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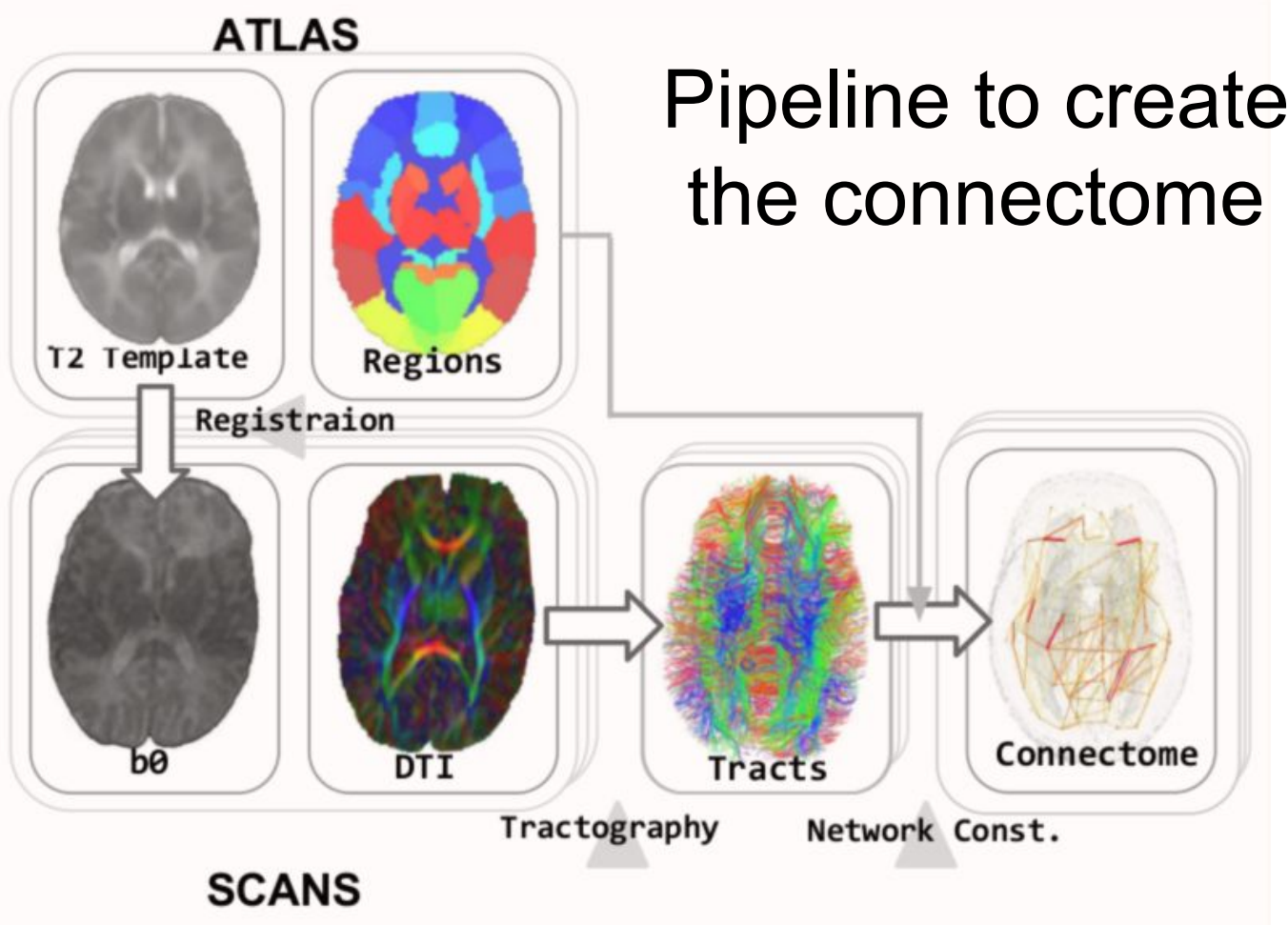
Preterm infant



