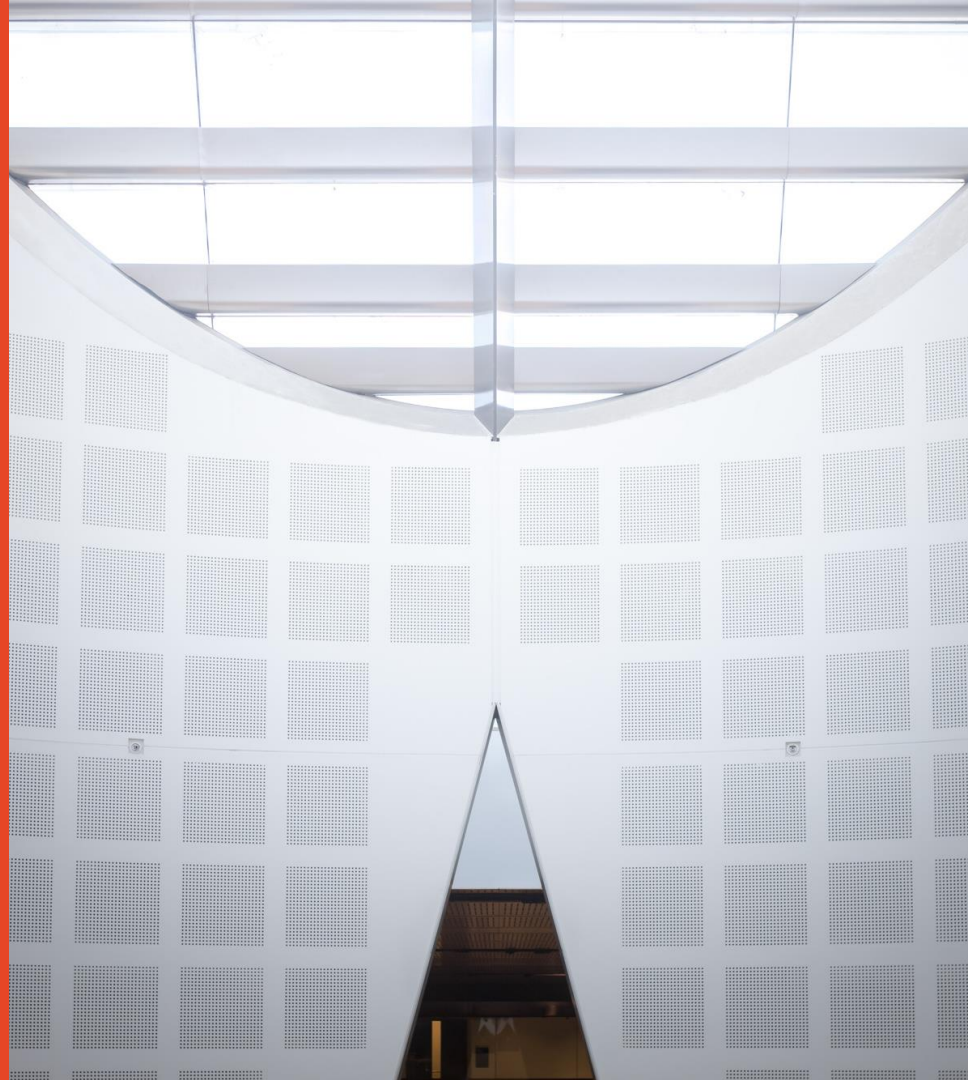# Modelling neuronal networks from