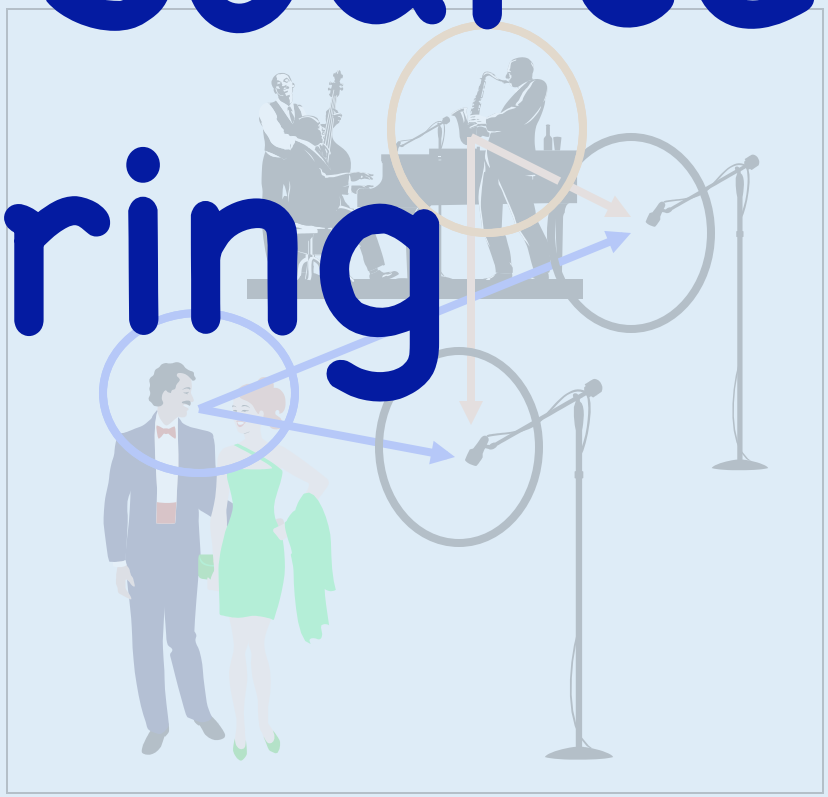
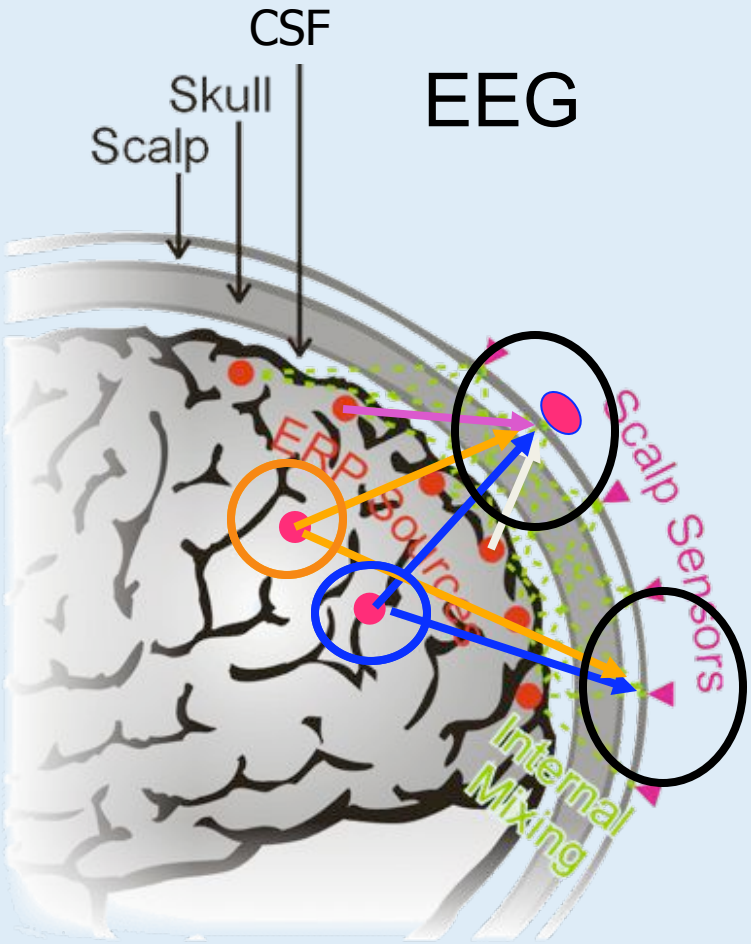
Blind EEG Source Separation by
Independent Component Analysis

