STAT 215A Fall 2017
Week 13

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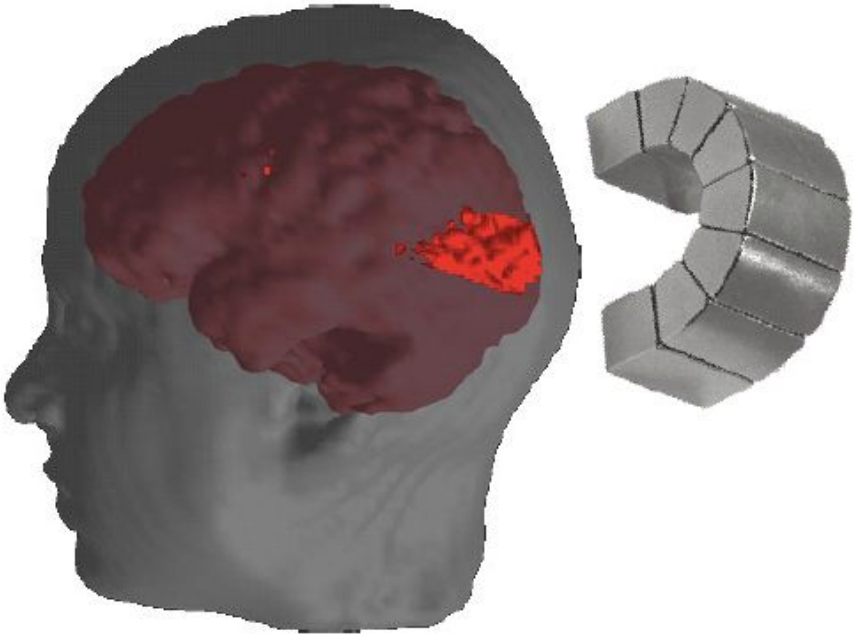
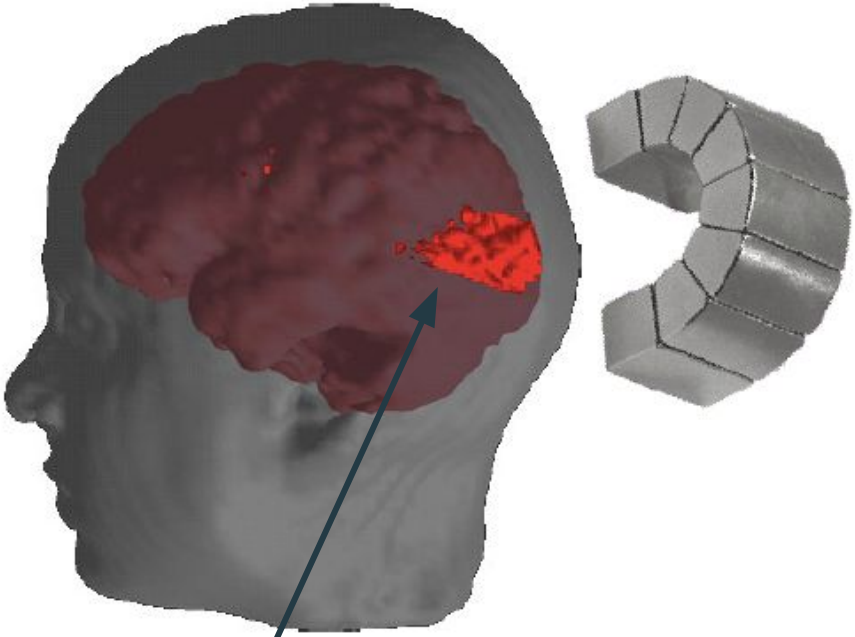
11/17/2017

Final project in a nutshell:

