

ICTS Postdoc/Graduate Student Seminar Series

Title : State estimation using the gradient descent method

Speaker : Suman Acharyya, ICTS-TIFR, Bangalore

Date : Friday, May 12, 2017

Time : 11:15 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : State estimation has been a subject of intense research and has wide applications in many fields ranging from weather prediction to brain imaging. We use the gradient descent method in order to accurately estimate a nonlinear system's state from a set of noisy observations. The noisy observations are true states corrupted by additive Gaussian noise. Associated with noisy observations, there exists a set of true states of the system which are indistinguishable from each other. These states are known as indistinguishable states. The indistinguishability of the true states depends on the noise in the observations. We show that, for a small noise level (with respect to the true states), the gradient descent method converges to the true states. When the noise level is large the gradient descent method generally converges to the set of indistinguishable states.

Note: This will be an ongoing biweekly seminar series (Fridays, 11:15 am) by the ICTS postdocs and graduate students