



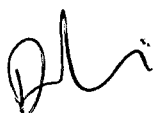

TEMA 1

1. Una necessità di tutti i laboratori sperimentali è quella di archiviare i dati in modo efficiente, sicuro e attraverso un sistema che sia facile da usare per gli utenti. Come organizzeresti un tale sistema di archiviazione?
2. Describe the fundamentals of fMRI and EEG, and discuss their main advantages and limitations.
3. Using a coding language of your choice between Matlab, R and Python, devise a piece of code that block-randomise a set of stimuli, i.e., given $k \times j$ stimuli, it randomises the order of the k blocks, and then the j stimuli within each of these blocks.


Dr.
Dr. Malloy
Ques

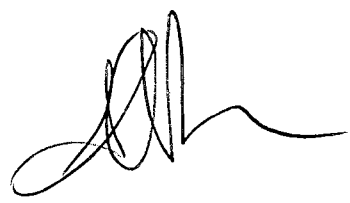
TEMA 2

1. Una necessità di tutti i laboratori sperimentali è quella di archiviare i dati in modo efficiente, sicuro e attraverso un sistema che sia facile da usare per gli utenti. Come organizzeresti un tale sistema di archiviazione?
2. Describe the fundamentals of two Cognitive Neuroscience methods of your choice (e.g., fMRI, EEG, MEG, ECoG, TMS), and discuss their main advantages and limitations.
3. Using a coding language at your choice between Matlab, R and Python, devise a piece of code that describes graphically the data from an experiment where a continuous Y variable is pitted against another continuous variable and a three-level factor.


Ch. Maffei 


TEMA 3

1. Every experimental lab in Cognitive Neuroscience needs a data archiving system that is efficient, solid, and easy to use from the user perspective. How would you devise such a system?
2. John would like to investigate the hypothesis that the human brain builds progressively higher order representations along the ventral stream for visual stimuli. For example, the system should perceive a lemon as more similar to the moon than to a pineapple in early visual areas (or the word CAT as more similar to the word CAP than to the word DOG); and do just the opposite in the fusiform gyrus. Which techniques would you consider using to run such an experiment?
3. Usando un linguaggio a tua scelta tra Matlab, R e Python, scrivi un codice che descriva efficacemente la decisione binaria di una serie di soggetti sperimentali in base alla variazione (continua) di una data caratteristica fisica dello stimolo.



Dr. Matteo Di
Gee