

To Infinity and Beyond

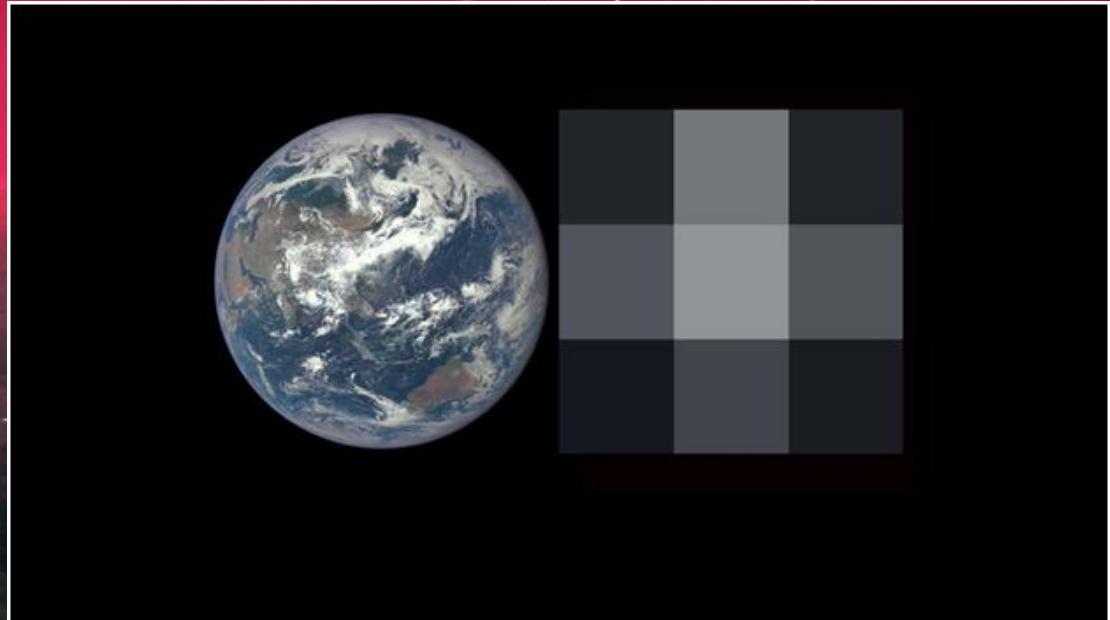
LOOP



WHY BOTHER ?

- SPACE IS THE FINAL FRONTIER
- ARE WE ALONE?
- CURIOSITY IS IN OUR DNA!
- RESOURCE MINING
- EVOLUTION

What does a planet look from millions of kms away?



Left, an image of Earth from the DSCOVR-EPIC camera. Right, the same image degraded to a resolution of 3 x 3 pixels, similar to what researchers will see in future exoplanet observations.

What is hard for humans to do?

- Remember your girlfriend's Birthday..
- Calculate large numbers
- Pass in M1..

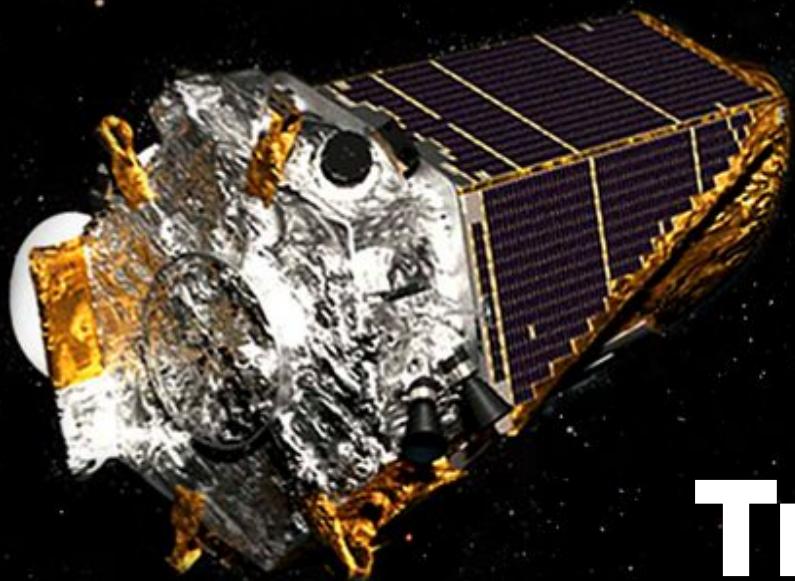


**EASY for humans, HARD for
computers**

**HARD for computers,
EASY FOR US**



- Radial velocity
- Gravitational microlensing
- Direct imaging
- Polarimetry
- Astrometry
- Transit photometry

