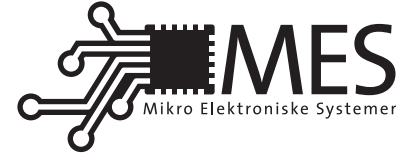




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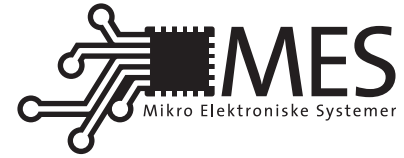
Neuromorphic Electronics

Coding in the Nervous System



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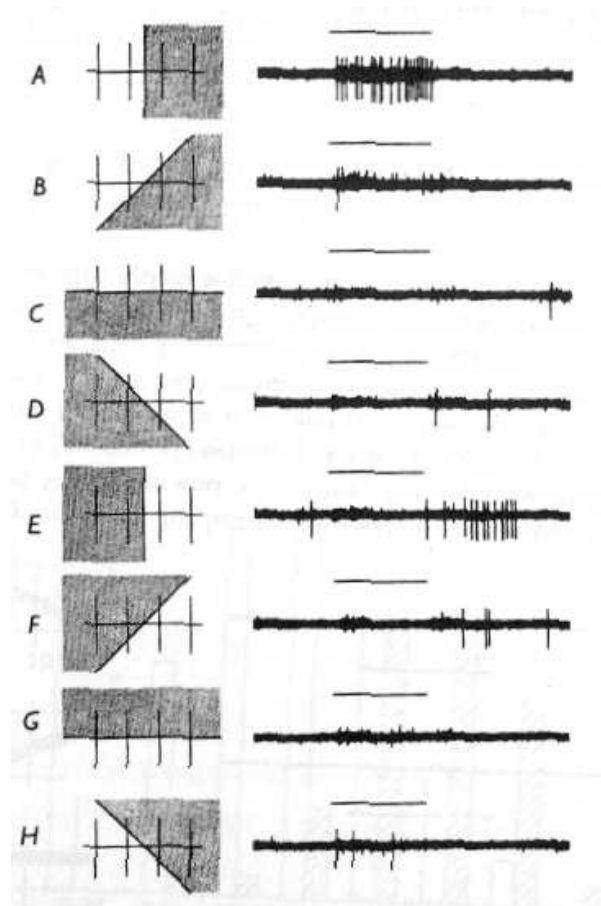
Experiments:
Rate Codes



Static Charges make Frog Legs Twitch (Galvani and Volta, 1700)



Rate Response of Orientation Selective Cells in V1 (Hubel and Wiesel)



