

Departmental Seminar

Bayesian estimation as a model for 3D perception from multiple cues

4:30 p.m. – 5:30 p.m. | September 21, 2018 (Friday)

Rm 813, 8/F, The Jockey Club Tower | Centennial Campus | The University of Hong Kong



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Abstract

To perceive the world, the brain utilizes a variety of cues that vary in their availability and reliability, and implicit assumptions about the world that may not always hold. Perception of 3D structure is good example. We can perceive 3D from depth cues like binocular disparity and motion parallax, and also from "pictorial" cues like linear perspective, texture gradients, and shading. How can the brain make use of this potentially rich information given that individual cues may be ambiguous or unreliable? Bayesian estimation provides a useful theoretical framework for this problem. In this talk, I will attempt to convey the key ideas of this approach and how it can explain some perceptual effects, in an accessible manner that does not require prior mathematical background. I will describe some predicted effects that naturally emerge from a Bayesian model, and present empirical results from my research that test these predictions.

~All are Welcome~