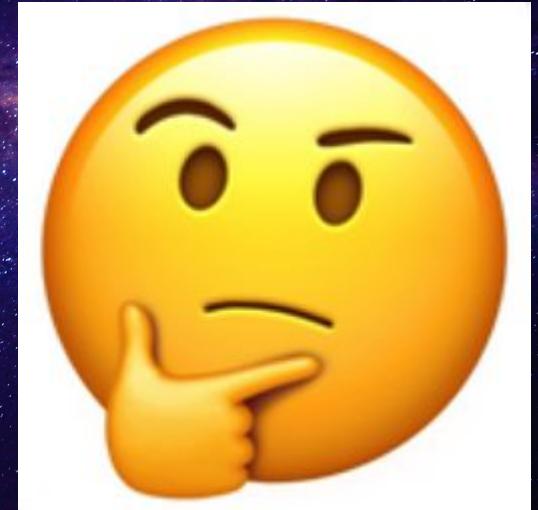


Transit Photometry

^{so}

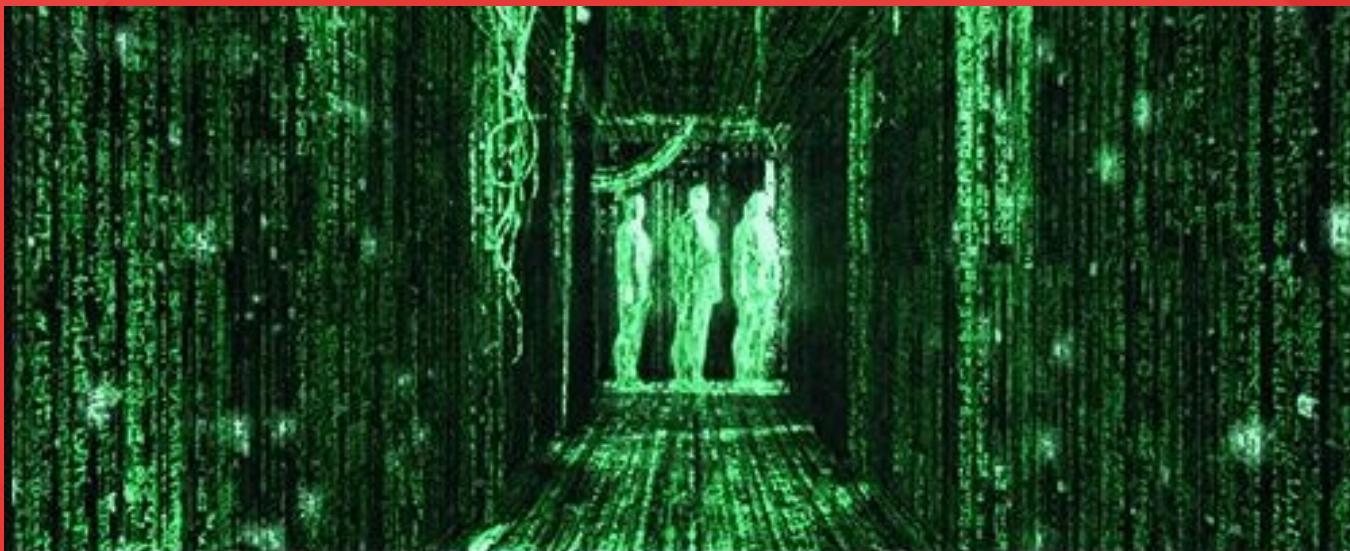
WHAT'S The Hiccup?

