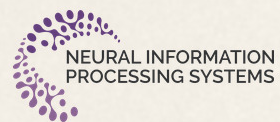


Neural-DISCO

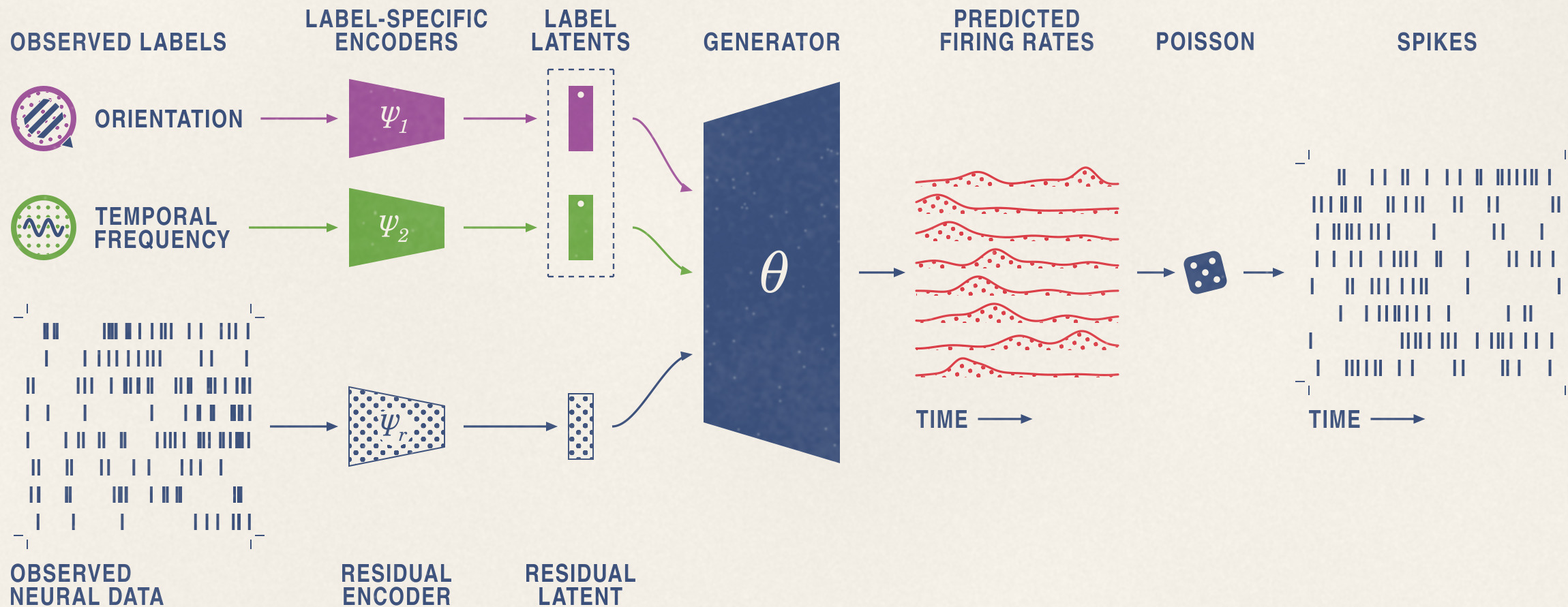
NEURIPS 2026



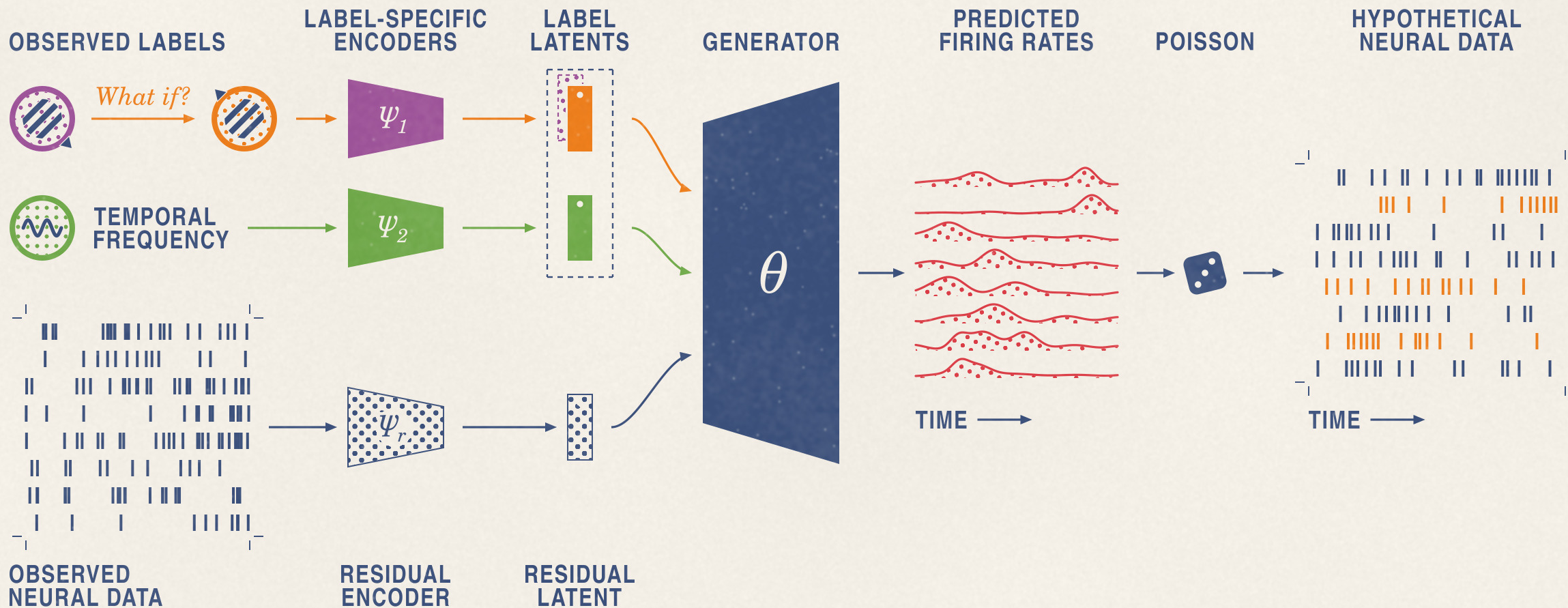
THE UNIVERSITY OF BRITISH COLUMBIA

Michael Smith Laboratories

The model



Each label has its own encoder; a residual encoder captures the rest of the activity.

What if?

Only the orientation label is edited; the other inputs are unchanged.

Decoder check

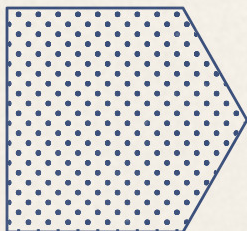
OBSERVED NEURAL DATA



