

How Useful Are Annotative Paintings of Astronomical Images?

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ABSTRACT

Astronomical images can be complex, with the interesting features often appearing at low signal to noise, or blended with other objects. Automated methods for feature detection and deblending can fail if they are applied to systems with unexpected features. In contrast, human inspectors seem to learn quickly what features are interesting, and identify them in confusing images. In this work we investigate a web-based tool for “painting” over features in astronomical images, and ask how useful these paintings are at summarising interesting features. Specifically, we gathered, from members of the Galaxy Zoo online user community, N paintings of the blue features in an HST image of a gravitational lens. In a simple analysis of these paintings, we find...

Key words: gravitational lensing — surveys — cosmology: observations

1 INTRODUCTION

2 THE ASTROTACHES INTERFACE

3 A SIMPLE TEST CASE: GRAVITATIONAL LENS HST J135754.29–311509.1

4 PAINTINGS GENERATED BY ZOONIVERSE USERS

5 ANALYSIS AND RESULTS

6 CONCLUSIONS

From our simple analysis we draw the following conclusions:

- (i) The paintings done by citizen scientists span ...
- (ii) The mean (stacked) image and corresponding uncertainty map ...

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REFERENCES

This paper has been typeset from a \TeX / \LaTeX file prepared by the author.

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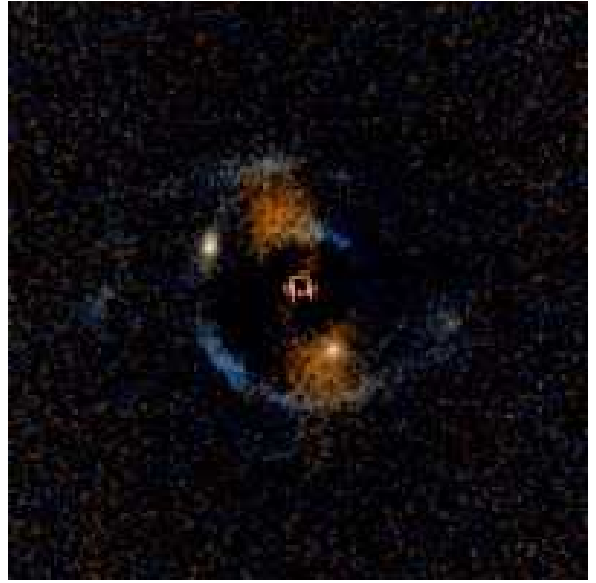


Figure 1. Left: HST image of gravitational lens HST J135754.29–311509.1. Right: automatic lens-subtracted version of this image. Images from Marshall et al (in preparation).

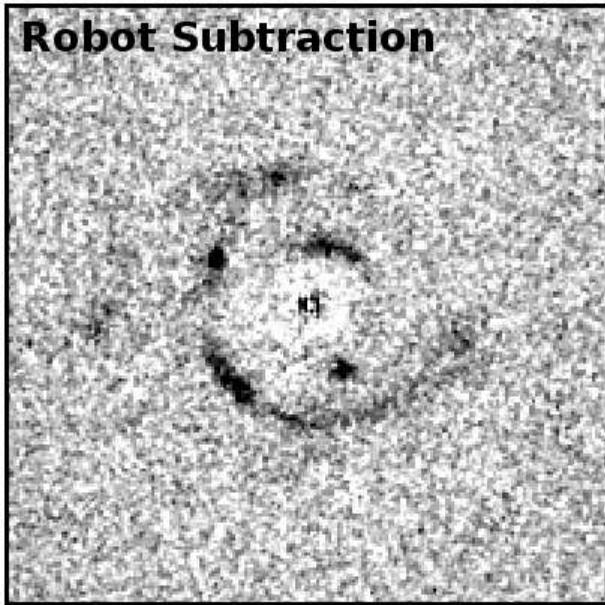


Figure 2. Comparing the robotically subtracted HST/ACS F475W-band image (left) with the crowd-identified feature map (right).