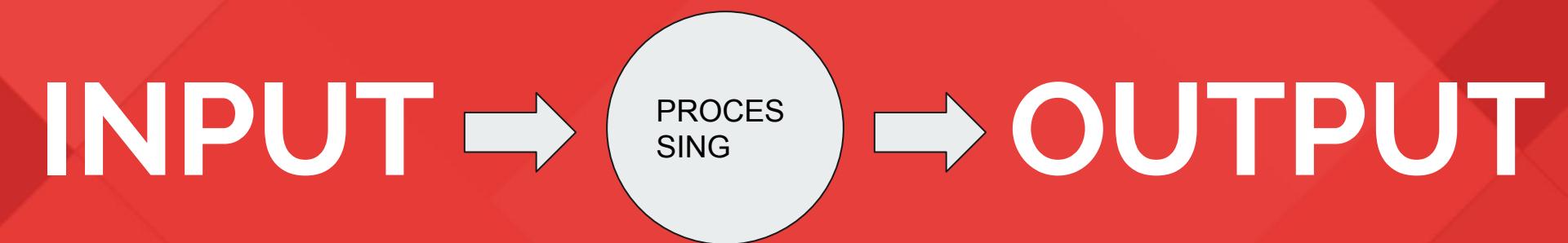
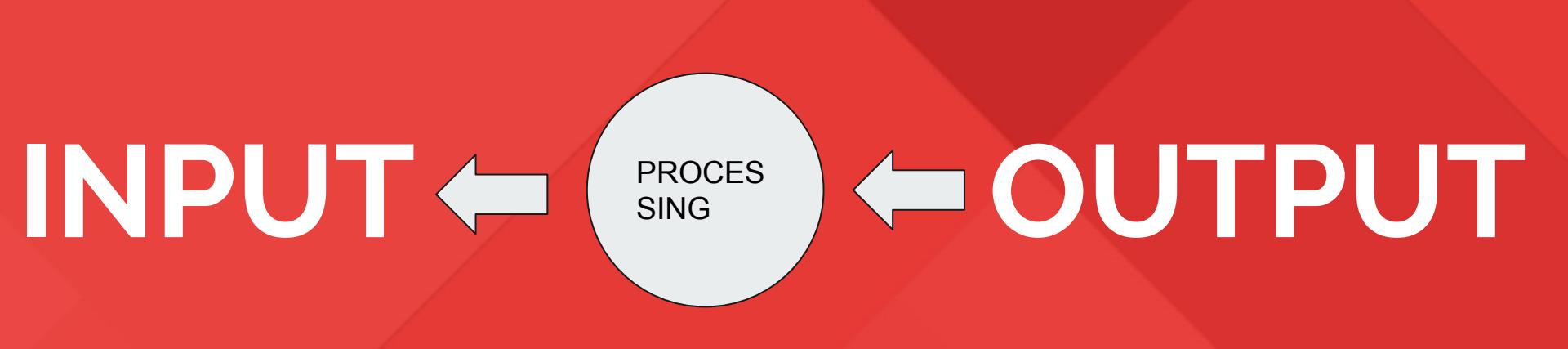
- Too much of data
- Too MANY Rules!
- Too Slow!
- Not Reusable.