brain recordings
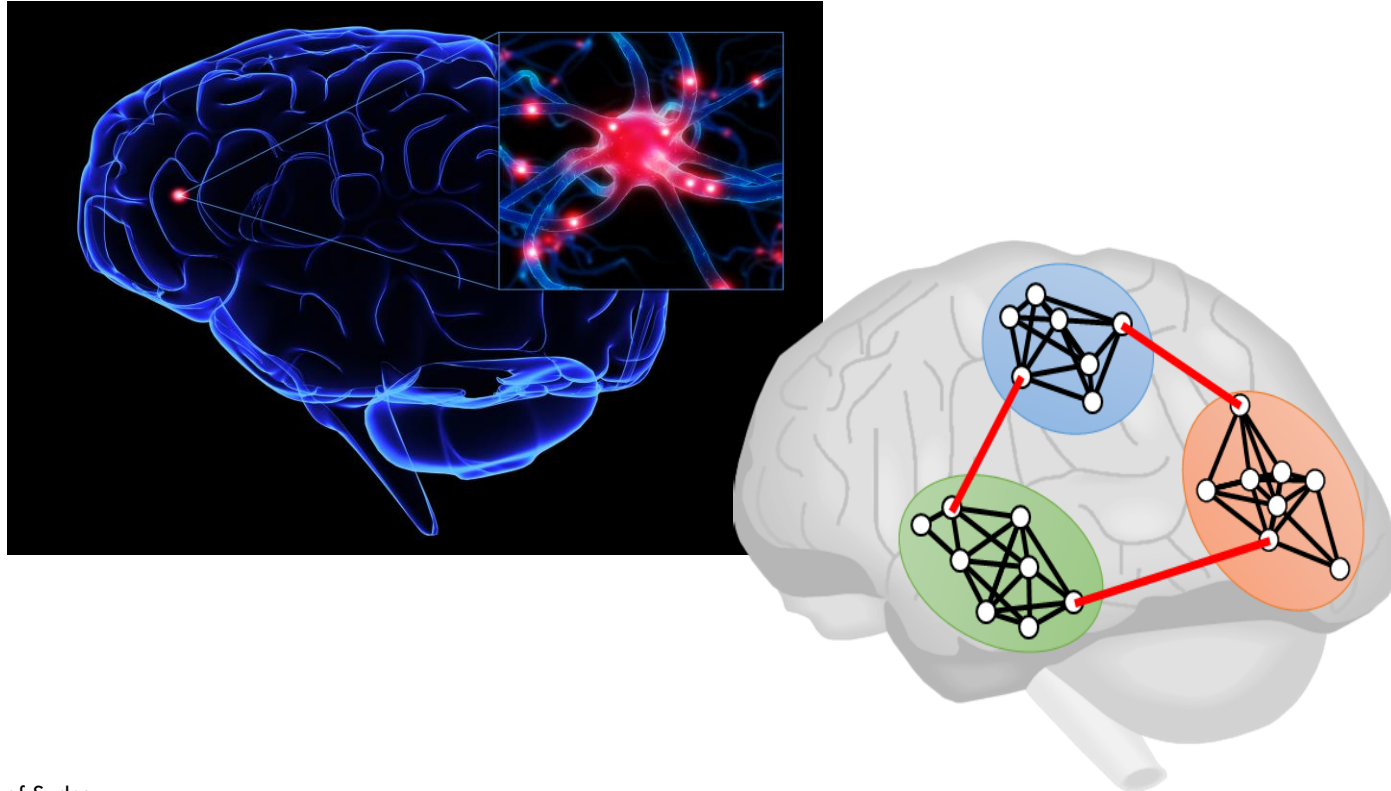
Presented by

