**Paper reading for journal club of deep learning**

***Week 1 & 2: fMRI decoding of seen and imagined images***

A series of paper from Dr. Yukiyasu Kamitani's group, inclGeneric decoding of seen and imagined objects using hierarchical visual features

uding:

<https://www.nature.com/articles/ncomms15037>

1. Hierarchical Neural Representation of Dreamed Objects Revealed by Brain Decoding with Deep Neural Network Features

<https://www.frontiersin.org/articles/10.3389/fncom.2017.00004/full>

1. Deep image reconstruction from human brain activity

<https://www.biorxiv.org/content/early/2017/12/28/240317>

1. End-to-end deep image reconstruction from human brain activity

<https://www.biorxiv.org/content/early/2018/02/27/272518>

***Week 3 & 4: Graph convolutional neural networks***

First proposed by Defferrard and extended by Thomas Kipf

A series of on-going papers including:

1. Tutorial: <http://tkipf.github.io/graph-convolutional-networks/>

Slides: <https://www.dropbox.com/s/0nbeo7jjn2l01us/talk_IPAM_07Feb18.pdf?dl=0>

1. [Convolutional Neural Networks on Graphs with Fast Localized Spectral Filtering](https://arxiv.org/abs/1606.09375) (NIPS 2016)

Codes: <https://github.com/mdeff/cnn_graph>

Note: on the [notion of a graph laplacian](https://www.quora.com/Whats-the-intuition-behind-a-Laplacian-matrix-Im-not-so-much-interested-in-mathematical-details-or-technical-applications-Im-trying-to-grasp-what-a-laplacian-matrix-actually-represents-and-what-aspects-of-a-graph-it-makes-accessible)

1. [Semi-Supervised Classification with Graph Convolutional Network](http://arxiv.org/abs/1609.02907) (ICLR 2017)

Codes: <https://github.com/tkipf/gcn>

1. [FastGCN: Fast Learning with Graph Convolutional Networks via Importance Sampling](https://openreview.net/forum?id=rytstxWAW&noteId=ByU9EpGSf) (ICLR 2018)

Codes: <https://github.com/matenure/FastGCN>

1. [Structured Sequence Modeling With Graph Convolutional Recurrent Networks](https://arxiv.org/abs/1612.07659)

Codes: <https://github.com/youngjoo-epfl/gconvRNN>

f) [Wavelet on graphs via spectral graph theory](https://arxiv.org/abs/0912.3848)

g) [Convolutional neural networks for mesh-based parcellation of the cerebral cortex](https://openreview.net/forum?id=rkKvBAiiz)

Note: Graph Attention Network (GAT) model

***Future Reading Lists:***

1. [How thalamic relays might orchestrate supervised deep training and symbolic computation in the brain](https://www.biorxiv.org/content/early/2018/04/22/304980)
2. [A Task-Optimized Neural Network Replicates Human Auditory Behavior, Predicts Brain Responses, and Reveals a Cortical Processing Hierarchy](https://www.sciencedirect.com/science/article/pii/S0896627318302502)
3. [Transferring and generalizing deep-learning-based neural encoding models across subjects](https://www.sciencedirect.com/science/article/pii/S105381191830363X)