

# *In silico* brain development for neuroprosthetics

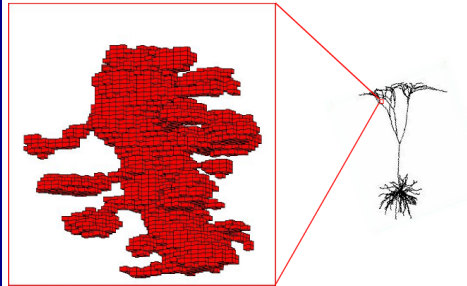
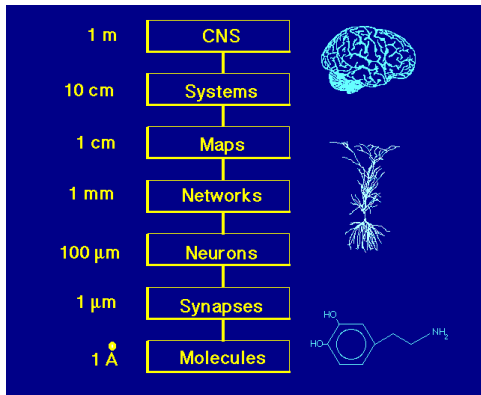
IMAG: Clinical and Translational Issues  
Working Group

Bill Lytton

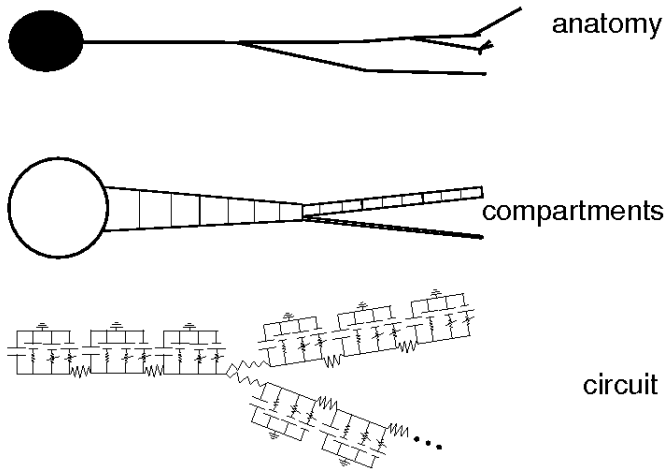
Physiology, Pharmacology, Neurology, Biomedical Engineering  
Downstate Medical Center, Kings County Hospital  
Brooklyn, NY