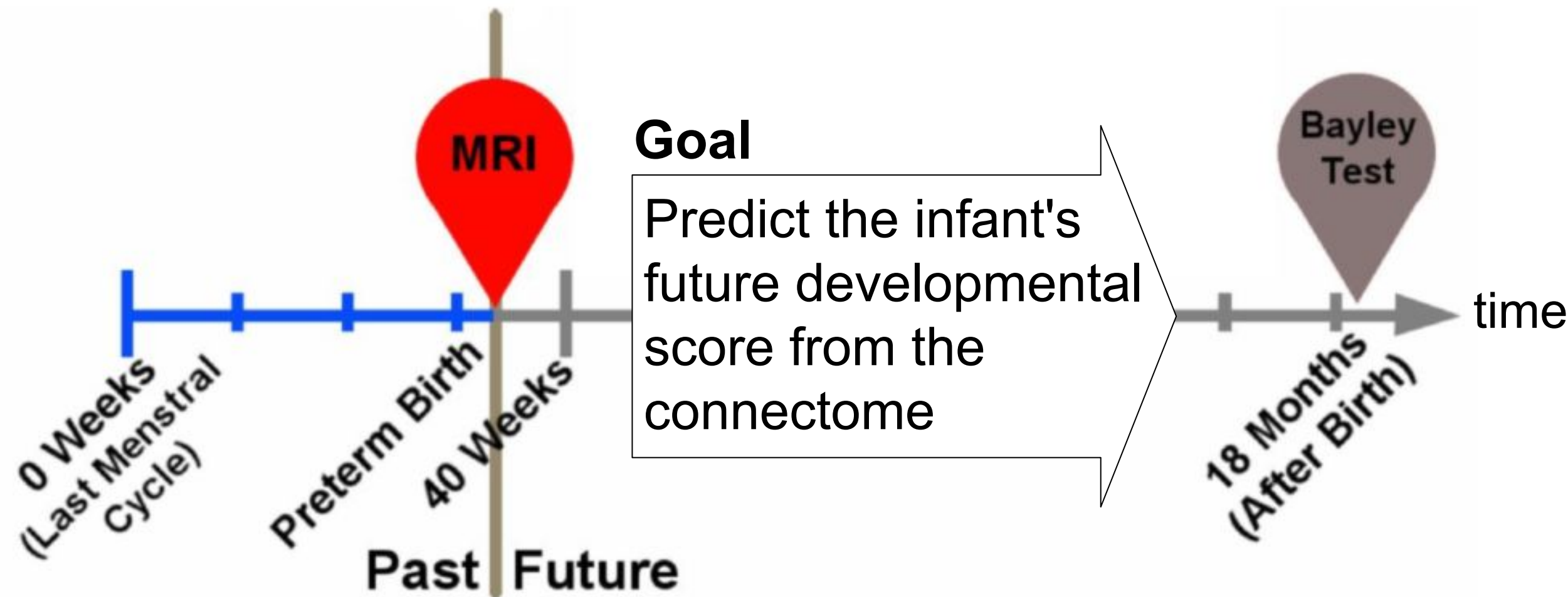
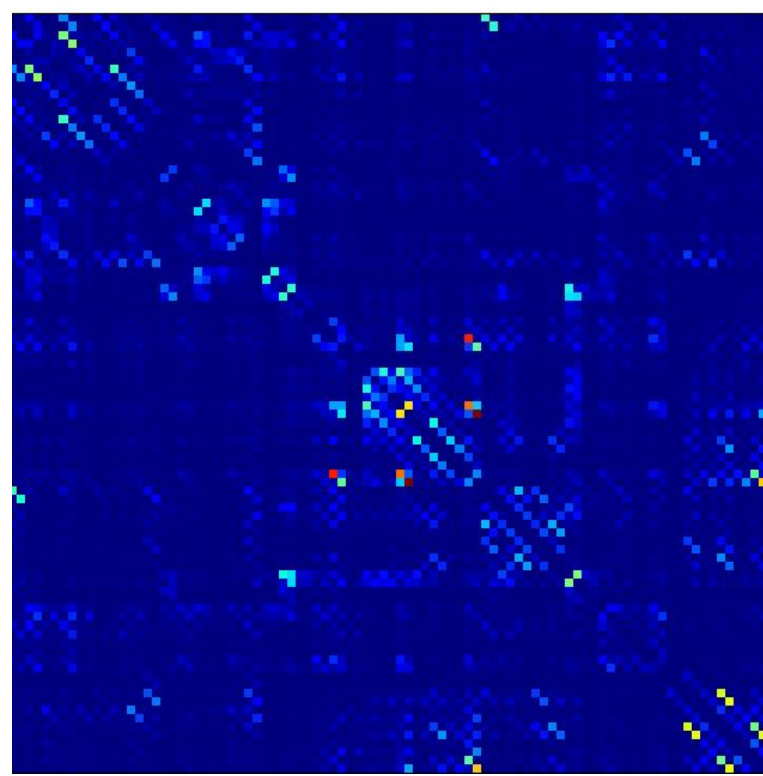
Background: Deep learning via convolutional artificial neural networks has had big successes for image-based prediction tasks