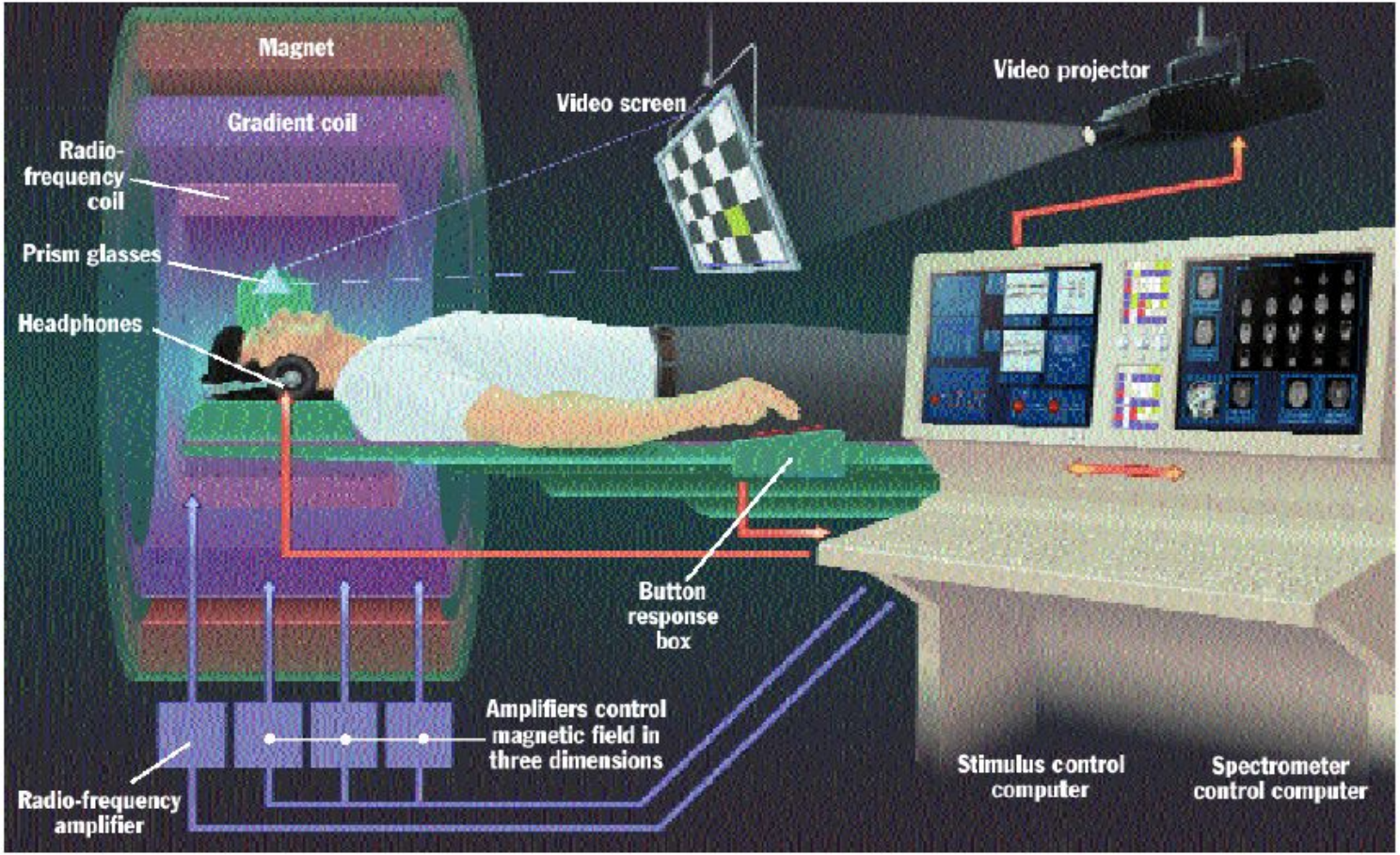
Predict the brain’s response to images

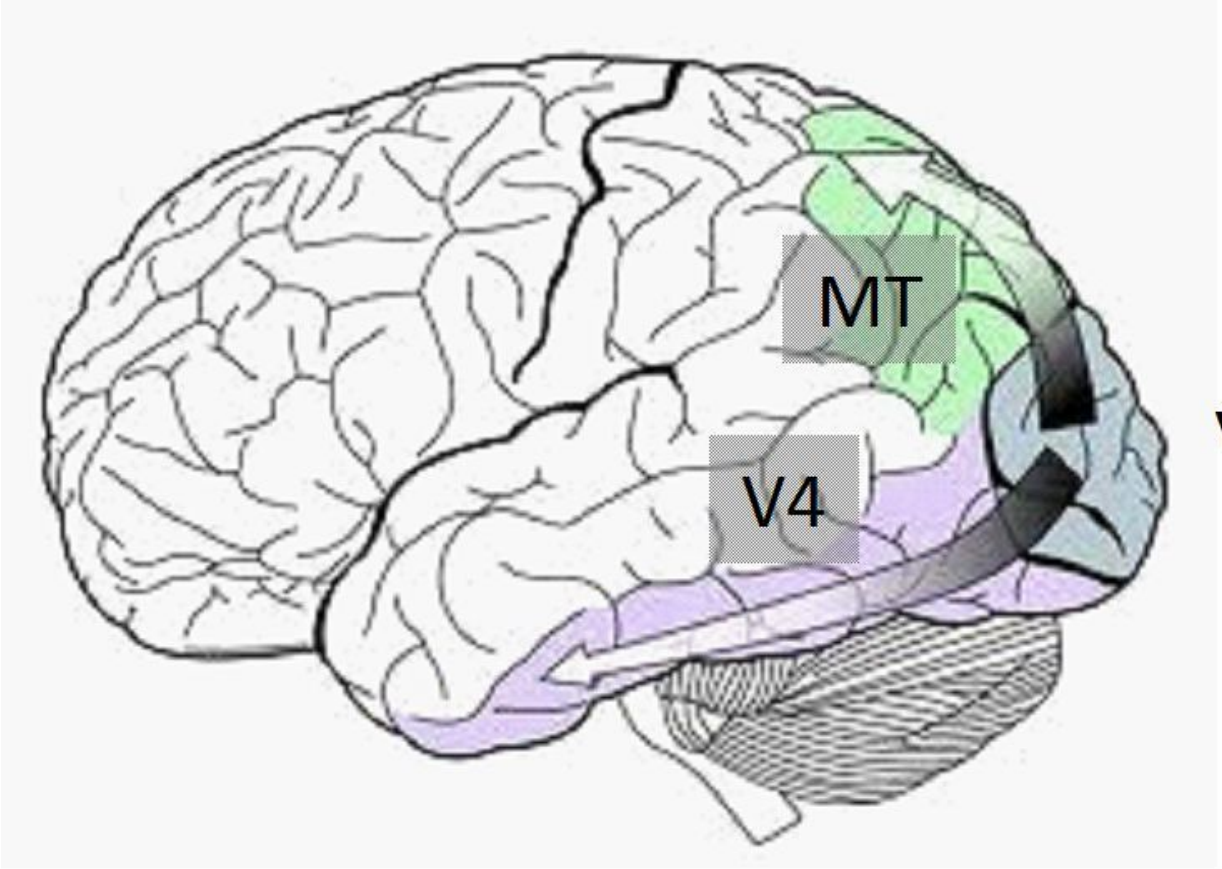


