

Title: 3D shape: its unique place in visual perception.

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Abstract:

The talk will begin with a brief review of the main issues related to 3D shape perception: (i) the lack of learning, (ii) the nature of perceptual representation of 3D shapes, and (iii) the role of surface reconstruction vs. priors in shape recovery. A new model, which recovers a 3D shape from a single 2D image by applying simplicity constraints, will be presented.

The following constraints are used: symmetry, planarity, maximum compactness and minimum surface area. The role of these constraints in human vision will be illustrated by results of psychophysical experiments.

The new model was tested in simulations involving 3D synthetic shapes. The model's recovery is at least as good as that of human subjects.