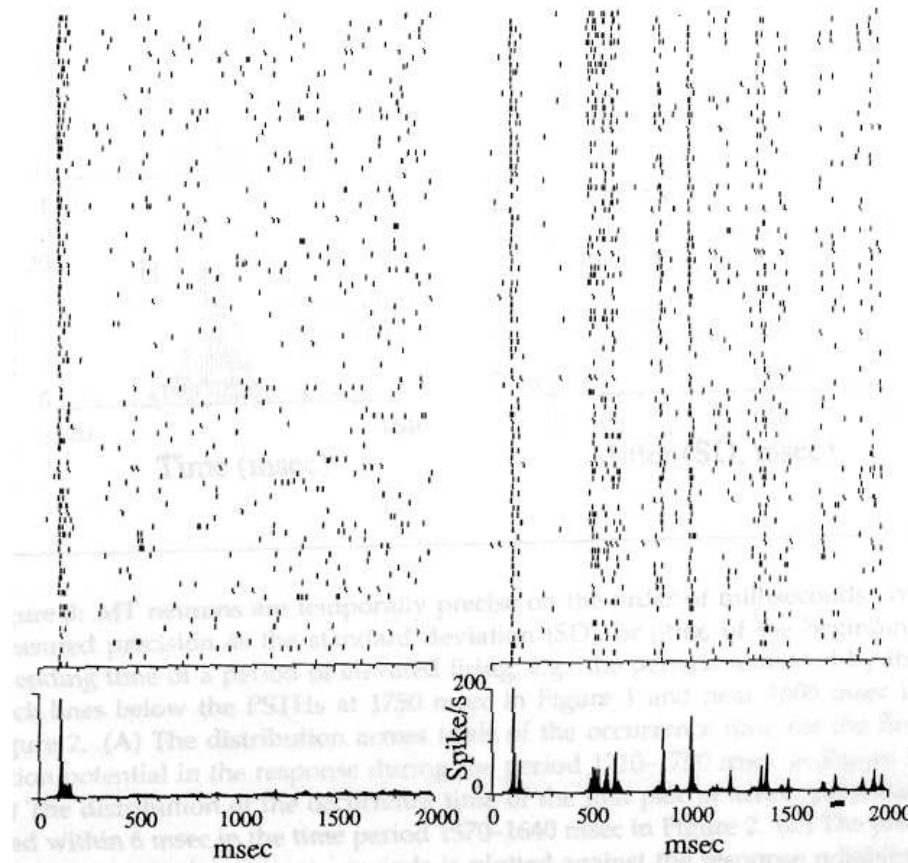


Other Rate Response Experiments

- Motor Neurons, Muscle Fibres
- Segmentation by Synchrony

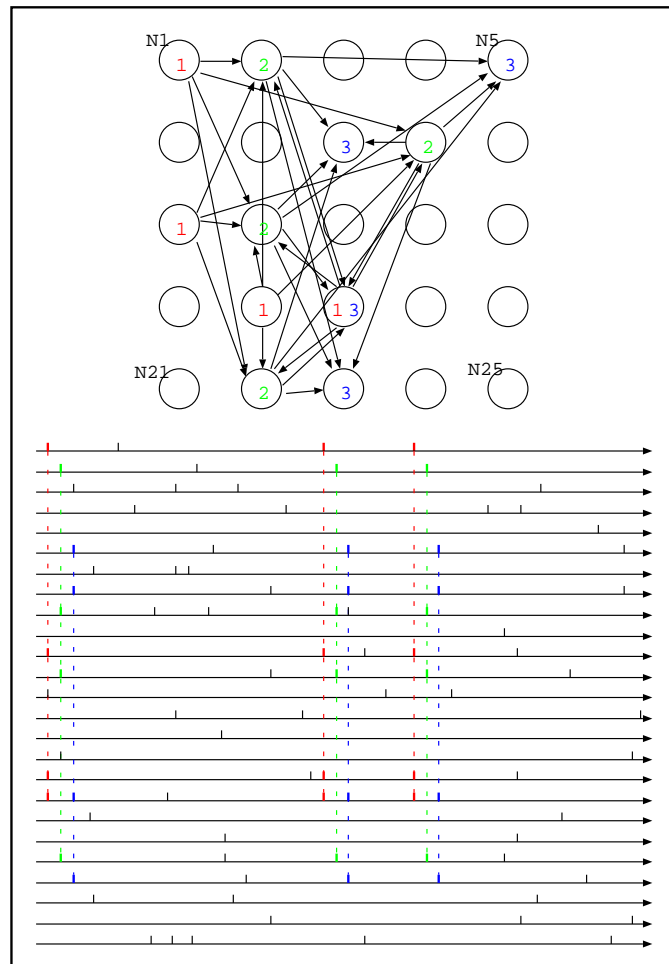


Precise Spike Patterns as Response to High Entropy Stimuli (Bair and Koch)