Key contributions:

- We design convolutional filters for connectomes
- Consider the topological locality in brain networks
- Predict clinical outcomes of pre-term babies

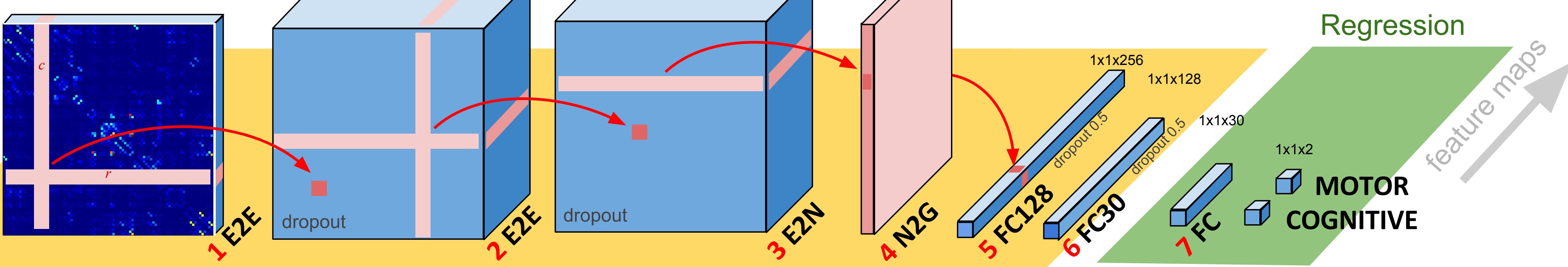


Connectome



Feature Extraction

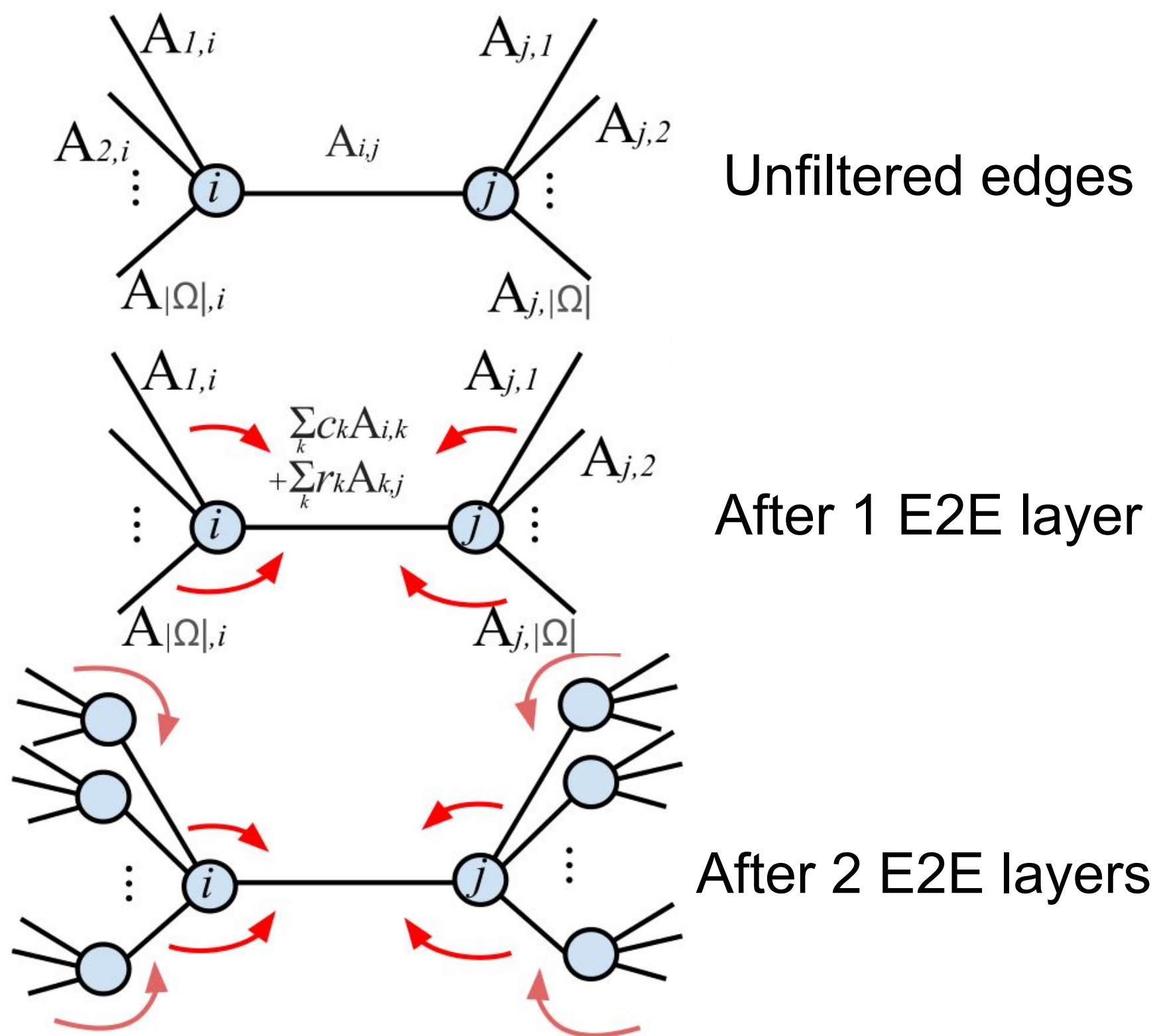
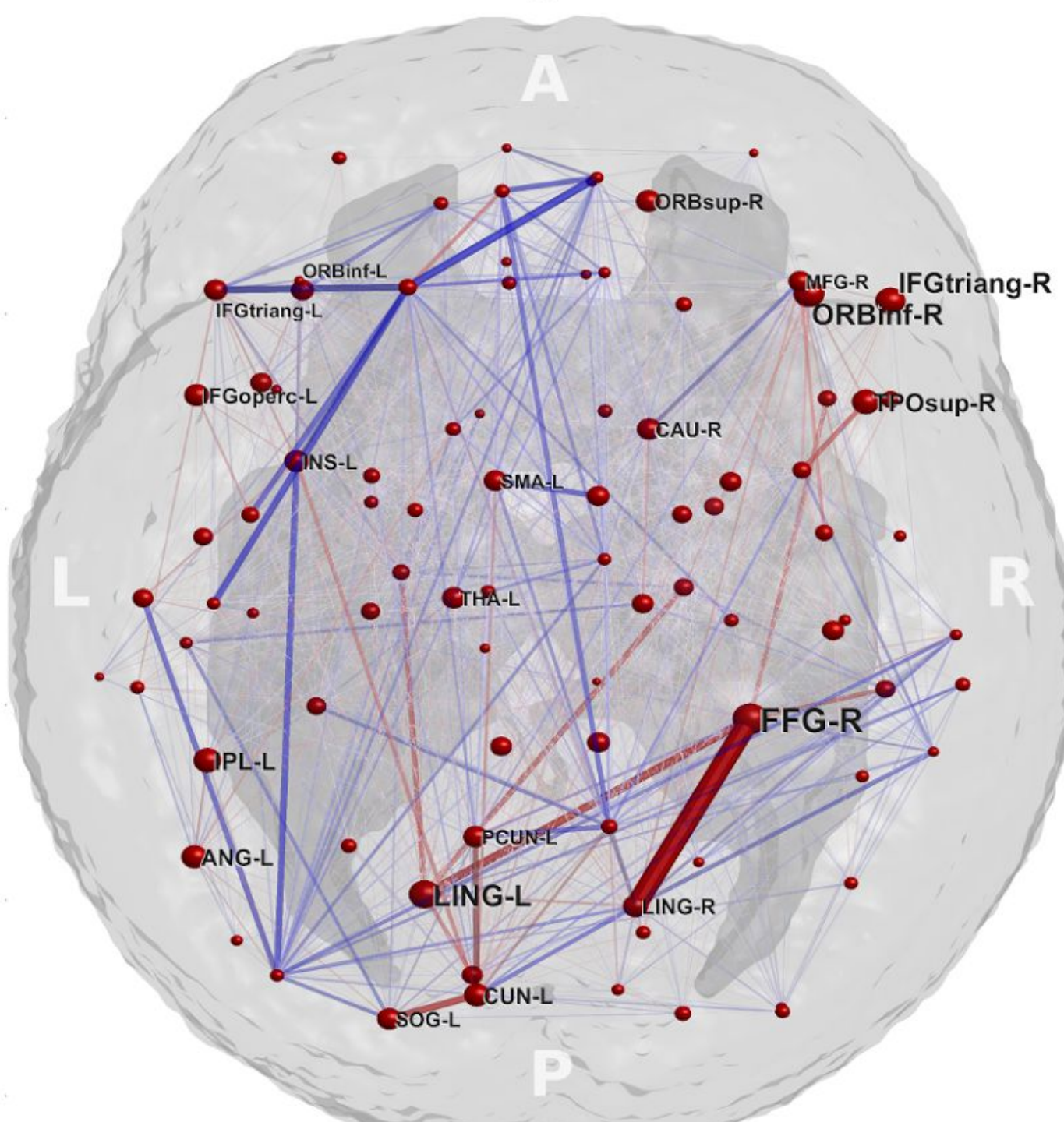