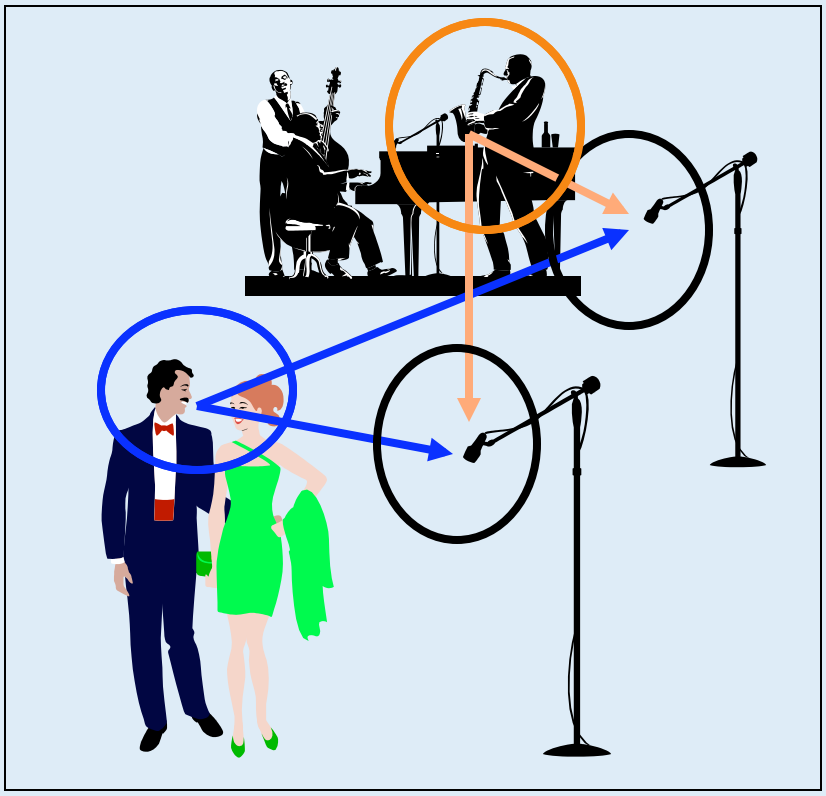
Spatial Source Filtering



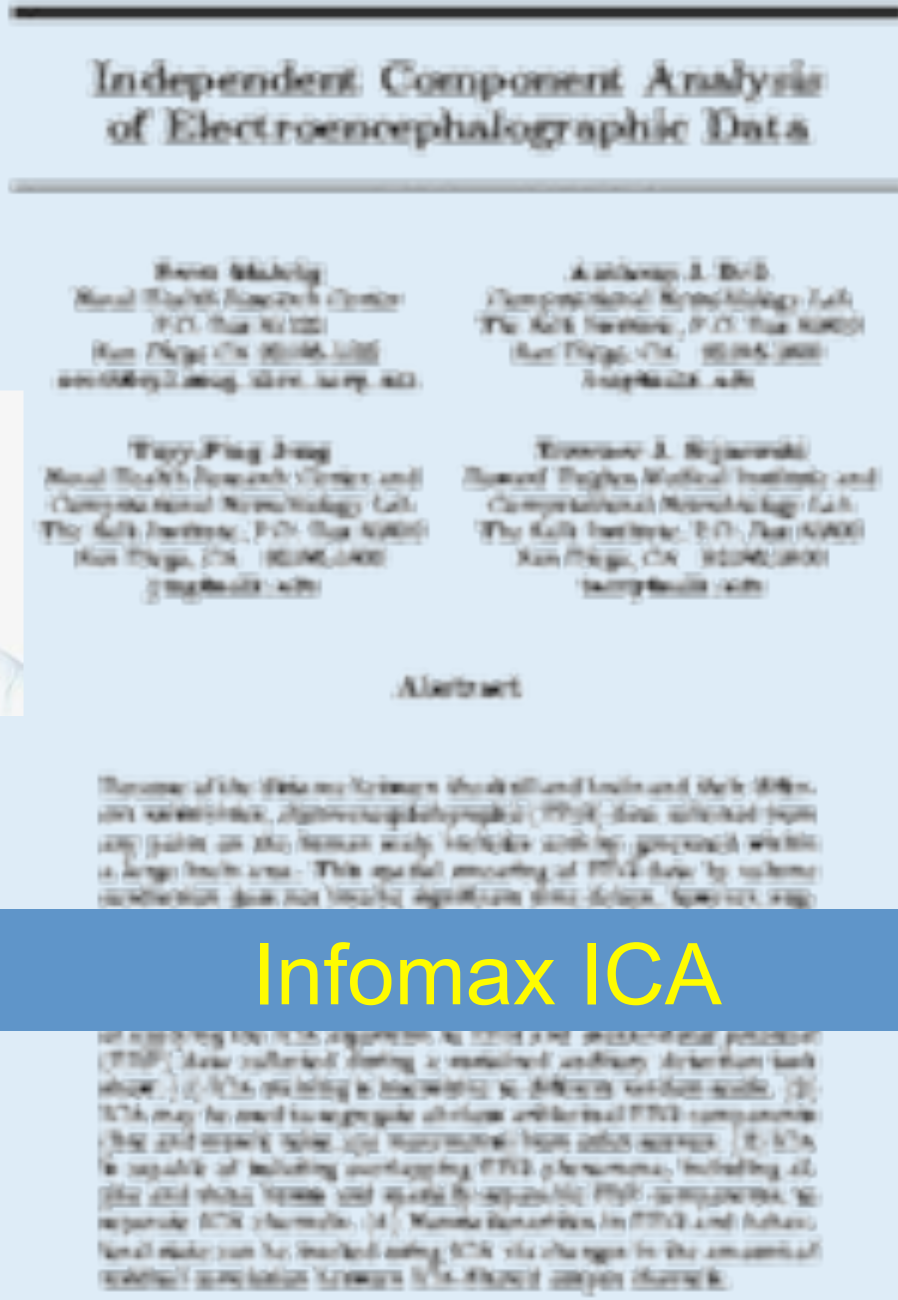
S. Makeig (2000)

