A

100% of neurons

Spatial-Temporal

Spatiotemporal

LSTM

Tuned Neurons

Dir.
Vel.
Dir. x Vel.
Pos. Cart.
Pos. Polar
Acc.
Labels

L0 L1 L2 L3 L4 L5 L6 L7 L8

L0 L1 L2 L3 L4

Layer

B

Encoding Models

R^2 Score

ART
TDT PV
Dir. Ind.
Dir. Mean
Pos. Ind.
Pos. Mean

Sp. L1 L2 L3 L4 L5 L6 L7 L8

Sp. L1 L2 L3 L4

C

Decoding

R^2 Score

ART
TDT PV
Ind. Dir.
Mean Dir.
Ind. Mean Pos.
Mean Mean Pos.

Sp. L1 L2 L3 L4 L5 L6 L7 L8

Sp. L1 L2 L3 L4

D

Preferred Directions

Total Absolute Deviation from Uniformity

Ind. Trained
Ind. Untrained
Mean Trained
Mean Untrained

Sp. L1 L2 L3 L4 L5 L6 L7 L8

Sp. L1 L2 L3 L4

Layer