

Brief report

Bruno

August 24, 2015

Abstract

Little summary of the work in collaboration during the visiting period in July-August 2015 at UTRGV.

1 Foreword

First of all I wanted to state the great pleasure of working there at UTRGV with the TOROS local team. They included me in their work routine in a natural way, making me feel like in family.

2 Work done with Juan

With Juan we worked on the image preprocessing tools, all of them applied to TORITOS data that we already own. The importance of this relies on the necessity of stable, accurate and fast routines for the treatment of astronomical images. And so, expertise of any kind, in this field is absolutely convenient and useful, not only for Juan, but for every one that is working directly with image data.

I tried to give Juan some examples of usage for IRAF / Pyraf image examine tools. At some point he advanced with the seeing measures, and simple image statistics, to the preprocessing routine, namely: Flat, Bias and Dark correction. After dealing with this he was inquiring some information regarding image stacking and combine routines. Compulsory this involves image alignment, and we went through the discussion whether to do this by using WCS sky coordinates, or simple pattern matching alignment. This was the last thing we worked together in, but I hope him to keep in touch with me and Mariano regarding this matters.

We also executed some lines of python together, I hope he can keep advancing into learning this tool, since it is really powerful and limitless in science now at days.

2.1 Work with the Photometry Group

With Alejandro, and Andrea (just alphabetic order :)) we started with the Aladin software for data archives access. This Java tool is completed once one is able to display data with TOPCAT also, but no matter that they managed to learn how to perform several tasks just with Aladin:

- They identified candidates for real transient objects.
- They mined astronomy databases through Aladin, and tried to find out if the object is already known, and which information we already have from them.
- They started to teach this skills to Daniela and Walthyn (is it well spelled?) and tried to introduce them to Aladin.
- Last Thursday of my visiting time I showed them some slides about observational astronomy. There I discussed very briefly about instruments, CCDs, filters, and magnitudes maths.
- We begun a google group, just to keep in touch and carry on with meetings through Skype and keep advancing with lightcurve generation.

2.2 My work with Martin

With Martin we are currently writing a report which we expect to grow in a future publication. The study carried on these days in collaboration involved CSTAR selection and extraction of transient candidates, their feature extraction, and mostly of the time Machine Learning methods discussion.

So far we have two different samples to work with, the CSTAR selection for June number 01, and 02.

Both are different in size, and sample number 02 hasn't been yet deployed in the website nor in our database. It will consist on a bigger sample with a preselection of candidates made just with the sample 01 trained agents.

3 Conclusions

This visit to UTRGV has led me to a greater productivity and has also integrated me with great people, to the point that I can say that there is something similar to a team going on now.