



CNeuro2022 Lecture Abstracts

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Basic Lecture: Inference in Perception; Probabilistic Learning of Perceptual Representations

Advanced Lecture: Probabilistic Inference in Neural Systems

Abstract 1 & 2 – Basic and Advanced Lecture:

Statistical Learning and Inference in Perceptual Systems

Perception is the process by which we and other animals make sense of the world from sensory input. A hallmark of natural perception is its flexibility. Observers are able to parse sensory input into constituent components at many levels of detail and interrogate their internal representations to report (or act on the basis of) features at any level. Furthermore, they learn to do so without curated datasets and, at least in the case of non-human animals, without access to linguistic training labels. We are still far from understanding the processes that underlie such learning and inference, but some basic principles of statistical learning and inference are very likely to apply. I will review work exploring connections between unsupervised learning and early sensory representations, and then discuss models that link general schemes of probabilistic inference to neural processing.