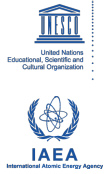




The Abdus Salam
**International Centre
for Theoretical Physics**



**SCHOOL ON LARGE SCALE PROBLEMS IN MACHINE LEARNING AND
WORKSHOP ON COMMON CONCEPTS IN
MACHINE LEARNING AND STATISTICAL PHYSICS
20 - 31 August 2012, Trieste, Italy**

GOING DATA-DRIVEN: From Artificial Intelligence to Science and Society

**N. CRISTIANINI
Univ. Bristol, U.K.**

Abstract:

A series of technological breakthroughs in the past decade has changed the face of AI research, conquering long standing problems such as machine translation and computer vision. These breakthroughs were enabled by relatively simple statistical learning algorithms applied to vast amounts of training data. The same philosophy has enabled businesses such as Amazon, and has greatly impacted research in biology. Now data-driven thinking is on the verge of spreading even further. We review the technical ideas behind this revolution, before discussing epistemological and ethical implications. To what extent can scientific research be automated? To what extent should society be organised based on data? These urgent questions are addressed from a technical as well as historical perspective.