BME Special Seminar

Pratik Chaudhari  
PhD Candidate, Computer Science  
University of California, Los Angeles

Date: Monday, March 5, 2018  
Time: 10:00 AM  
Location: Clark 110, Homewood Campus  
Video-teleconferenced to Traylor 709, School of Medicine Campus  
Host: Dr. René Vidal

A Picture of the Energy Landscape of Deep Neural Networks

Abstract: Deep networks are mysterious. These over-parametrized machine learning models, trained with rudimentary optimization algorithms on non-convex landscapes in millions of dimensions have defied attempts to put a sound theoretical footing beneath their impressive performance.

This talk will shed light upon some of these mysteries. I will employ diverse ideas ---from thermodynamics and optimal transportation to partial differential equations, control theory and Bayesian inference--- and paint a picture of the training process of deep networks. Along the way, I will develop state-of-the-art algorithms for non-convex optimization.

The goal of machine perception is not just to classify objects in images but instead, enable intelligent agents that can seamlessly interact with our physical world. I will conclude with a vision of how advances in machine learning and robotics may come together to help build such an Embodied Intelligence.

Biography: Pratik Chaudhari is a PhD candidate in the Computer Science department at the University of California, Los Angeles where he works with Stefano Soatto. His research interests include deep learning, robotics and computer vision. He has worked on perception and control algorithms for safe autonomous urban navigation as a part of nuTonomy Inc. Pratik holds Master's and Engineer's degrees from the Massachusetts Institute of Technology and a Bachelor’s degree from the Indian Institute of Technology Bombay in Aeronautics and Astronautics.