

The Pro-*Am* interface

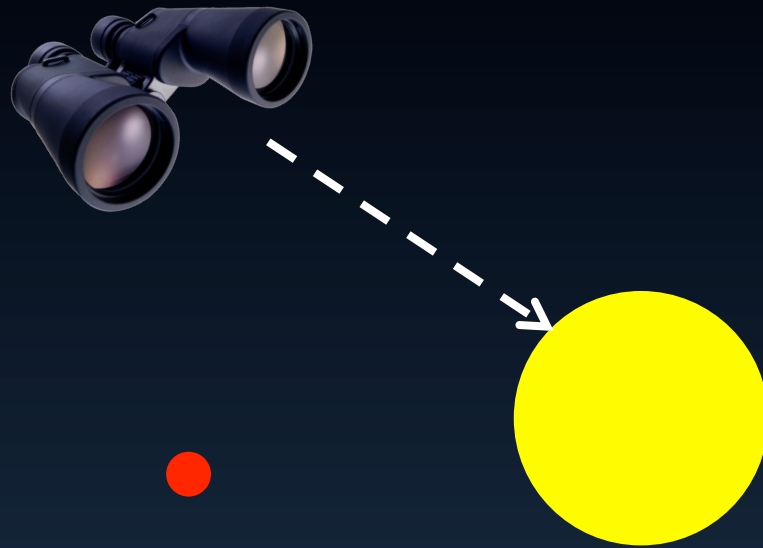
Varun Bhalerao
(Postdoc, IUCAA)

Why am I here?

I need your help for my research.

Professionals using small telescopes

Exoplanet detection



Brightness

Time

Examples:

- Exoplanet detection
- All Sky Automated Survey
 - » <http://www.astrouw.edu.pl/~gp/asas/>
- Raptor all-sky camera
 - » http://fermi.gsfc.nasa.gov/science/mtgs/gevtev/june17/Aspen_talk_vestrand.pdf

“Amateurs” contributing to research

The petrol-pump guy

- Kepler: space telescope for detecting extrasolar planets
- Kepler announced a 3-planet system
- He noticed that the star had exactly same colors as Barnard's star
- Keck (10-m telescope) spectra confirmed this
- Revised star parameters (including radius)
- Revised planet radii

First system with three small planets!

Too generic?

Let's get to specifics

I have: a telescope and DSLR/webcam

- Fantastic! Go get data!
- I study the following:
 - » Compact object binaries
 - » Supernovae
 - » Novae
- If you can go to 16th mag – great.
 - » We might get somewhere at 14th too.

I have: internet + time

- Citizen science projects
 - » Galaxy zoo
 - » Supernova zoo
- Direct contributions to research:
 - » Latest paper is “Galaxy Zoo: Observing Secular Evolution Through Bars”
 - » (<http://arxiv.org/abs/1310.2941>)

I have: a computer to spare

- Share your computing resources
 - » Einstein @ HOME
 - » Pulsars @ HOME
- Host a server:
 - » Share amateur data
 - » Query-able interface
 - » Simple interface to major astronomical databases
 - » ... more in another slide

I have: software skills

- Professional astronomers use unix/linux systems all the time
 - » Not all amateurs may be as computer savvy
- Implement simpler interfaces
 - » Servers, query interfaces...
- Help others with scripts, downloading data

I have: a physics background

- Download publicly available data and analyze it
 - » Find new binaries
 - » Supernovae
 - » Classify active galactic nuclei
- Examples (large public data sets):
 - » Analyze CRTS lightcurves
 - » Cross-match TGSS (GMRT data) with SDSS
 - » Contact me for specific projects

That's all folks!

When do we start?