The Hierarchical Recognition Architecture of Visual Cortex: Learning and Discounting Transformations

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The human visual system excels at factoring out the image transformations that distort object appearance under natural conditions. New empirical tests suggest that the sample complexity of object recognition is very low *when* transformations are factored out. We describe how hierarchical models with a cortex-inspired architecture such as HMAX can be extended transformations to learn from natural image sequences and discount them. We can show that this computational goal of cortex may imply a hierarchical architecture for recognition and predict class-specific modules such as the face patches system.

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