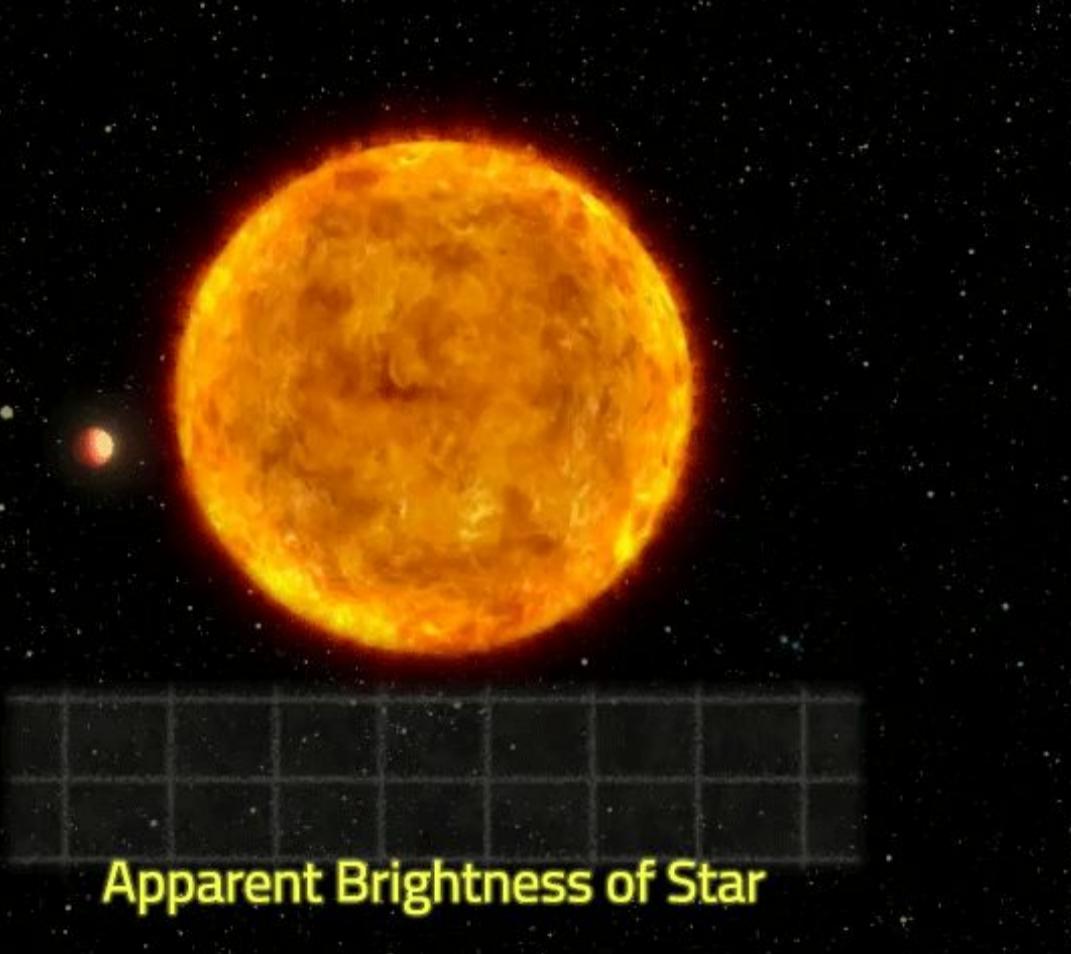


**THE
SOLUTION!!**

WHAT IS MACHINE
LEARNING?