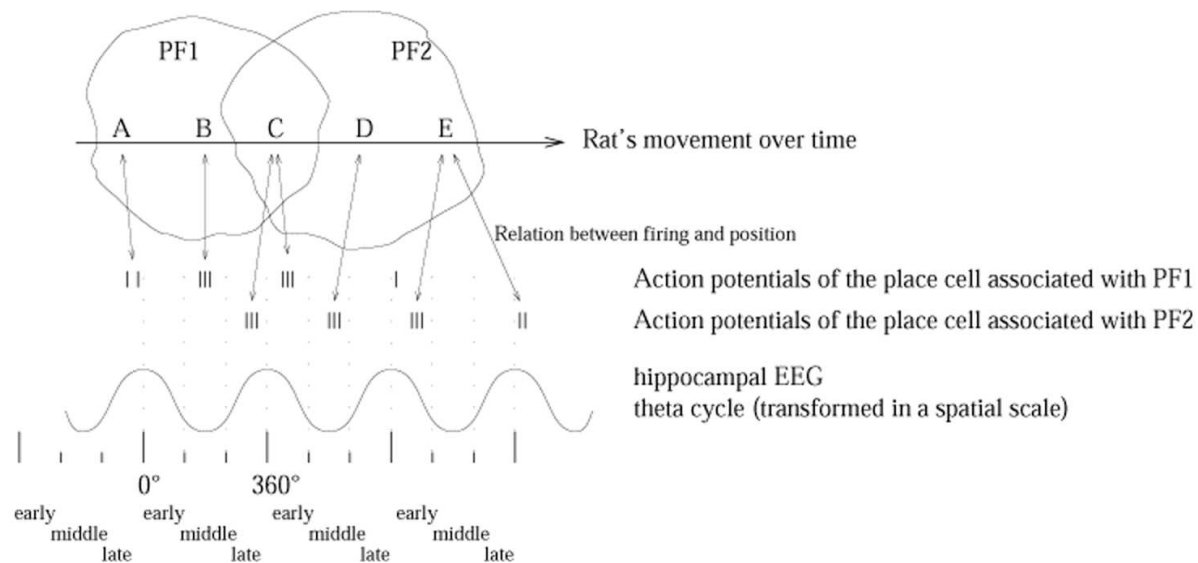


Synfire Chains (Abeles)

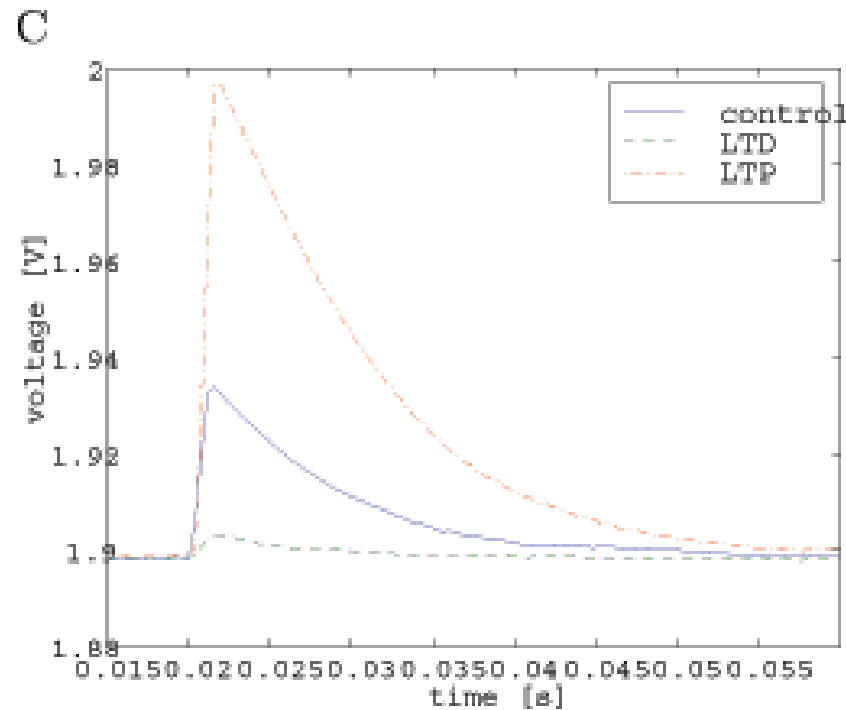
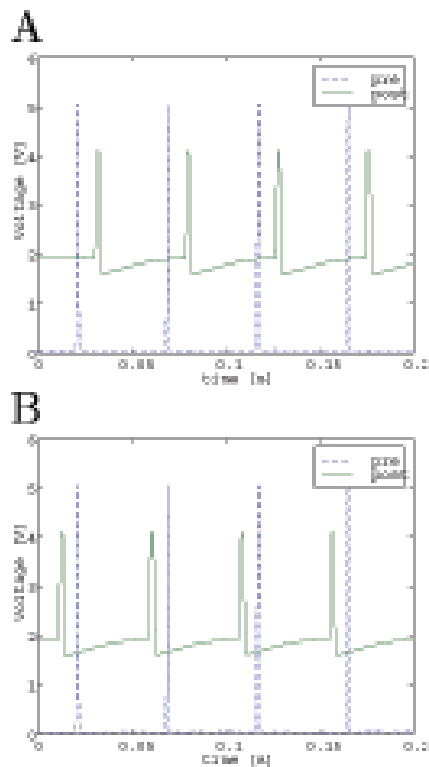




Phase Shift in Hippocampal Place Cells (O'Keefe and Recce)

