PATCHWORK

In the 1990s, researchers began to take advantage of functional MRI (fMRI) to observe how the perception of faces in healthy participants correlated with activity in particular brain regions. In 1997, Nancy Kanwisher, then at Harvard and now at MIT, published data identifying a face “patch,” dubbed the fusiform face area (FFA), which lit up more in response to faces than to other objects. Soon, other researchers identified two additional face patches, the occipital face area (OFA) and the superior temporal sulcus (STS). Together, the FFA, OFA, and STS comprise what some call the core regions of face perception.

In a still-speculative model of face-processing computation, information from the eyes moves from the early visual cortex to the OFA and STS, which perform distinct tasks, such as responding to particular parts of the face (OFA) and facial expression (STS). Information then bounces among the three face patches, recruiting the FFA for help determining a person’s identity. From there, other regions of the brain, including the precuneus, the anterior paracingulate, the amygdala, and the anterior temporal cortex, are also associated with face perception, thought to link faces with emotion, memory, social information, and speech processing. These areas are often referred to as the extended region of the face perception network, and they are more active in response to familiar faces than to unfamiliar ones.