Coding of walking direction by macaque visual temporal cortical neurons

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Introduction

Goal 1: examining the selectivity of neurons in the temporal cortex to human locomotion without a translatory component

Goal 2: determining contribution of SEQUENCE INFORMATION by presenting displays differing only in motion (same snapshots: forward/ backward) and in both motion and form (Δ facing direction)

Stimuli

Recording

Behavior

Examples

Temporal Time Difference Plots

SVM: [fwd-bwd][facing]

Motion vs. Snapshot neurons

SVM: [Motion][Snapshot]

SVM: Random Start Frames

Conclusions

1. Neural discriminations (1050 ms bin): Δ facing direction >> forward/backward
2. Neural discriminations (21*50 ms bins): improved forward/backward
3. TTTD plots: non-stationarity/reversing neural code
4. Randomizing start frames:
   fwd/bwd classifications > chance level
   neurons (incl. snapshot) encode body pose SEQUENCE