

Perception & Attention

Computational Cognitive Neuroscience
Randall O'Reilly

Perception Overview

Optic Pathway

Retinal Contrast Filtering

a) On-center b) Off-center c) Contrast sensitive

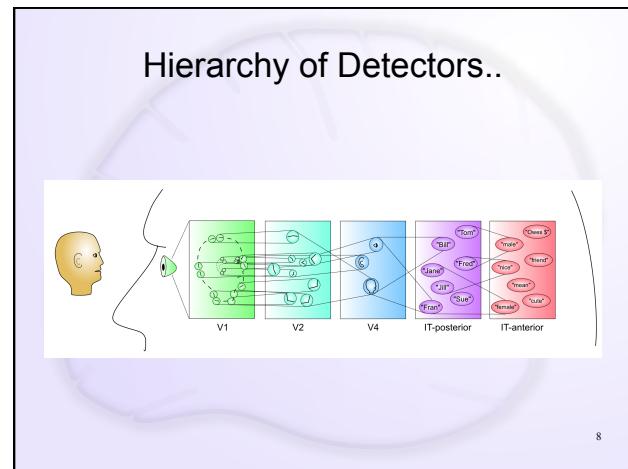
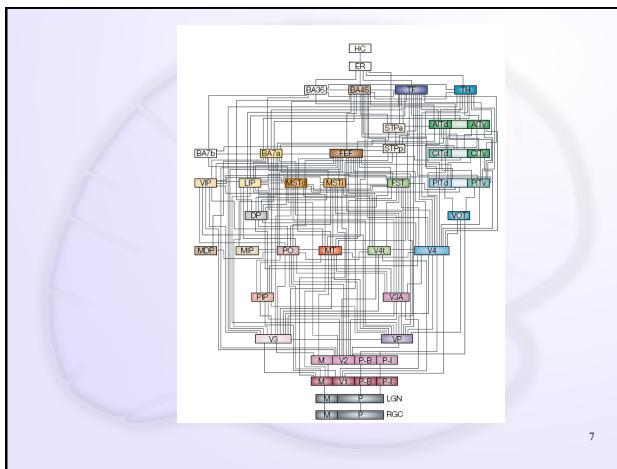
Edge = net +
Uniform = net 0

V1

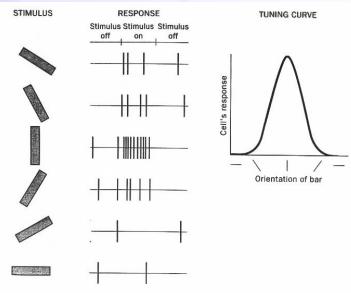
V1 simple cell edge detector

Visual Hierarchy: What vs Where

6



Self-Organization of V1 Orientation Selective Neurons

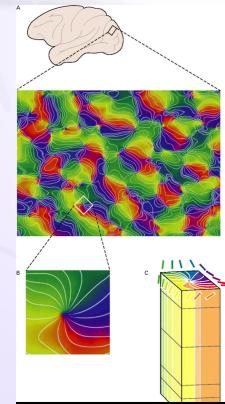


Topography!

Map of orientations

“Pinwheel” singularities

Hypercolumn organization



What is Common?



Self-Organized Topography