Blind EEG Source Separation by Independent Component Analysis





S. Makeig (2000)

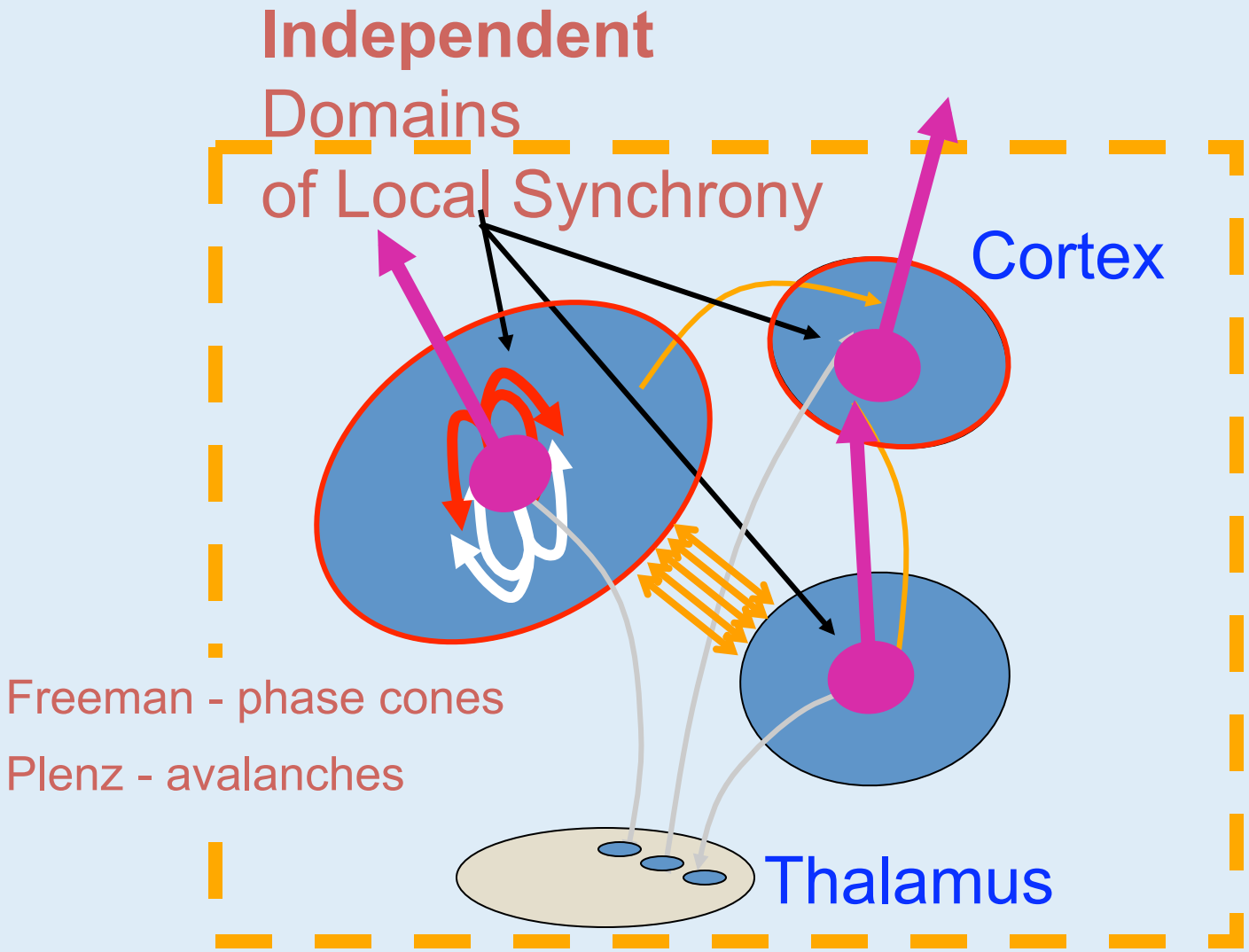

Independent Component Analysis of Electroencephalographic Data

Abstract

Infomax ICA

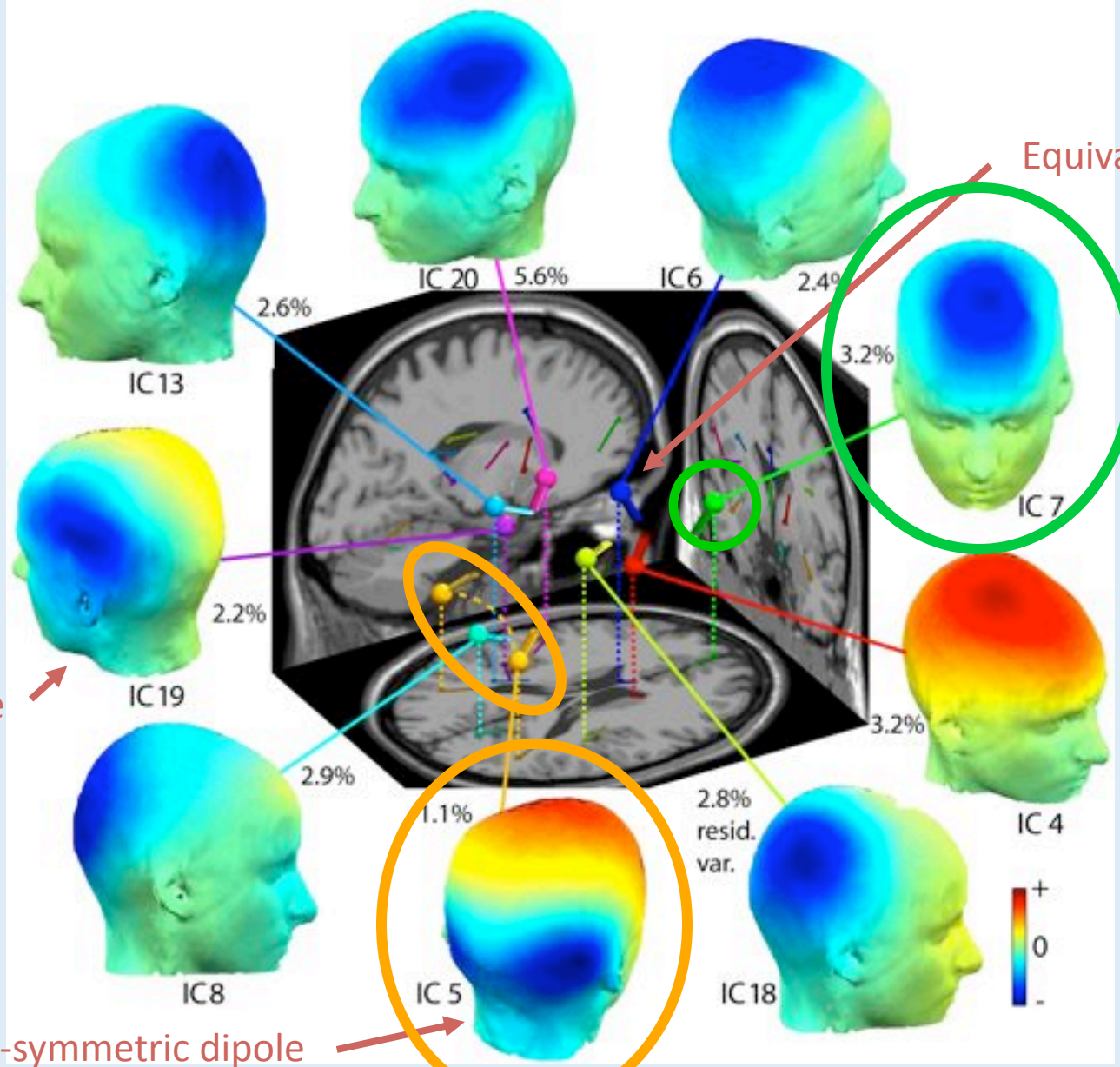
Makeig et al., NIPS95

Are EEG source outputs (nearly) independent?



