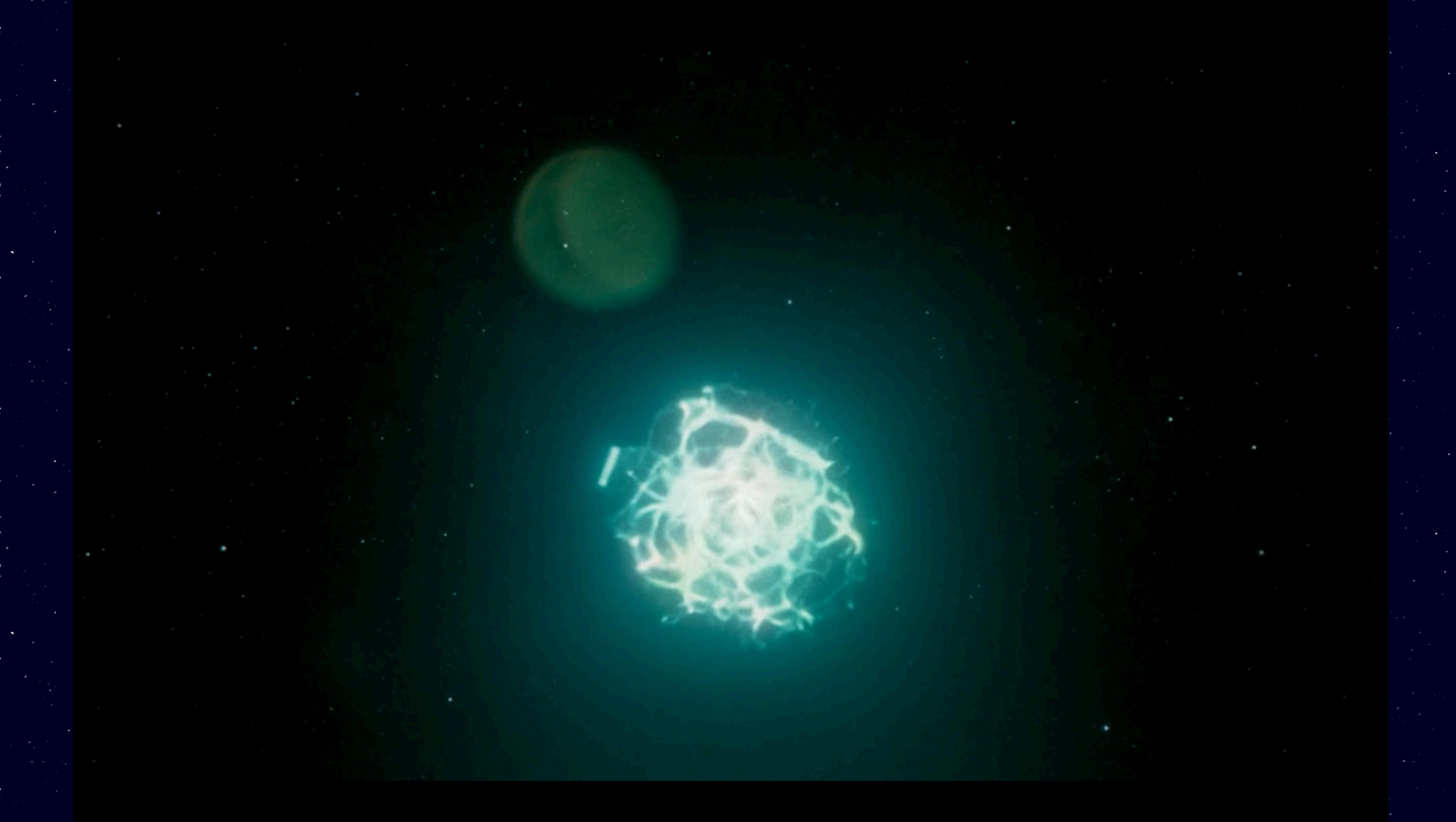


PULSARS

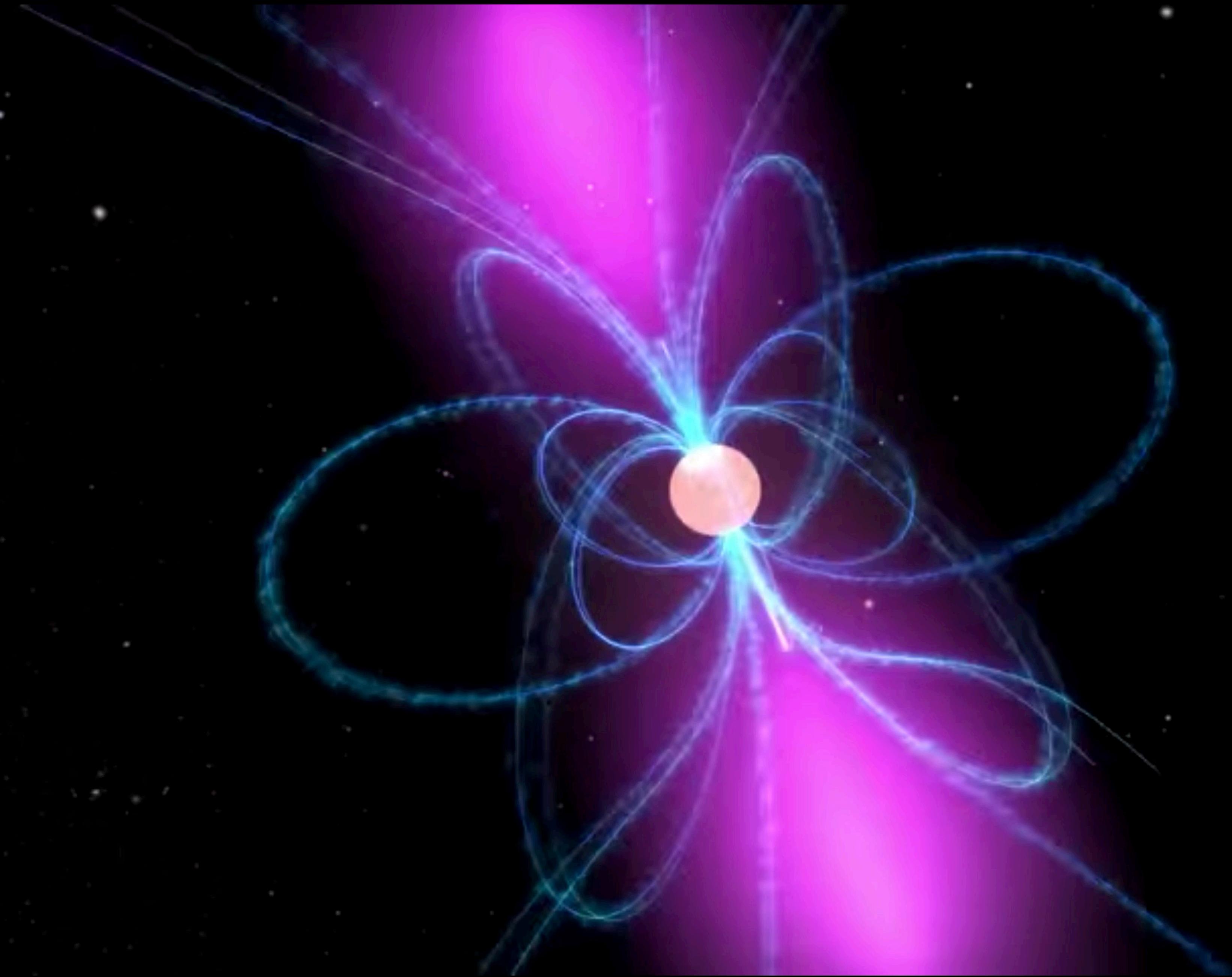
Detecting Dead Stars in Deep Space

by Ru Kein | February 2020







