How Does the Brain Solve Visual Object Recognition?

Define “object recognition” as the ability to assign labels (e.g., nouns) to particular objects, ranging from precise labels (‘‘identification’’) to course labels (‘‘categorization’’)

More specifically, focus on the ability to complete such tasks over a range of identity preserving transformations (e.g., changes in object position, size, pose, and background context).

Can accurately report the identity or category of an object in the central visual field remarkably quickly: behavioral reaction times for single image presentations are as short +- 350 ms in humans.

Extremely rapid and highly accurate object recognition behavior as “core recognition”

Decades of evidence argue that the primate ventral visual processing stream, a set of cortical areas arranged along the occipital and temporal lobes, houses key circuits that underlie object recognition behavior.

Inferior temporal cortex (IT): Commonly parsed into subareas such:

* TEO & TE
* Posterior IT (pIT), central IT (cIT) and anterior IT (aIT)

Lateral occipital cortex (LOC)