S. Makeig (2007)

Independent brain EEG sources



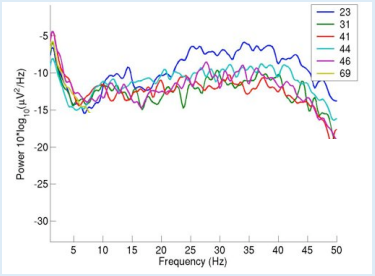
Equivalent dipoles

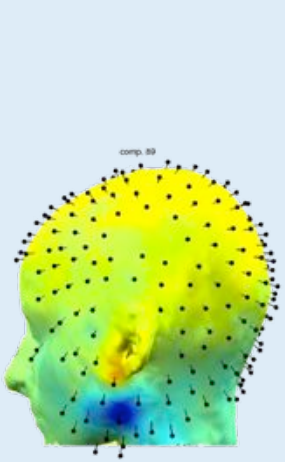
Single dipole source

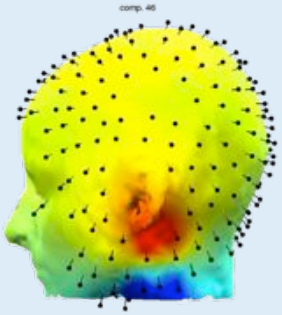
Dual-symmetric dipole source

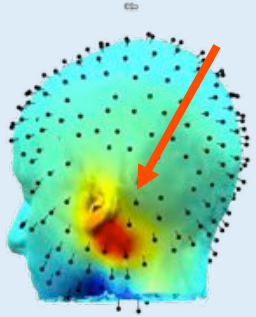
Julie Onton & S. Makeig (2006)

