



Cognitive Architectures for Video Understanding

Jose C. Principe

Distinguished Professor and Eckis Professor of ECE

Director of the Computational Neuro Engineering Lab, U. of Florida

This talk describes our efforts to abstract from the mammalian visual system the computational principles to explain the recognition of objects in video. We develop a hierarchical, distributed architecture of dynamical systems that self-organizes to explain the input imagery using an empirical Bayes criterion with sparseness constraints and dual state estimation. The interpretation of the images is mediated through causes that flow top down and change the priors for the bottom up processing. To simplify the computation we also are looking at the visual system to implement saccadic vision which focus in interesting patches of the image one at a time. We will present preliminary results in several data sets.