HYPOTHETICAL NEURAL DATA



DECODER



ORIENTATION
CHANGED



TEMPORAL FREQUENCY
PRESERVED



RUNNING SPEED
PRESERVED

— OBSERVED

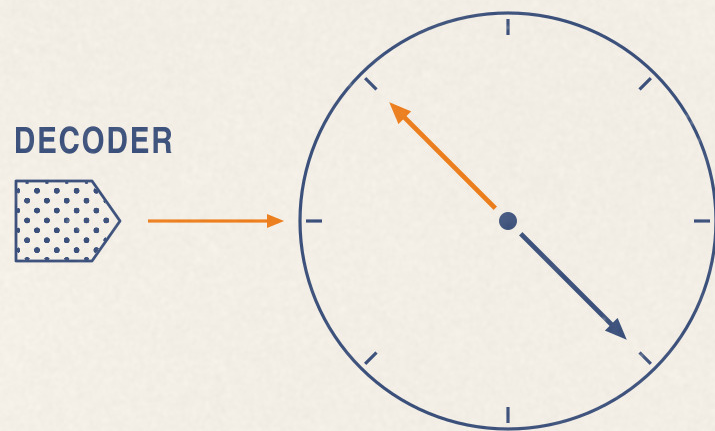
- - - HYPOTHETICAL



Running speed is not a model input, but is preserved.

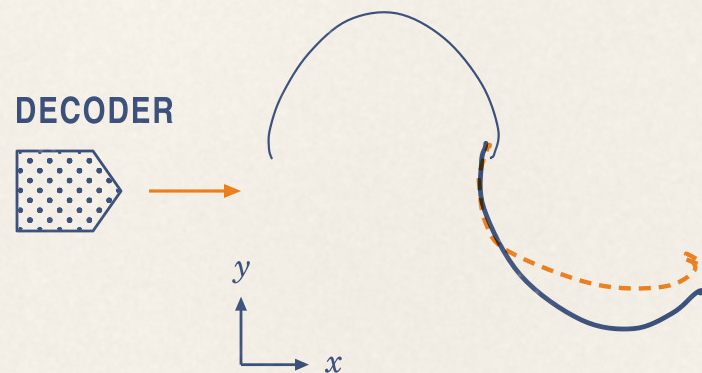
Across systems

MOUSE VISUAL CORTEX



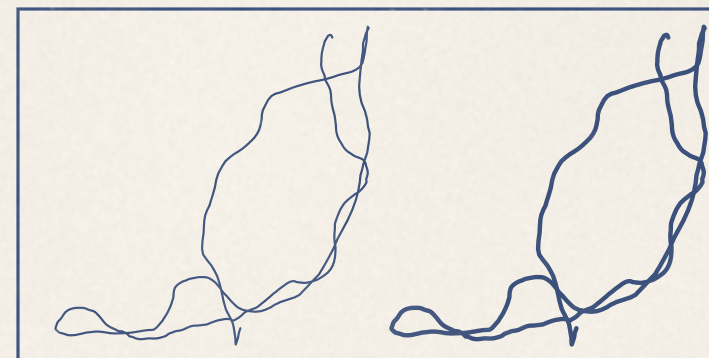
Grating orientation edited.

MONKEY MOTOR CORTEX



Hand path and gaze edited.

SIMULATED RAT



Position in the arena edited.