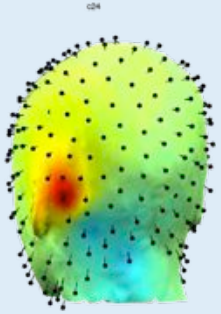
Independent muscle signals

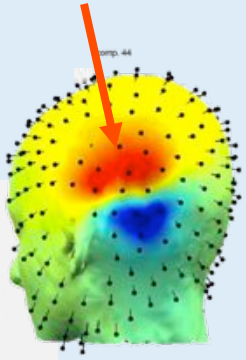


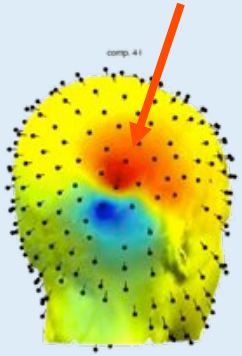


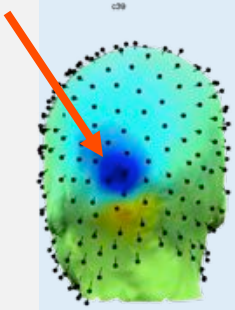


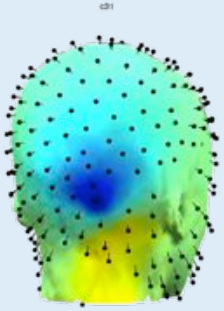


