

# ***From Spin Glasses to Machine Learning***

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In the last fifty years, the construction of a new branch of statistical physics dealing with some strongly disordered systems, spin glasses, has found many applications in various fields, from computer science to information theory and biology. Four main obstacles were overcome to develop a coherent theory: handle a statistical ensemble of samples, analyze quantitatively the microscopic disorder, explore complex energy landscapes, understand their link to dynamical behaviors. This talk will describe some of these achievements. It will explain how some of these ideas can be used in the rapidly developing field of machine learning.