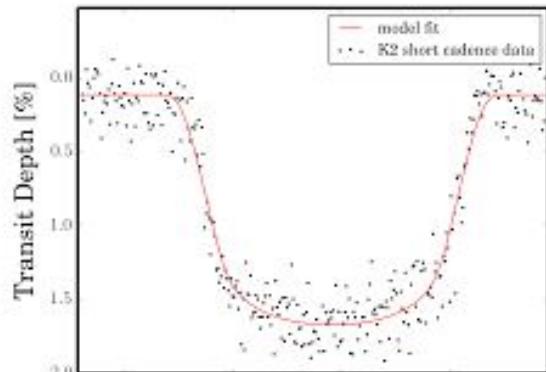
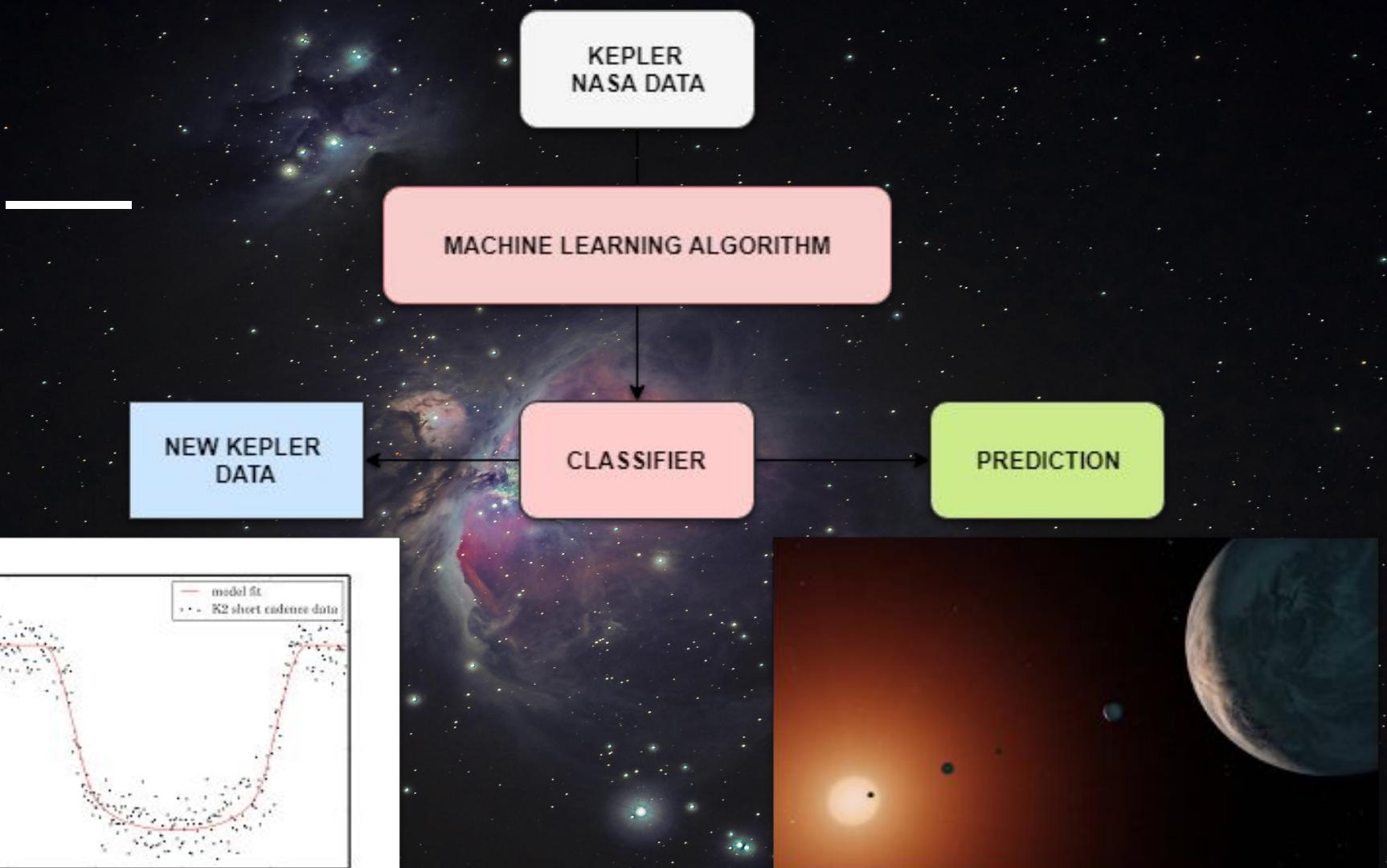