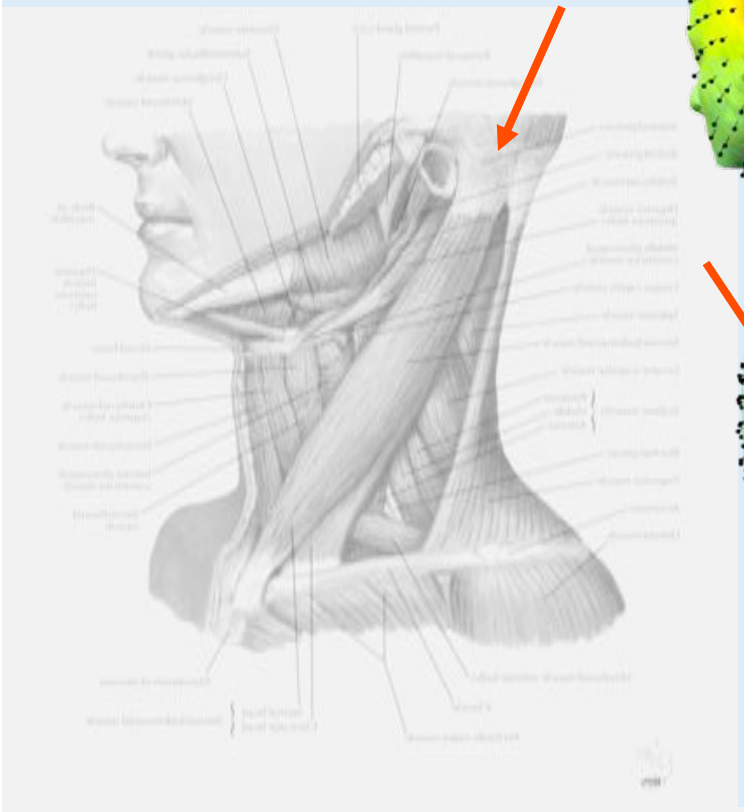


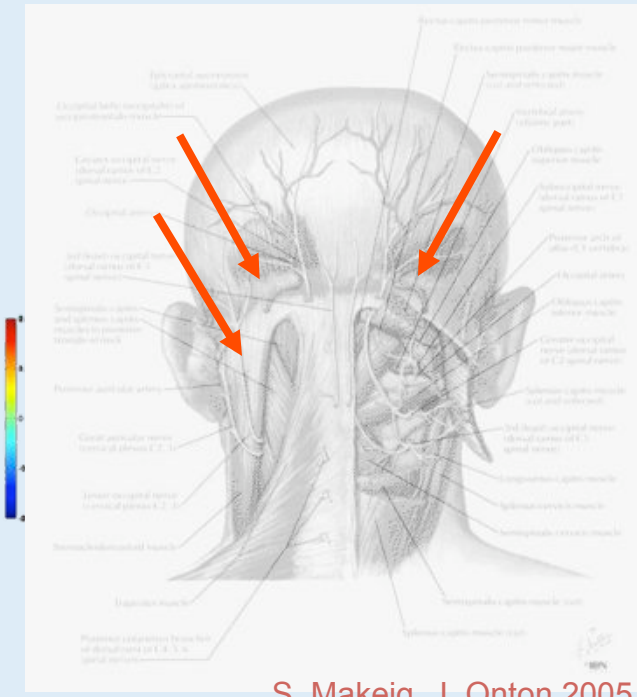






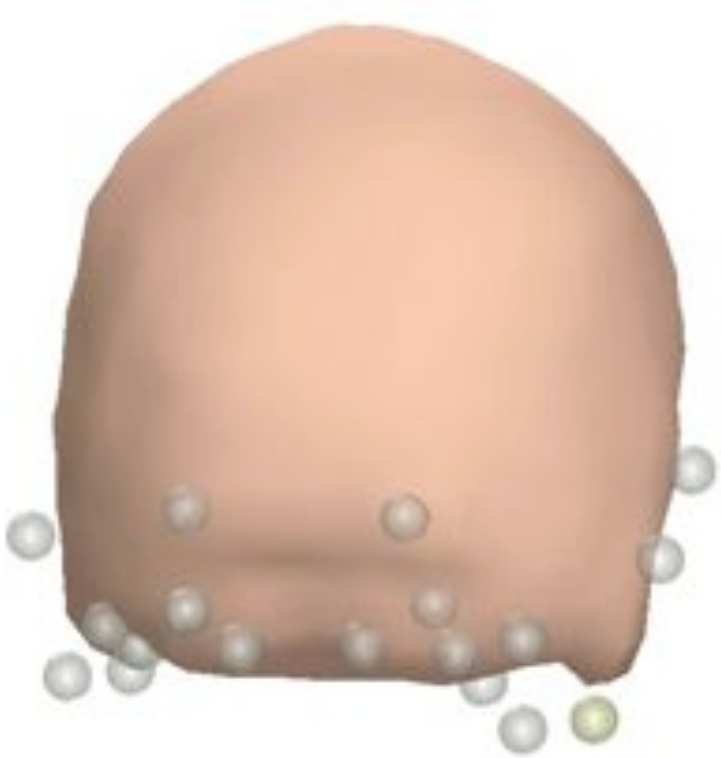


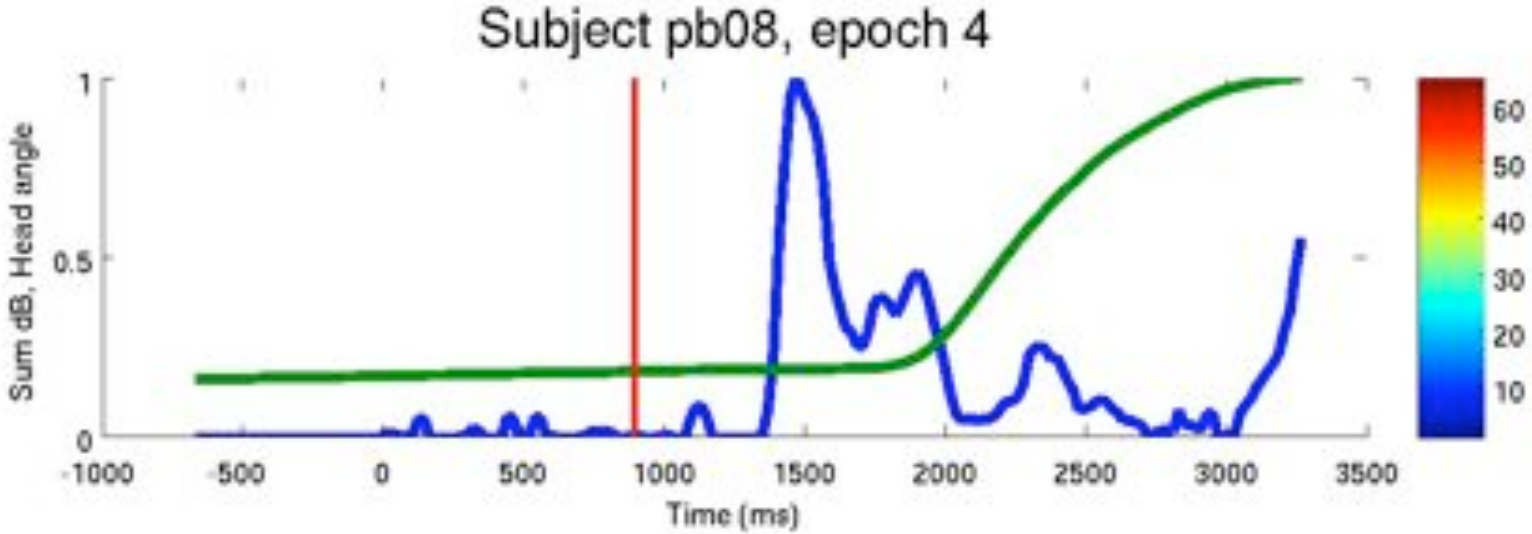




S. Makeig, J. Onton 2005