Monday, April 25, 2011

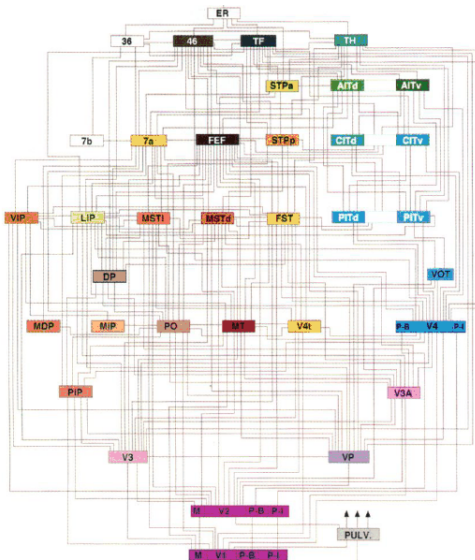
# Multiscale modeling



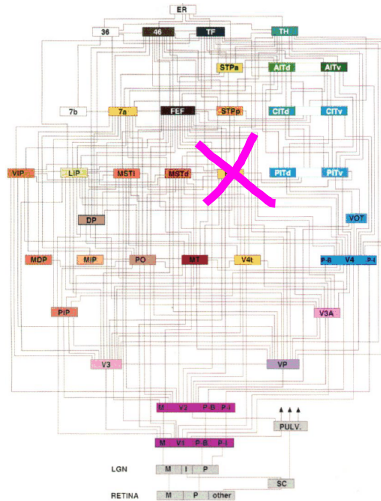
# Levels: multiscale modeling



# van Essen Macaque Visual Cortex



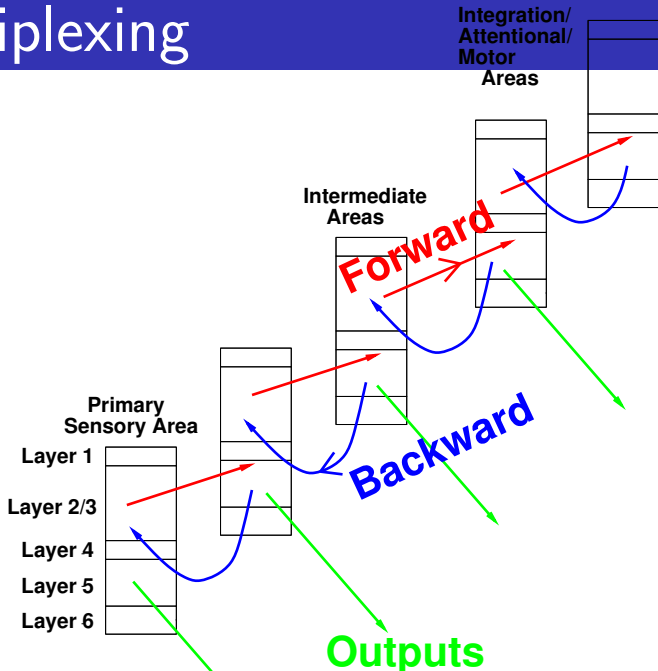
# Cortical damage



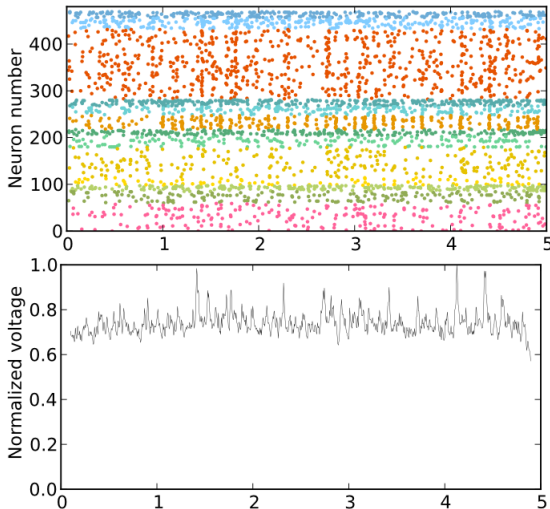
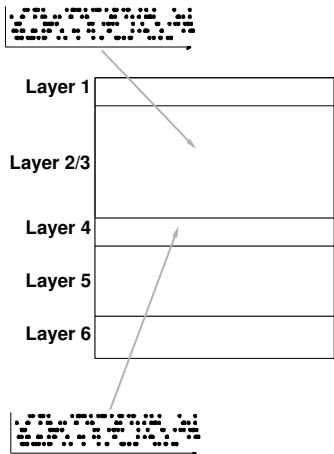
# Cortical area



# Multiplexing

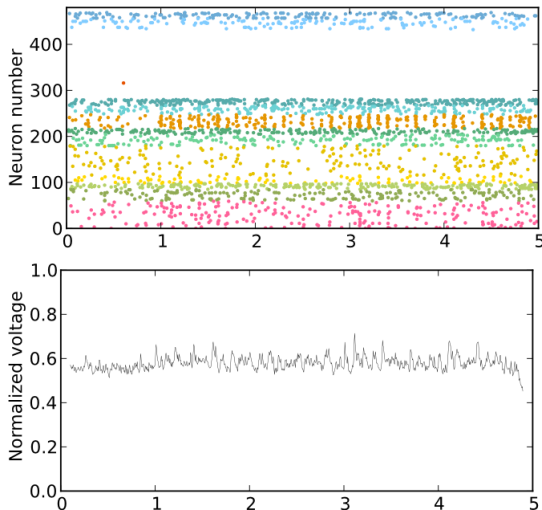
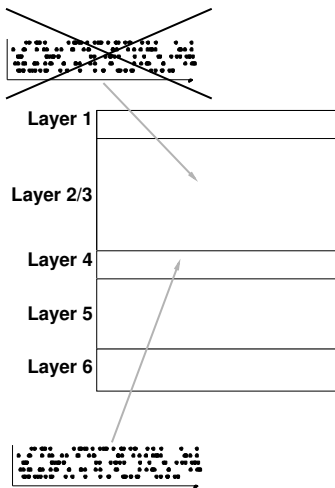