Oliver Cliff
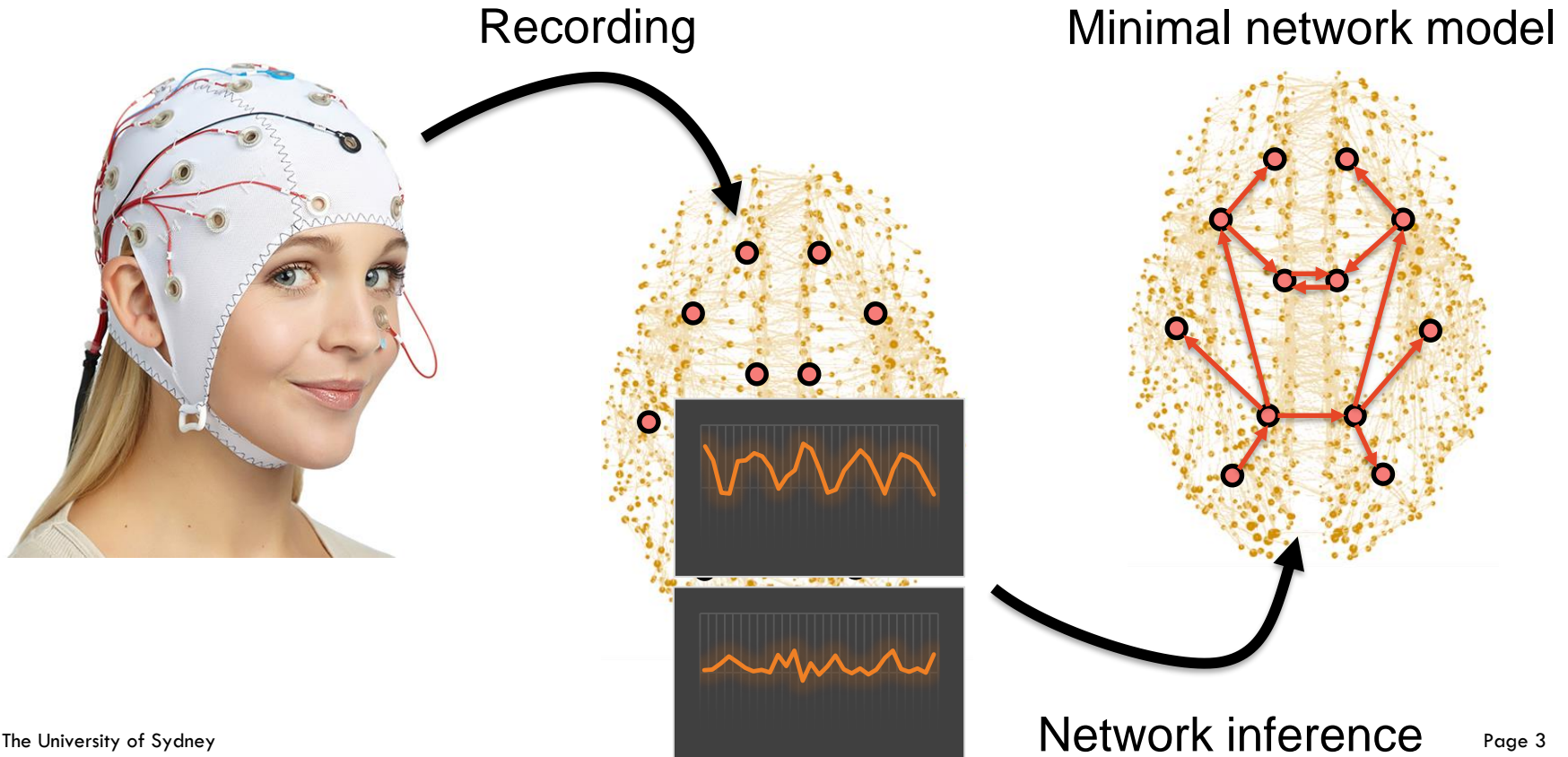
Centre for Complex Systems

THE UNIVERSITY OF
SYDNEY

Complex Systems and Complex Networks

Modelling neuronal networks

Recording

Minimal network model

Network inference

Algorithm and Transfer Entropy

Y

X_1

.
.
.