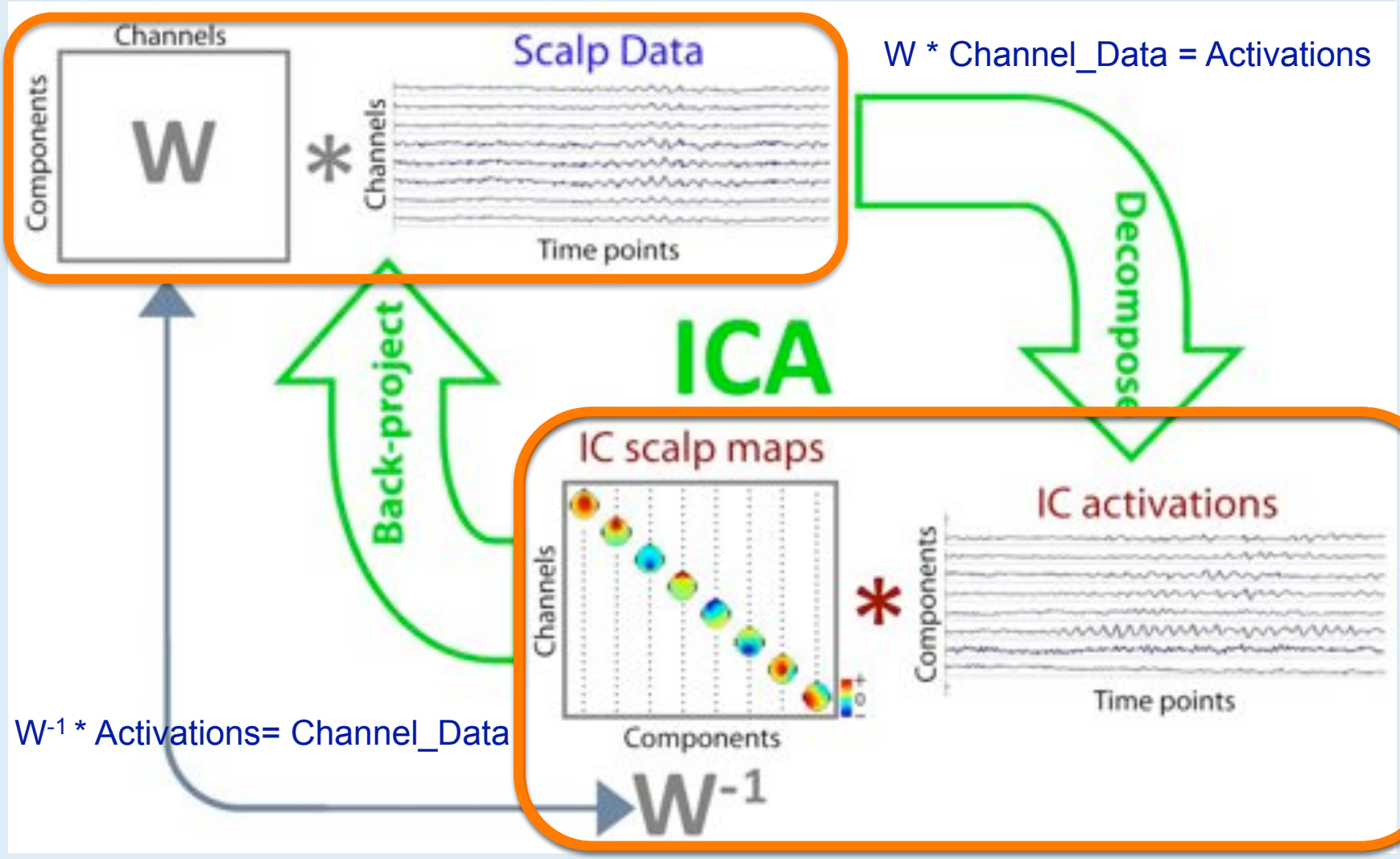
Distributed muscle / movement events



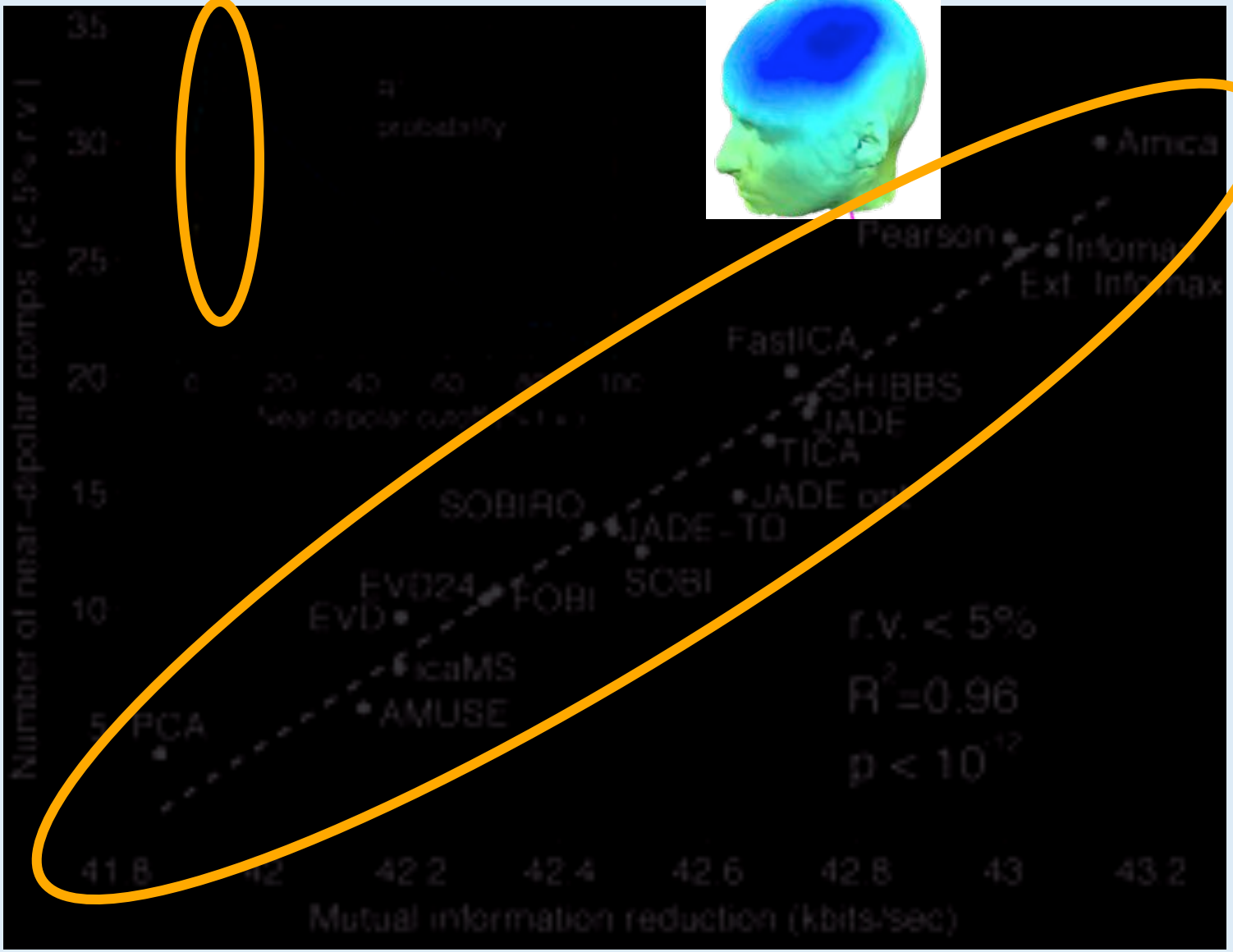


N. BigdelyS. Makeig, 2009

ICA is a linear data decomposition method

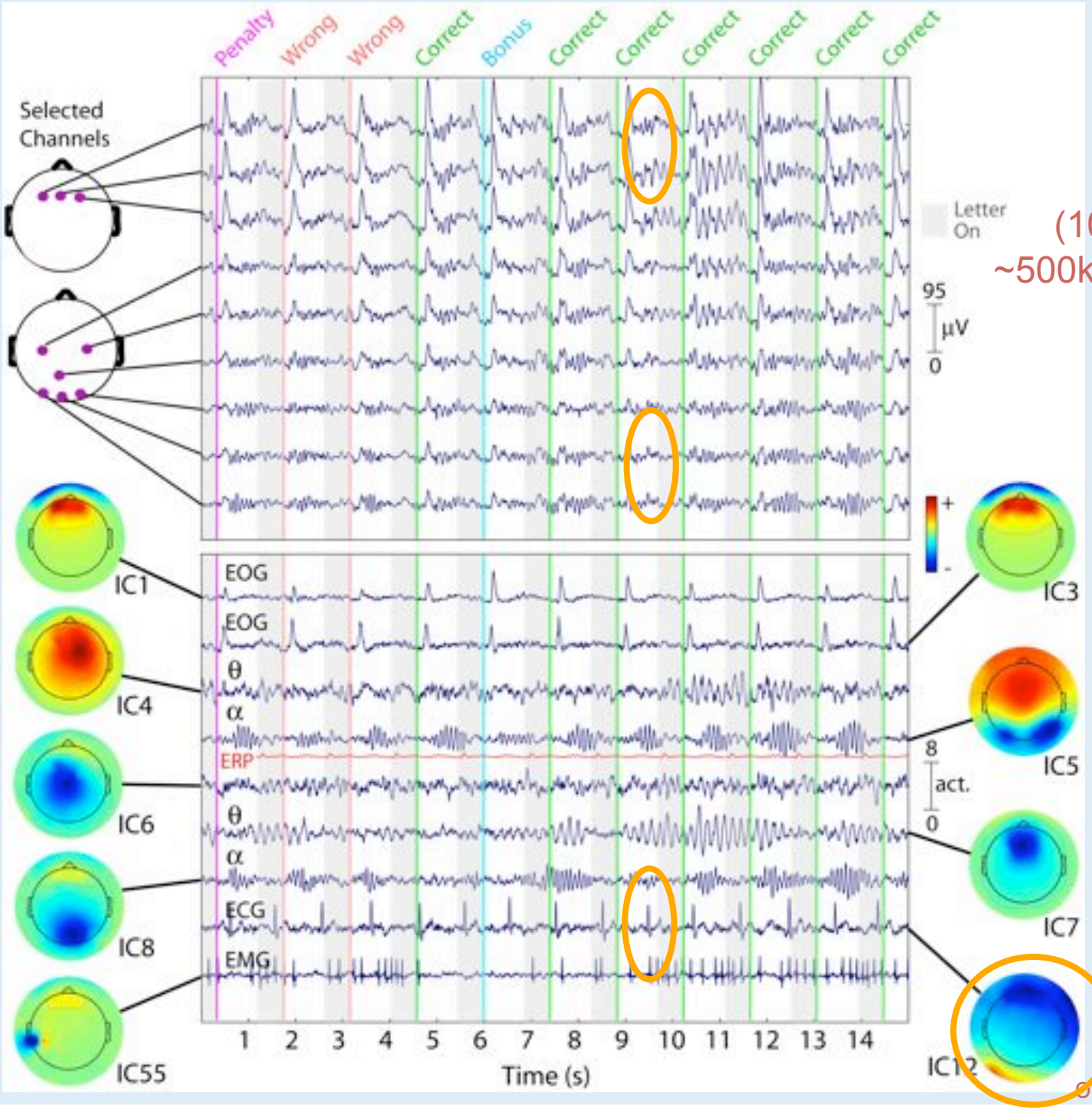