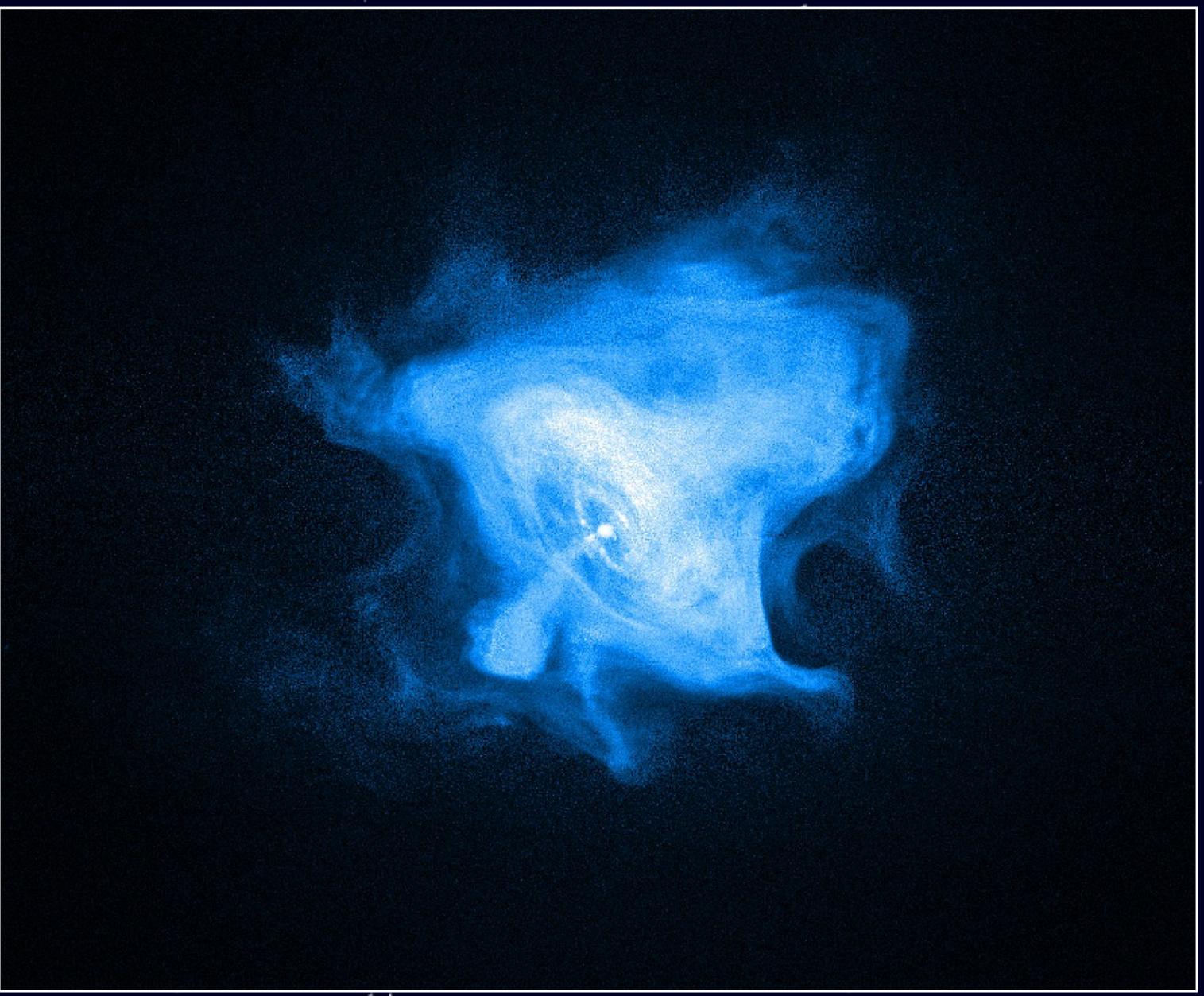




<http://hubblesite.org/newscenter/newsdesk/archive/releases/2002/24/image/a>

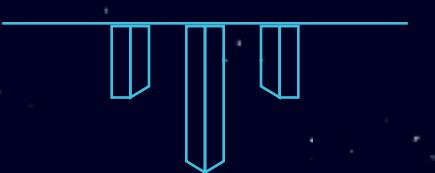


https://en.wikipedia.org/wiki/Crab_Pulsar#/media/File:Crab_Lucky_video2.gif21



https://en.wikipedia.org/wiki/Crab_Pulsar#/media/File:Crab_Nebula_pulsar_x-ray.jpg

