Contribution ID: **383**   Type: **Poster Presentation**

An Implementation and Evaluation of Machine Learning Methods for Morphological Galaxy Classification

Tuesday, 4 July 2017 17:10 (1h 50m)

We present a novel summary and comparison of various machine learning methods for morphological classifications of galaxies from the Sloan Digital Sky Survey (SDSS). We re-implement these methods in an open-source and publicly available repository, and examine the accuracy of these methods in reconstructing ground-truth expert knowledge distributions from previous crowd sourcing work, as well as provide an analysis and comparison of the performance of the methods selected. Projects such as Galaxy Zoo, a large scale crowd sourcing initiative using human/expert knowledge to classify a subset of data from the SDSS, produced large labelled datasets of galaxies which has seen both crowd sourced solutions and methods in literature attempting to match classification accuracy of experts. By conducting such a study in an open-source manner, this work will allow future methods to be quickly compared and evaluated against a sizeable subset of existing methods.

Summary

We present a novel summary and comparison of various machine learning methods for morphological classifications of galaxies from the Sloan Digital Sky Survey (SDSS), and implement these methods in an open-source publicly available repository.

Apply to be
 considered for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

Hons

Main supervisor (name and email)
and his / her institution

Deshen Moodley; Professor in the Department of Computer Science, University of Cape Town; deshen@cs.uct.ac.za

Would you like to <br> submit a short paper <br> for the Conference
 Proceedings (Yes / No)?

Yes

Primary authors: Mr STOPFORTH, Julius (University of Cape Town); Mr EYONO, Roy (University of Cape Town); Mr GUEORGUIEV, Victor (University of Cape Town)

Presenter: Mr STOPFORTH, Julius (University of Cape Town)

Session Classification: Poster Session 1

Track Classification: Track D1 - Astrophysics