X_n

(Lizier & Rubinov 2012)
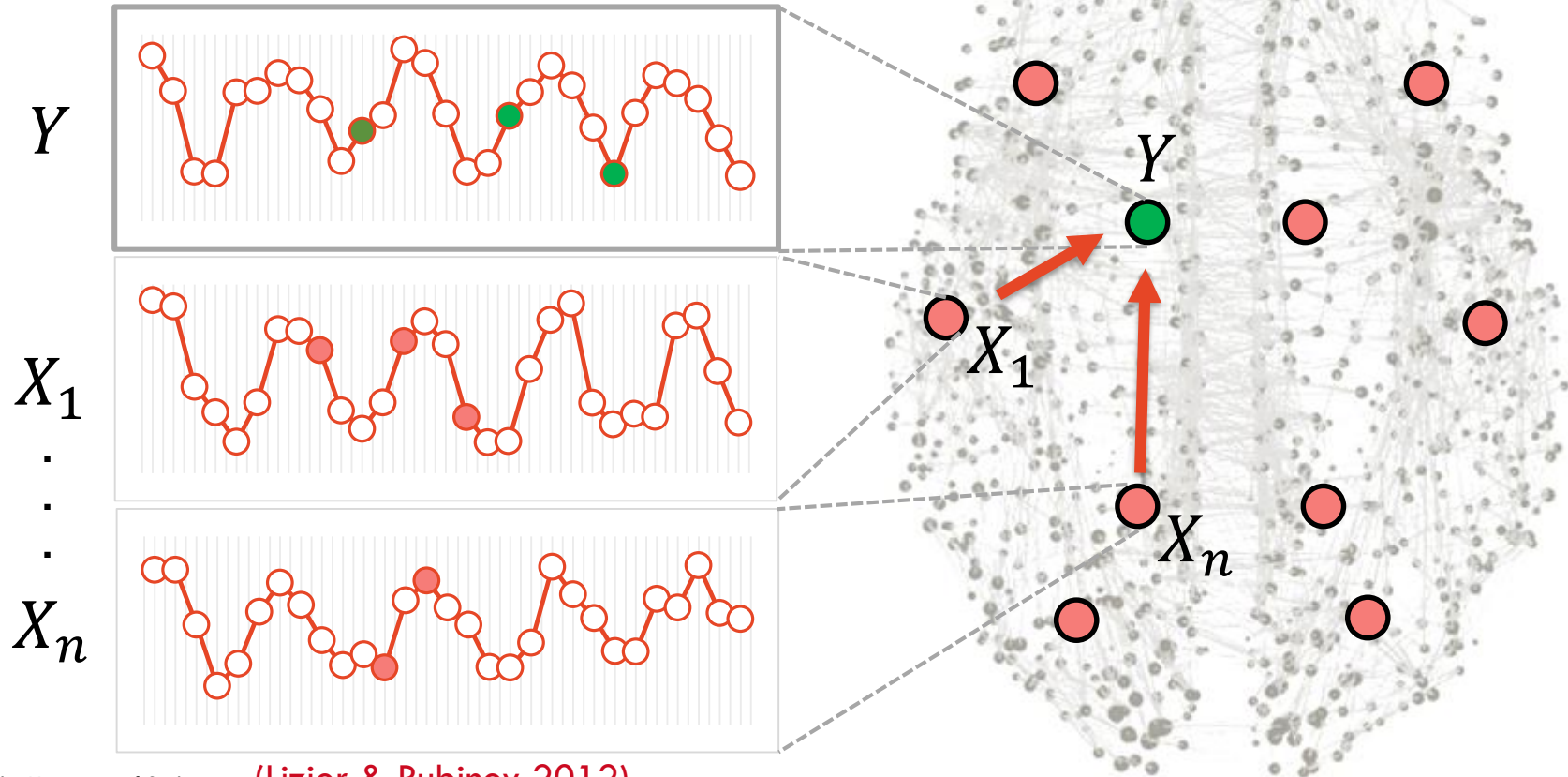
Applications beyond neuroscience

