# ICTS Seminar

Title      : Electron Proton Dynamics in Deep Learning

Speaker   : Rina Panigrahy, Google, USA

Date       : Tuesday, January 24, 2017

Time       : 11:30 AM

Venue     : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract  : In this work we make a connection between Deep Learning for Neural Networks and the study of stable configuration of a collection of electrons and protons. Deep Learning involves training a deep neural network to learn an unknown function that represents a certain given training data. Such methods have proved to be very useful in several technologies ranging from speech and image recognition to search advertising. However there is little theoretical understanding of why gradient descent based back propagation algorithm doesn't get stuck in a poor local minima to produce a function that is far from the true function to be learnt. We will see how the gradient descent dynamic can be interpreted as a dynamic involving a collection of charges that are moving under the electric force and how the study of such charge configurations can give us insights into whether the backprogagation will converge to the desired function.