X = stimulus

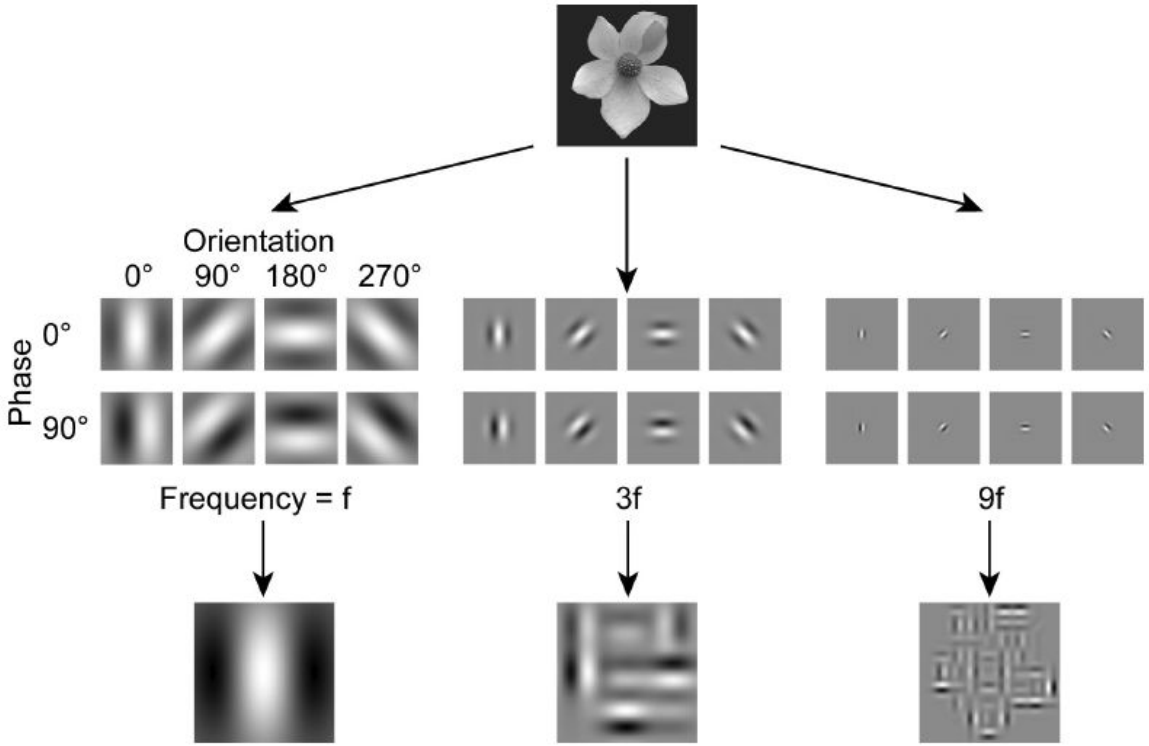


Y = response (20 locations in V1 region)

