

An integrated framework for combining gist vision with object segregation, categorisation and recognition

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There are roughly two processing systems: (1) very fast gist vision of entire scenes, completely bottom-up and data driven, and (2) Focus-of-Attention (FoA) with sequential screening of specific image regions and objects. The latter system has to be sequential because unnormalised input objects must be matched against normalised templates of canonical object views stored in memory, which involves dynamic routing of features in the visual pathways. A recently developed architecture provides a framework to combine gist and FoA for obtaining object segregation, categorisation and recognition by a dynamic process in which coarse-scale information is applied first, after which progressively finer scales are added for refining the process. This model employs multiscale keypoints based on end-stopped cells (Rodrigues and du Buf, 2006 *BioSystems* 86 75-90) for FoA and dynamic routing, complemented by the multiscale line and edge representation extracted from responses of simple and complex cells to validate different categorisation levels. This architecture is now being extended with colour and texture (du Buf, 2007 *Image and Vision Computing* 25 873-882).

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