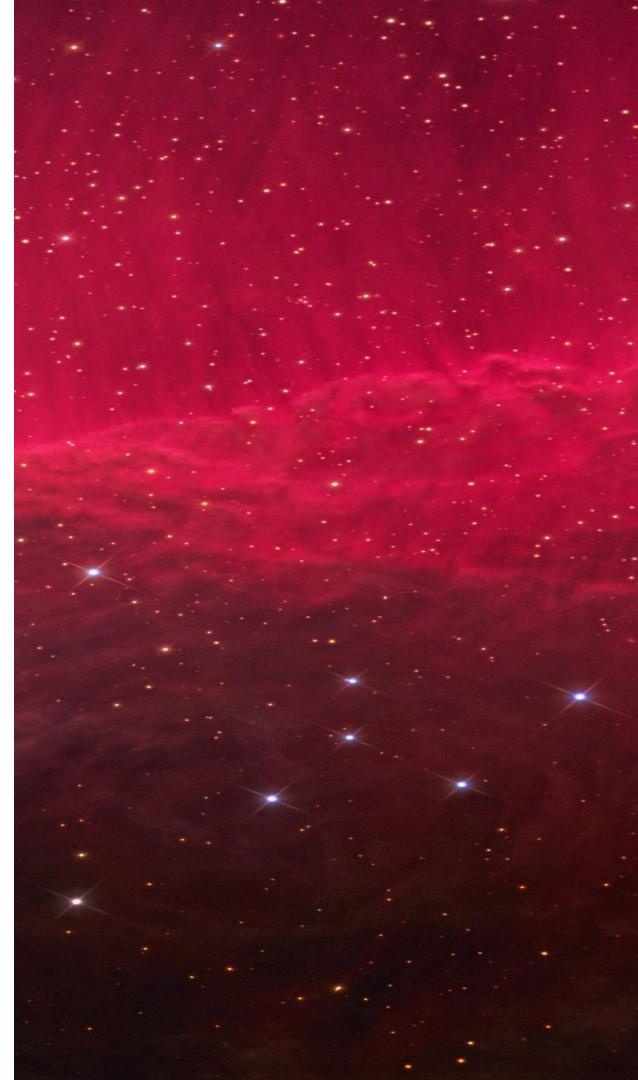
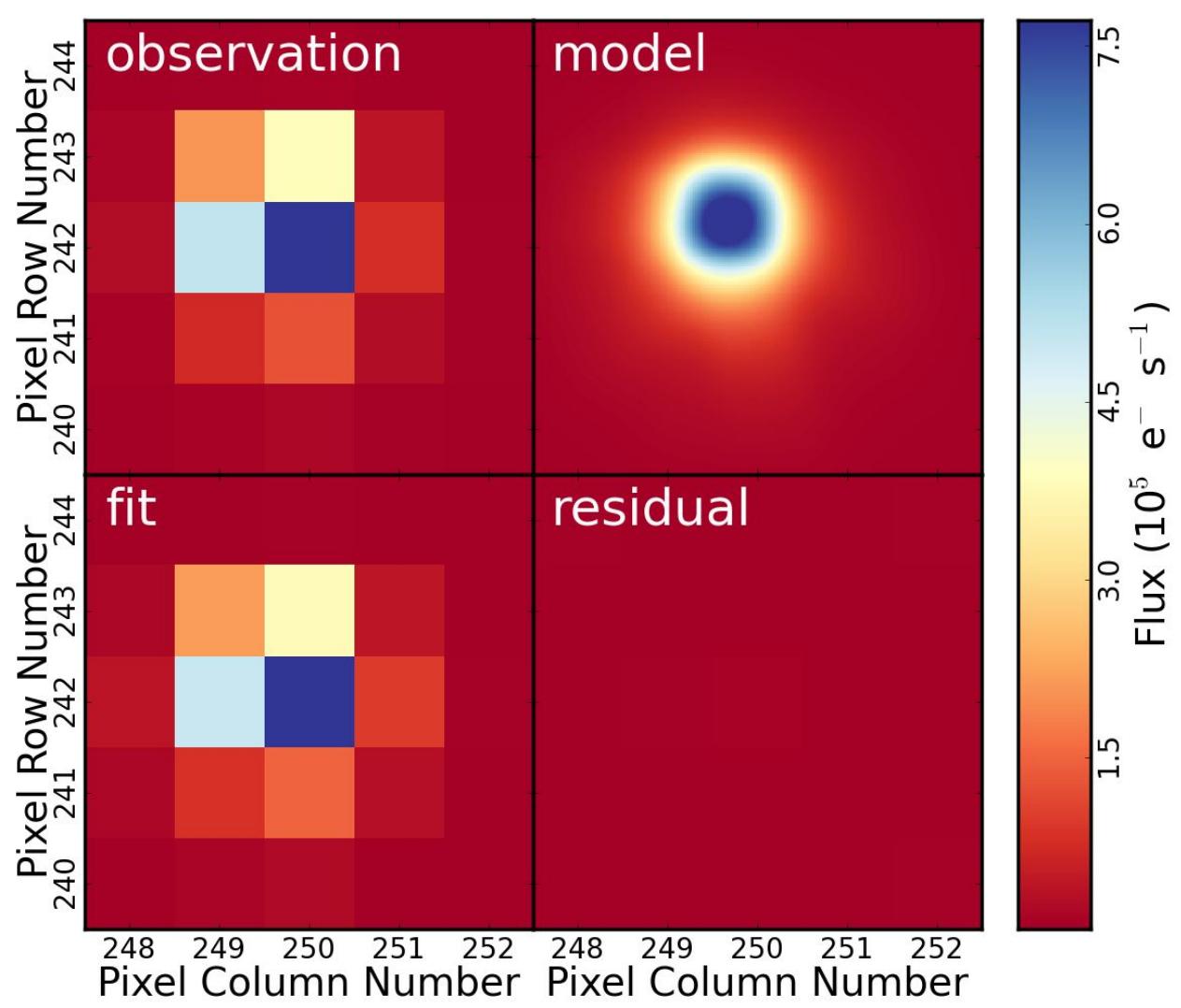




When the
planet comes
in front,
there's a dip
in total
brightness

Apparent Brightness of Star







LOOP



TRAPPIST-1

SPACETEULAR

Thank You!

LOOP

To Infinity And Beyond!!

