Unlocking the Universe with Astroinformatics

Invited talk

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Abstract. In the last decade Astronomy has been transformed by a deluge of data that will grow exponentially when near-future telescopes such as LSST and the SKA begin routine observing. Astroinformatics, a broad field encompassing many techniques in statistics, machine learning and data mining, is the key to extracting meaningful information from large amounts of data. This talk outlined Astroinformatics as a field, and gave a few examples of the use of machine learning and Bayesian statistics from my own work in survey Astronomy. The era of massive surveys in which we now find ourselves has the potential to revolutionise completely many fields, including time-domain Astronomy, but only if coupled with the powerful tools of Astroinformatics.

Keywords. Surveys, Methods: statistical, data analysis