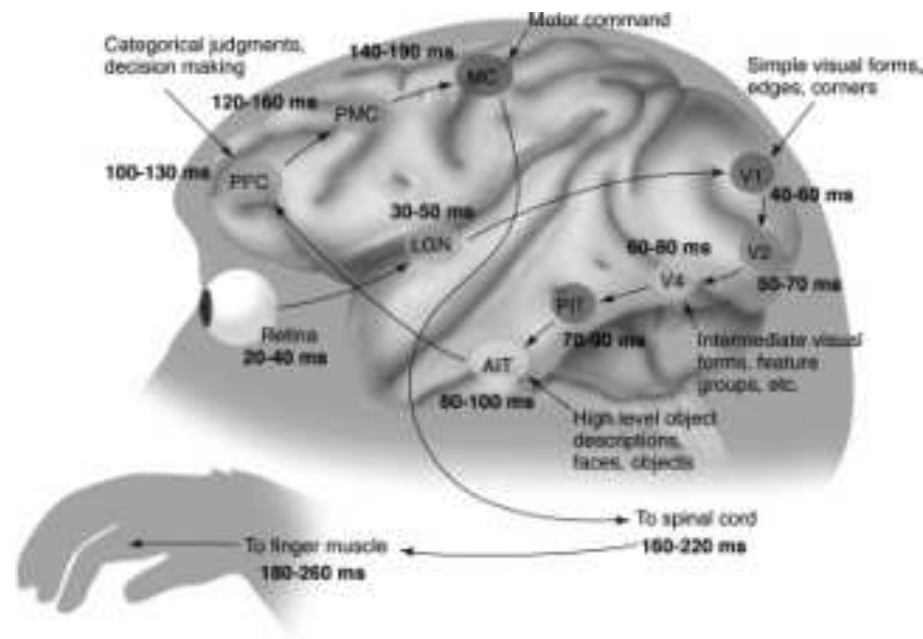


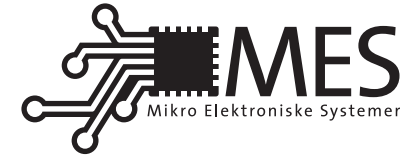
Spike Timing Dependent Plasticity, Spike Based Learning



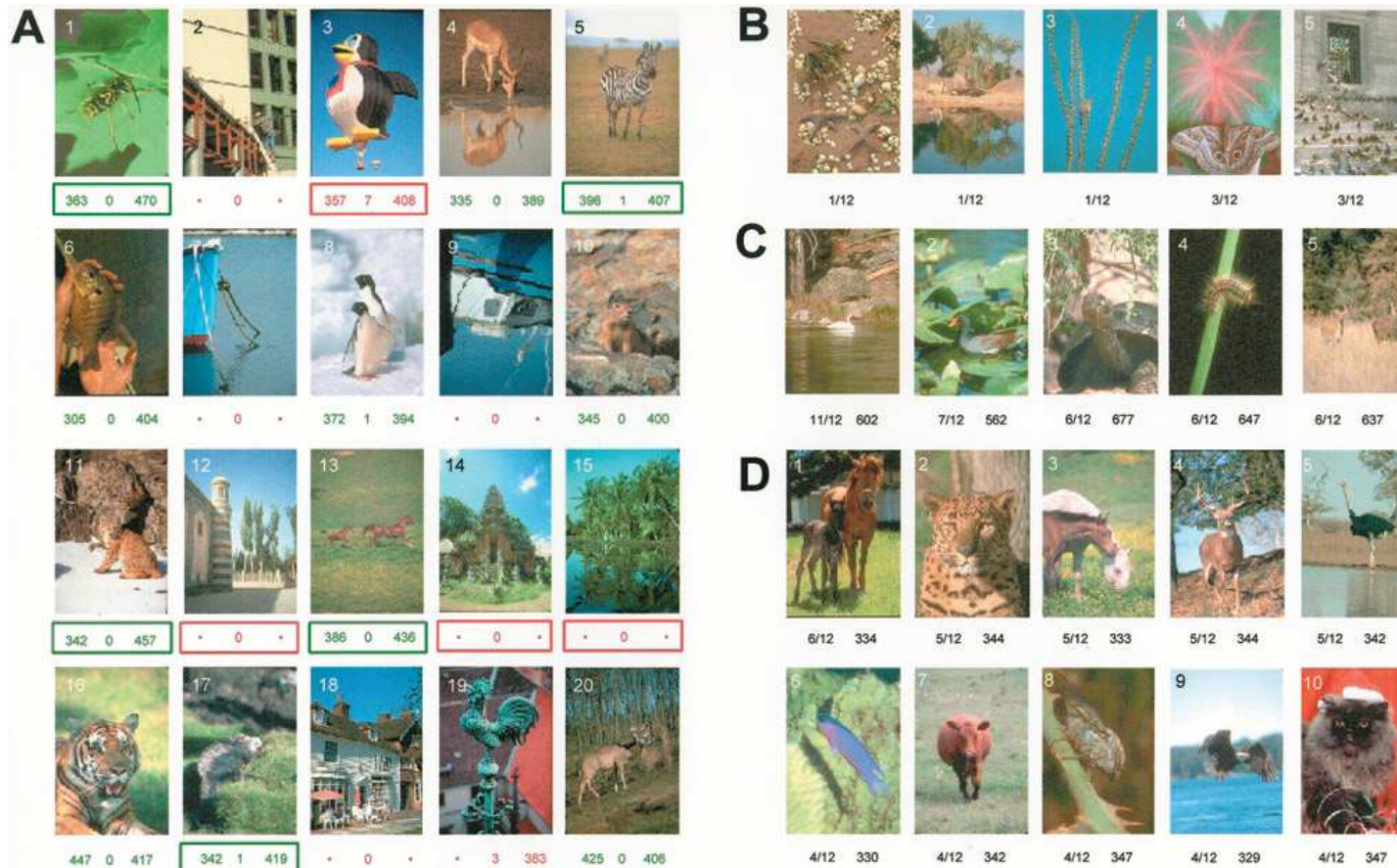
Reaction Time In Psychophysical Recognition Tasks (Simon Thorpe) (1/2)