Independent Components of Human EEG are Dipolar



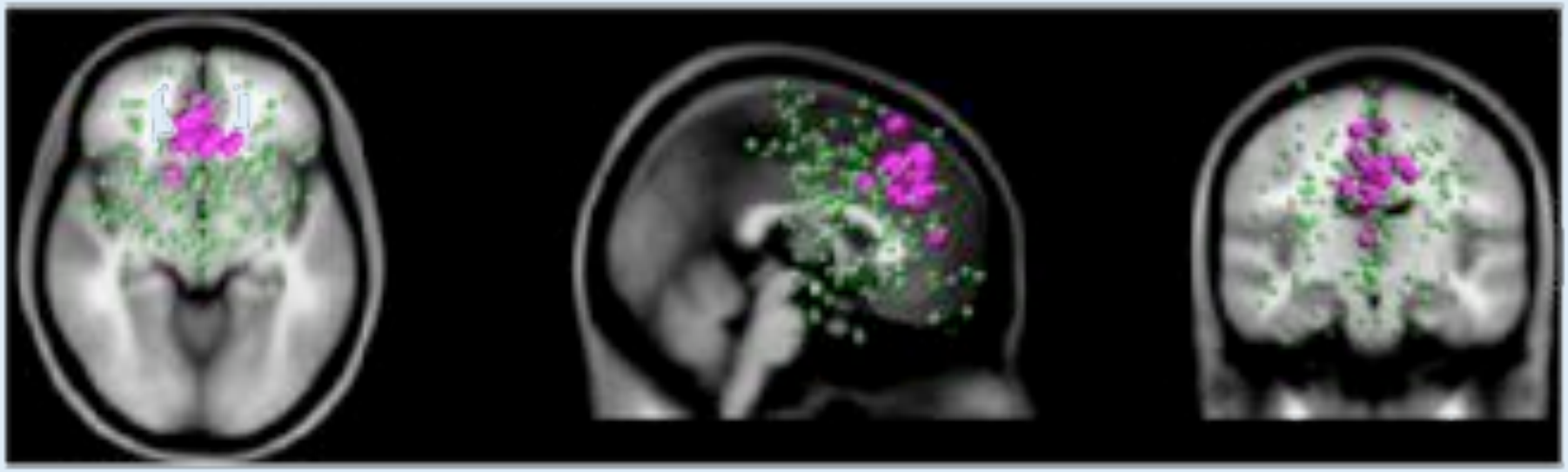
ICA in practice

(100 channels, ~500k time points)



Onton & Makeig, 2006

24 Subjects –Frontal Midline Theta Sources



Onton & Makeig 2006