CALL FOR CONTRIBUTIONS

NIPS 2011 Workshop on COSMOLOGY MEETS MACHINE LEARNING

Sierra Nevada, Spain, December 16 or 17, 2011

http://webdav.is.mpg.de/pixel/cmml-nips2011.html

Submission for contributions is now open!

Join us for an exciting program including invited talks by:

- Prof. Dr. Anthony Tyson, UC Davis
- Prof. Dr. Alexandre Refregier, ETH Zurich
- Prof. Dr. Jean-Luc Starck, CEA Saclay Paris
- Prof. Dr. David Hogg, New York University

IMPORTANT DATES

- November 2, 2011 Abstract submission deadline
- November 12, 2011 Notification of acceptance
- December 16 or 17, 2011 Workshop

DESCRIPTION

Cosmology aims at the understanding of the universe and its evolution through scientific observation and experiment and hence addresses one of the most profound questions of human mankind. With the establishment of robotic telescopes and wide sky surveys cosmology already now faces the challenge of evaluating vast amount of data.

Multiple projects will image large fractions of the sky in the next decade, for example the Dark Energy Survey will culminate in a catalogue of 300 million objects extracted from peta-bytes of observational data. The importance of automatic data evaluation and analysis tools for the success of these surveys is undisputed.

Many problems in modern cosmological data analysis are tightly related to fundamental problems in machine learning, such as classifying stars and galaxies and cluster finding of dense galaxy populations. Other typical problems include data reduction, probability density estimation, how to deal with missing data and how to combine data from different surveys.

An increasing part of modern cosmology aims at the development of new statistical data analysis tools and the study of their behaviour and systematics often not aware of recent developments in machine learning and computational statistics.

Therefore, the objectives of this workshop are two-fold:

1. The workshop aims to bring together experts from the Machine Learning and Computational Statistics community with experts in the field of cosmology to promote, discuss and explore the use of machine learning techniques in data analysis problems in cosmology and to advance the state of the art.
2. By presenting current approaches, their possible limitations, and open data analysis problems in cosmology, this workshop aims to encourage scientific exchange and to foster collaborations among the workshop participants.

About the Conference

NIPS is one of the leading and most important international conferences in the field of Machine Learning, Computational Statistics and Artificial Intelligence and enjoys a long tradition and strong reputation. For more information please visit the meeting webpage.

Submission Instructions

We invite submission of abstracts on topics in the following areas:

- challenging problems in cosmology data analysis
- applications of machine learning methods in cosmological data analysis problems

Submissions should not exceed 200 words and will be judged on technical merit, the potential to generate discussion, and their ability to foster collaboration within the workshop participants.
Accepted papers will be presented at the poster session with an additional poster spotlight presentation. One author of every accepted paper has to attend the workshop to present poster and spotlight talk.

Submissions should be sent to cmml.nips2011@gmail.com

Organising Committee

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