150ms to 200ms reaction time in visual recognition task



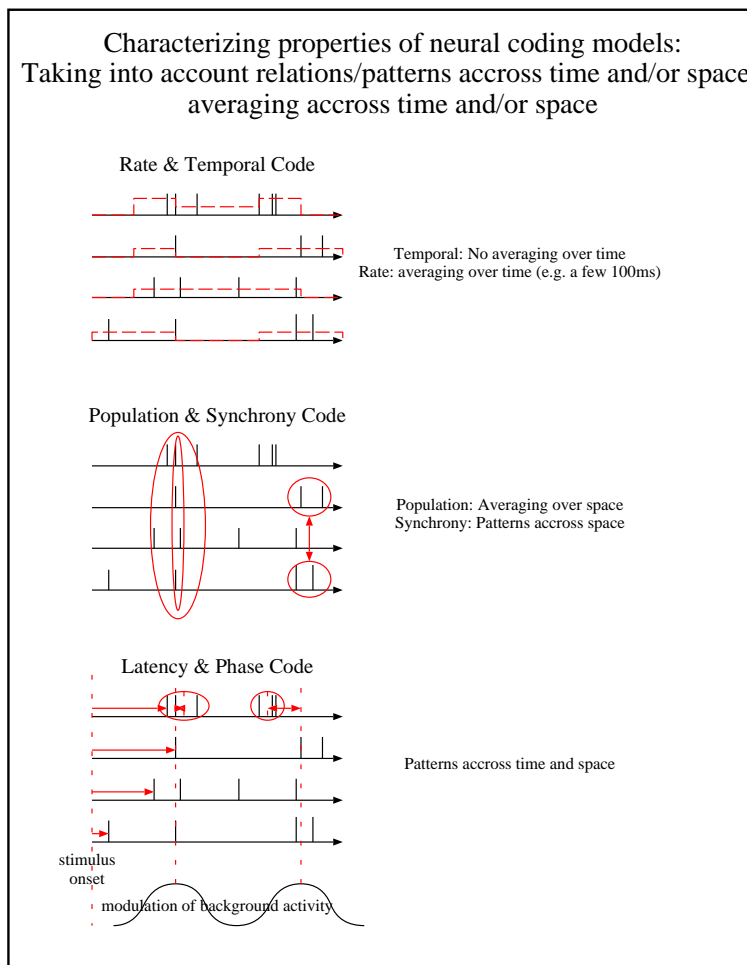


Reaction Time In Psychophysical Recognition Tasks (Simon Thorpe) (2/2)





Classes of Coding Strategies



Example of a Temporal Code: Latency Encoding

