



NEURONS (1 point possible)

A mouse brain has approximately how many times as many neurons as the brain of a larval zebrafish?

☐ 80

☐ 800

☐ 8000

?

CHECK

FMRI (1 point possible)

fMRI scanners provide too low of a resolution to tell, in detail, what is occurring at the neuron level.

☐ True

☐ False

?

CHECK

LIGHT-SHEET MICROSCOPY (1 point possible)

Light-sheet microscopy can only be used in transparent animals.

☐ True☐ False

?

CHECK

EXPERIMENT DATA (1 point possible)

According to the lecture, recording the neuron activity of the entire brain of a larval zebrafish during a typical experiment requires:

☐ 1 MB of data☐ 1 GB of data☐ 1 TB of data☐ 1 PB of data

?

CHECK

CLUSTERING (1 point possible)

Clustering is a supervised learning technique.

☐ True☐ False

?

CHECK

PCA DISTANCE METRIC (1 point possible)

When working with two dimensional data, if we project data points onto the top principal component (which is a line in 2D space), the distance between the projected points and the original points minimizes which distance?

☐ vertical distance☐ euclidean distance☐ manhattan distance☐ horizontal distance

?

CHECK

COVARIANCE MATRIX SYMMETRY (1 point possible)

The covariance matrix is asymmetric.

☐ True☐ False

?

CHECK

COVARIANCE MATRIX DIAGONAL ENTRIES (1 point possible)

The values along the diagonal of the covariance matrix are variances.

☐ True

☐ False

?

CHECK

PRINCIPAL COMPONENTS PROPERTIES (1 point possible)

For a set of principal component vectors, the dot product between any two distinct vectors equals:

☐ One

☐ Zero

☐ d -- the number of features

?

CHECK

PRINCIPAL COMPONENTS (1 point possible)

Principal components equal the eigenvalues of some matrix.

☐ True☐ False

?

CHECK

NUMBER OF PRINCIPAL COMPONENTS (1 point possible)

Given a d -dimensional dataset with n observations, the total number of principal components is:

☐ n ☐ d ☐ some other number

?

CHECK

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