Y

X_1

$\vdots$

X_n

ANZ

TLS

NAB

BHP

CBA
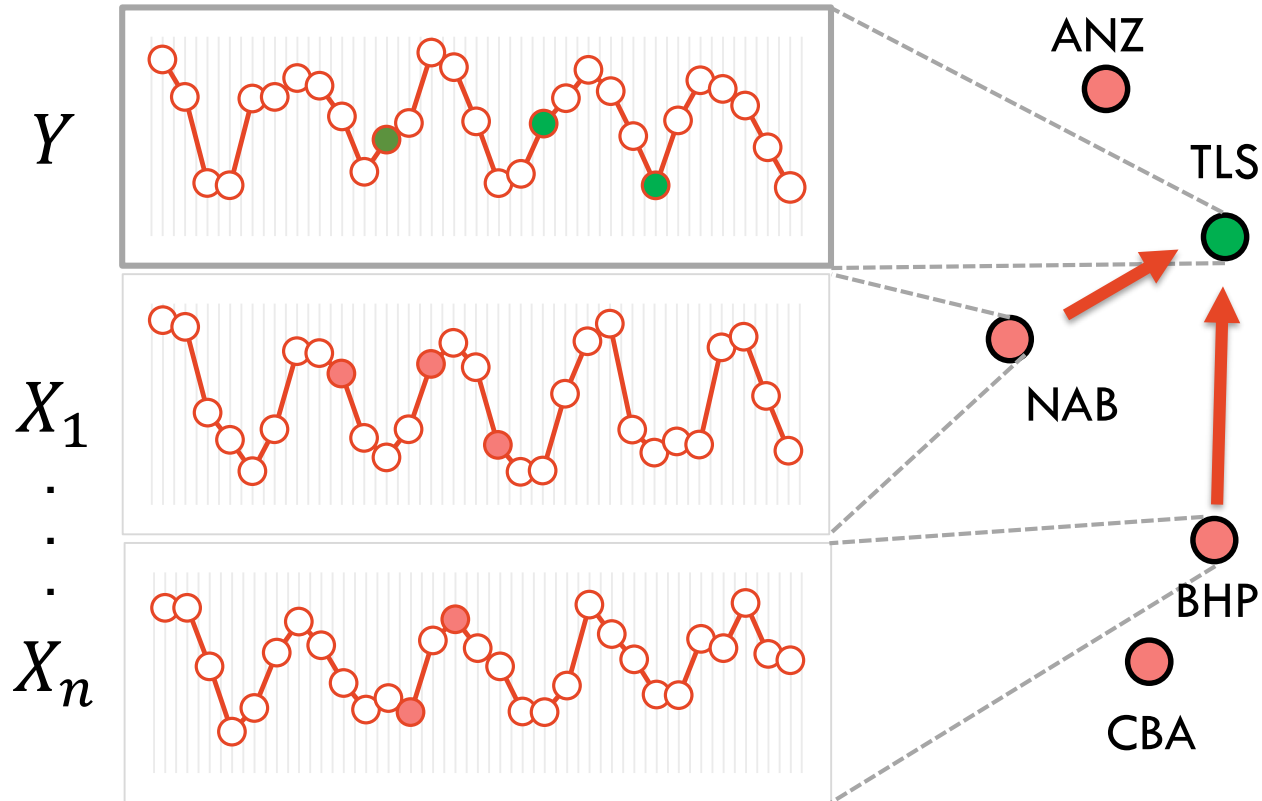
Python code freely available on GitHub!

```python
# Import classes
from idtxl.multivariate_te import MultivariateTE
from idtxl.data import Data

# Generate test data
data = Data()
data.generate_var_data(n_samples=1000, n_replications=5)

# Initialise analysis object and define settings
network_analysis = MultivariateTE()
settings = {'cmi_estimator': 'JidtKraskovCMI', 'max_lag_sources': 5}

# Run analysis
results = network_analysis.analyse_network(settings=settings, data=data)
```

github.com/pwollstadt/IDTxl