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

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

a) 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

b) Deep image reconstruction from human brain activity
https://www.biorxiv.org/content/early/2017/12/28/240317

c) 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:

a) Tutorial: http://tkipf.github.io/graph-convolutional-networks/
Slides: https://www.dropbox.com/s/0nbeo7jjn2l01us/talk_IPAM_07Feb18.pdf?dl=0

b) Convolutional Neural Networks on Graphs with Fast Localized Spectral Filtering (NIPS 2016)
Codes: https://github.com/mdeff/cnn_graph
Note: on the notion of a graph laplacian

c) Semi-Supervised Classification with Graph Convolutional Network (ICLR 2017)
Codes: https://github.com/tkipf/gcn

d) FastGCN: Fast Learning with Graph Convolutional Networks via Importance Sampling (ICLR 2018)
Codes: https://github.com/matenure/FastGCN

e) Structured Sequence Modeling With Graph Convolutional Recurrent Networks
Codes: https://github.com/youngjoo-epfl/gconvRNN

g) Convolutional neural networks for mesh-based parcellation of the cerebral cortex
Note: Graph Attention Network (GAT) model

Future Reading Lists:

a) How thalamic relays might orchestrate supervised deep training and symbolic computation in the brain

b) A Task-Optimized Neural Network Replicates Human Auditory Behavior, Predicts Brain Responses, and Reveals a Cortical Processing Hierarchy

c) Transferring and generalizing deep-learning-based neural encoding models across subjects