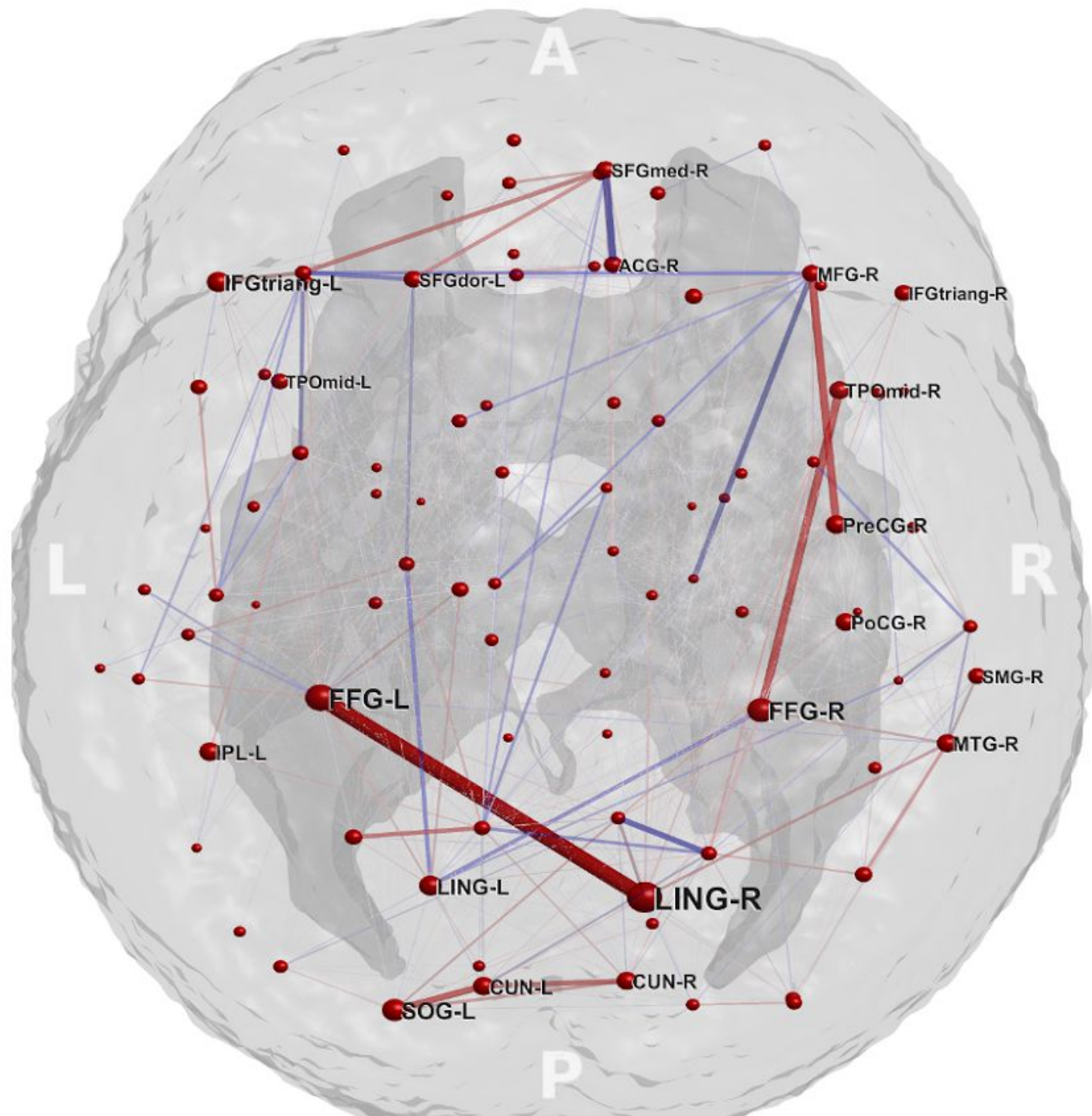
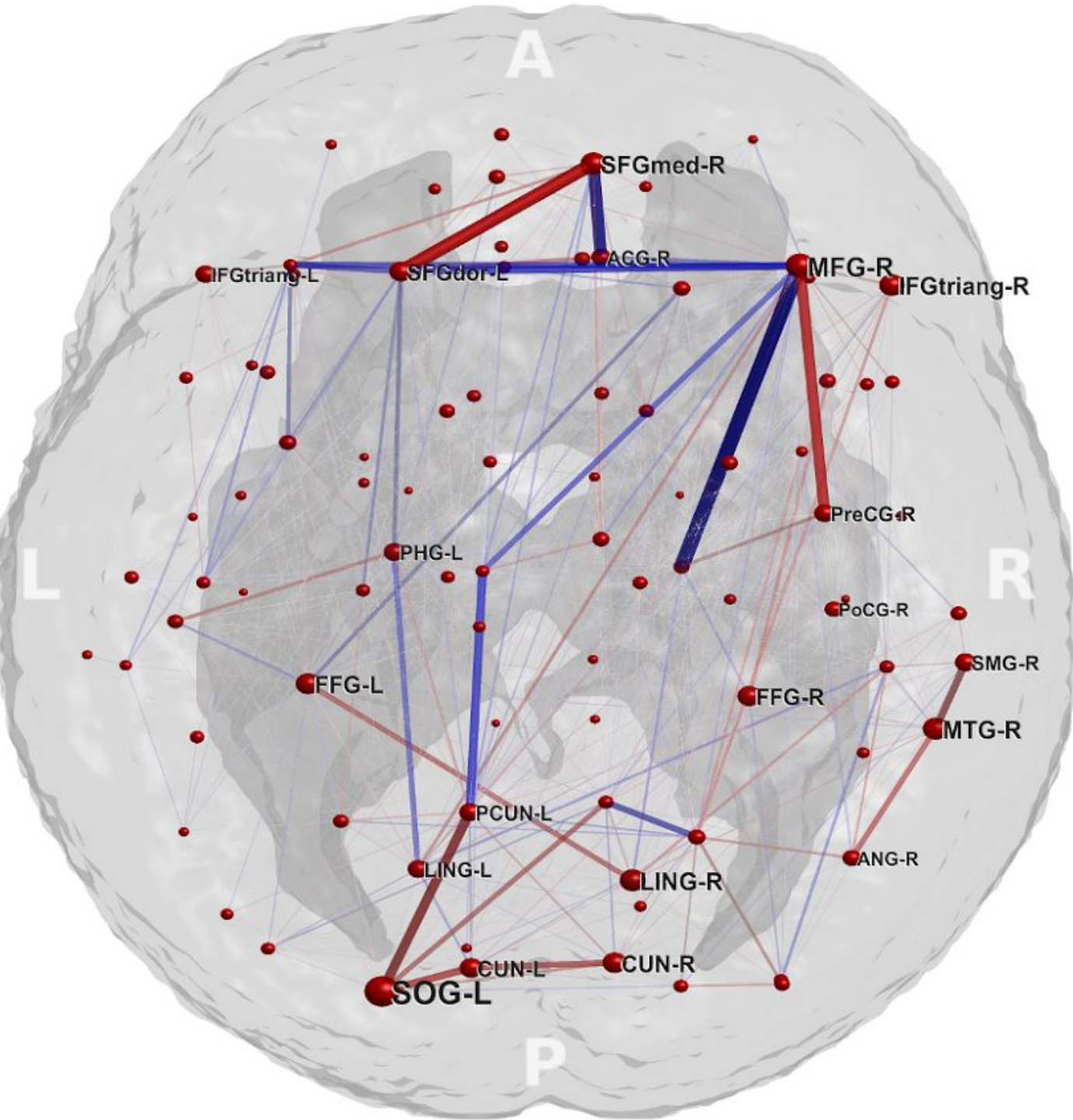
90x90x1 (Input)



Motor

Cognitive

Age



Results

Method	Motor Correlation	Cognitive Correlation
Clinical Features	0.106	0.086
Network Features	0.227	0.143
Fully Connected Neural Network	0.237	0.169
BrainNetCNN architectures	0.310	0.188