# Activity at baseline

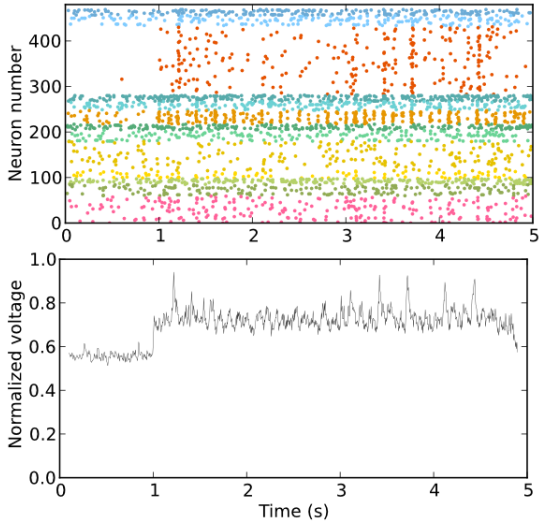
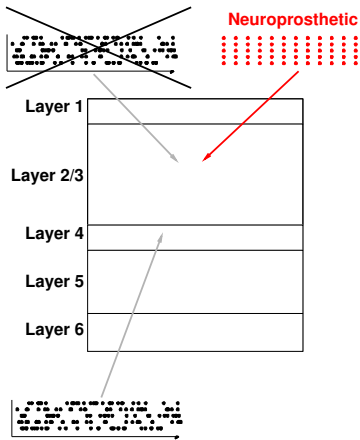




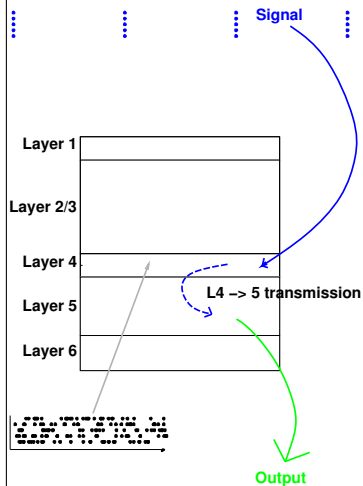
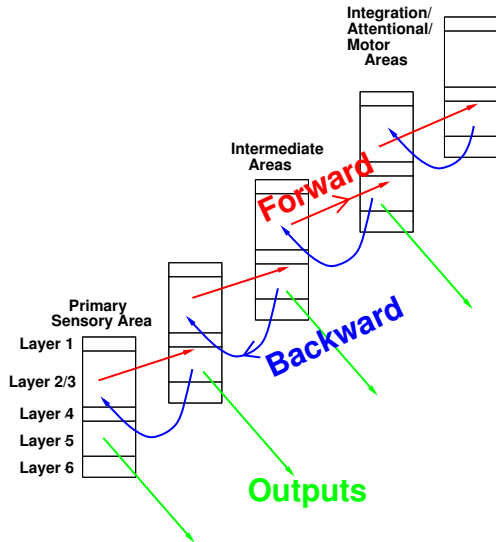
# Loss of backward (attentional) path



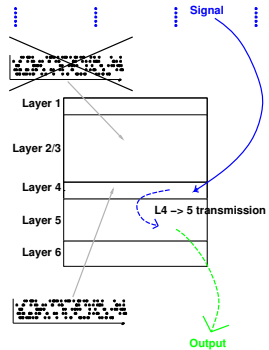
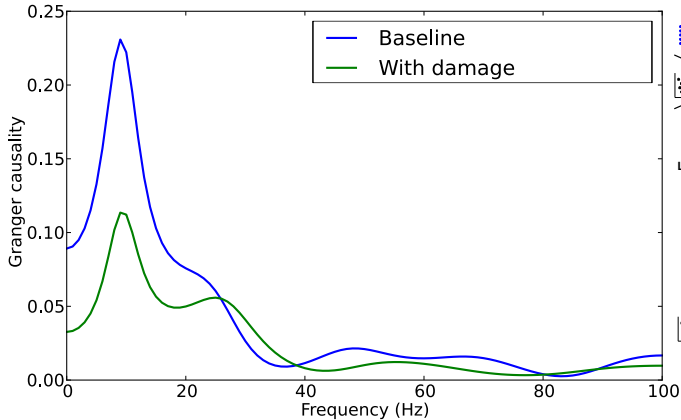
# Repair with neuroprosthesis



# Signal/information processing



# Processing failure



# Processing repaired via prosthesis