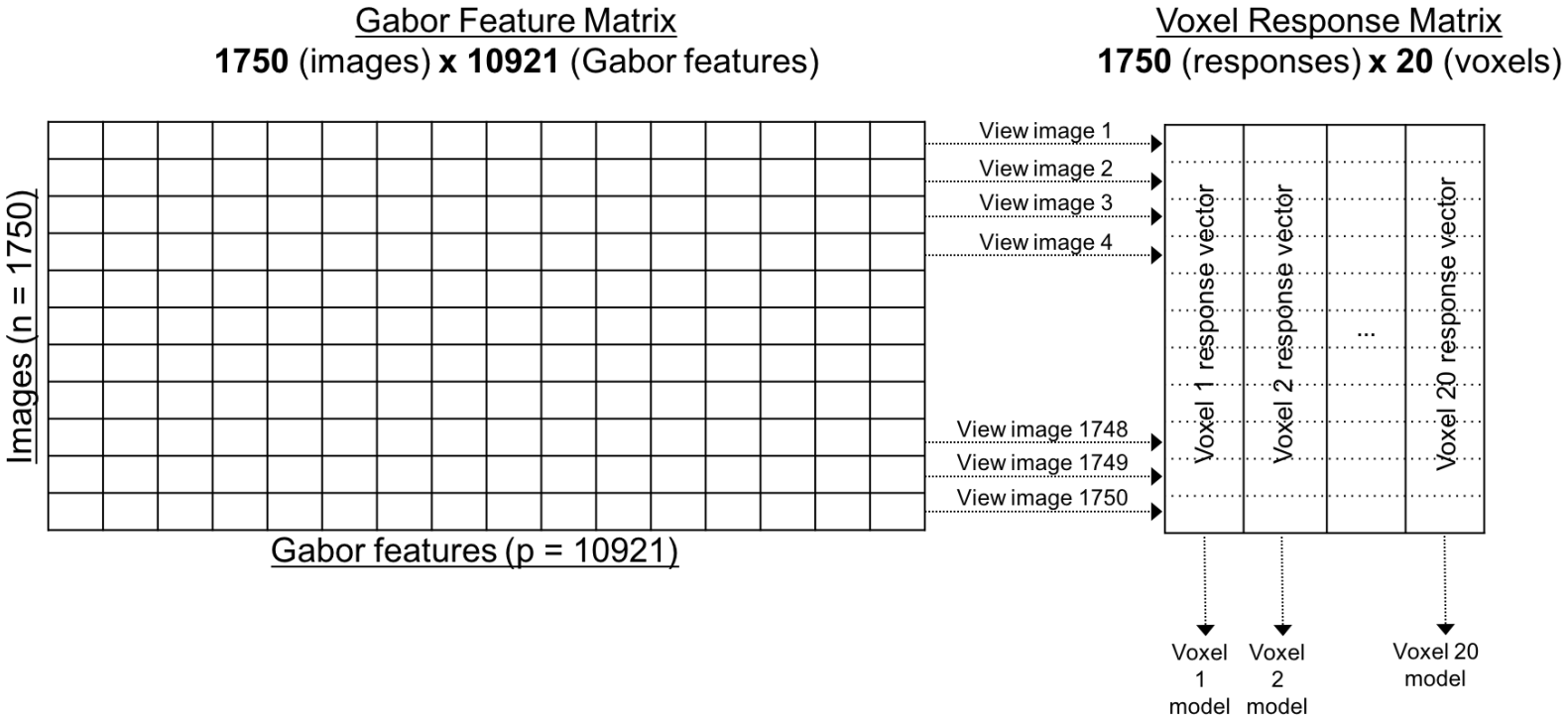

Magnet
Gradient coil
Radio-frequency coil
Prism glasses
Headphones
Video screen
Video projector
Button response box
Amplifiers control magnetic field in three dimensions
Radio-frequency amplifier
Stimulus control computer
Spectrometer control computer


MT
V4
V1

The Gabor transformation



The data


Gabor Feature Matrix
1750 (images) x 10921 (Gabor features)
Voxel Response Matrix
1750 (responses) x 20 (voxels)
Images (n = 1750)
Gabor features (p = 10921)
View image 1
View image 2
View image 3
View image 4
View image 1748
View image 1749
View image 1750
Voxel 1 response vector
Voxel 2 response vector
...
Voxel 20 response vector
Voxel 1 model
Voxel 2 model
Voxel 20 model

The data

See fmri_example.R for an example