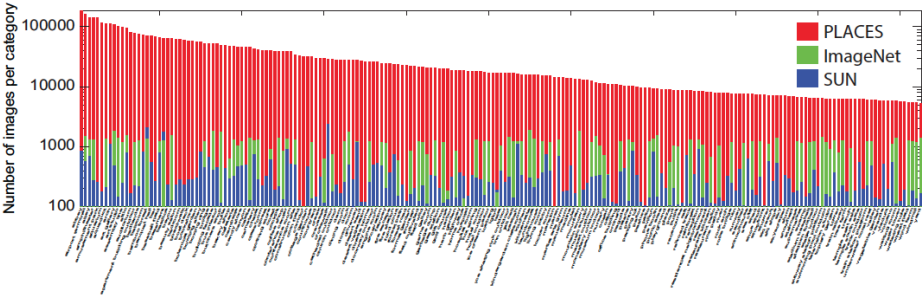- Computer Science & Artificial Intelligence Lab, MIT

- PI: Aude Oliva

- Current Team Members:

Antonio Torralba, MIT

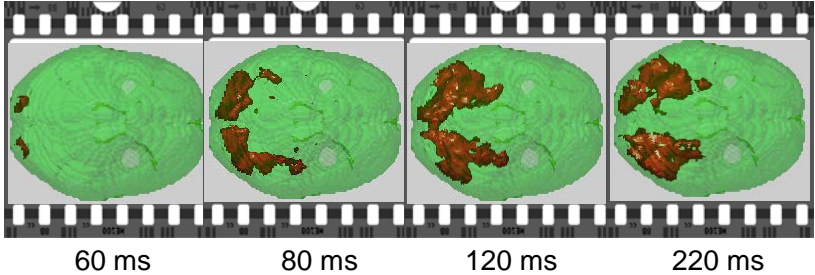Dimitrios Pantazis, MIT

Research Areas of Interest

Large-scale image dataset
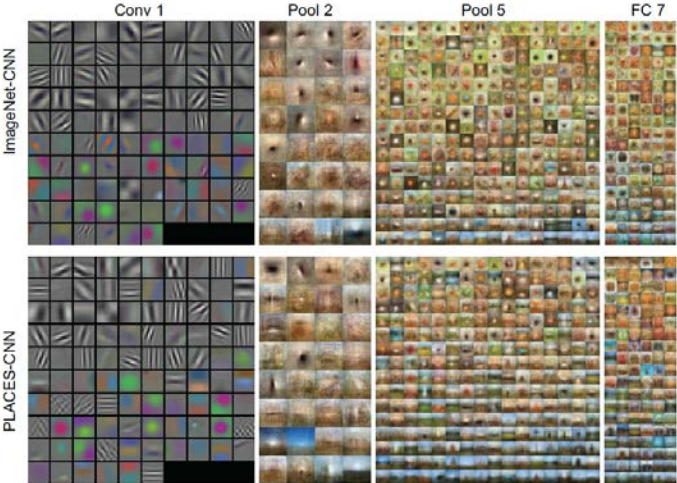Millions of labeled images for benchmarks

Large-scale human brain analysis
Combining high temporal (ms-resolution MEG) and spatial (mm-resolution fMRI) information

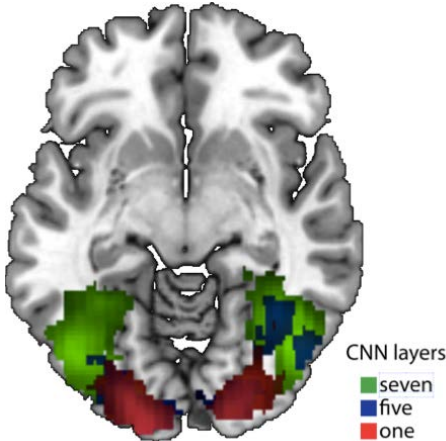60 ms   80 ms   120 ms   220 ms

Convolutional Neural Networks (CNNs)
Representations of receptive fields of artificial neurons and layers

Computational Neuroscience
Leveraging human neural responses to enhance CNN architecture and performances

Qualifications and capabilities

- State of the art human brain imaging capabilities: ms-resolution MEG combined with mm-resolution fMRI to capture spatio-temporal dynamics of recognition

- State of the art computer vision and deep learning methods

- Inter-disciplinary team: Oliva (neuroscience), Torralba (computer science), Pantazis (signal processing)

Type of Research

- **Large-scale Human Brain Analysis:** Algorithmically-explicit framework for visual recognition at the level of the whole human brain

- **Deep learning:** Design learning algorithms derived from high resolution representations of human brain cortical areas on visual recognition tasks (object and place recognition)

- **Large-scale benchmarks**: Design benchmarks to test visual recognition algorithms

- **Collaboration** with systems neuroscientists

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