CRAB NEBULA



<https://fermi.gsfc.nasa.gov/inc/img/spacecraft.jpg>



Image Credit: NRAO/AUI

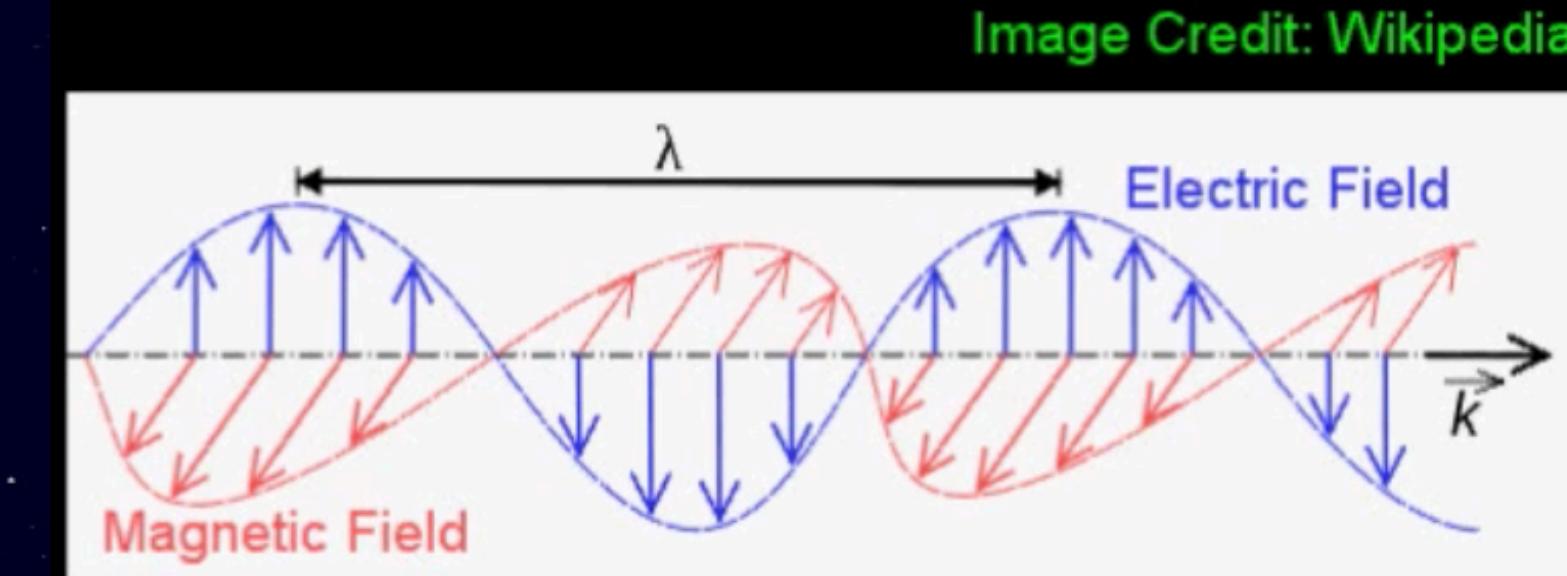
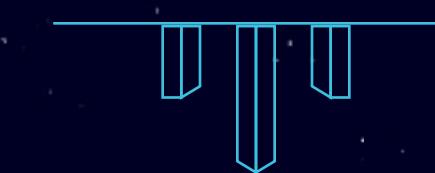


Image Credit: Wikipedia

DETECTION



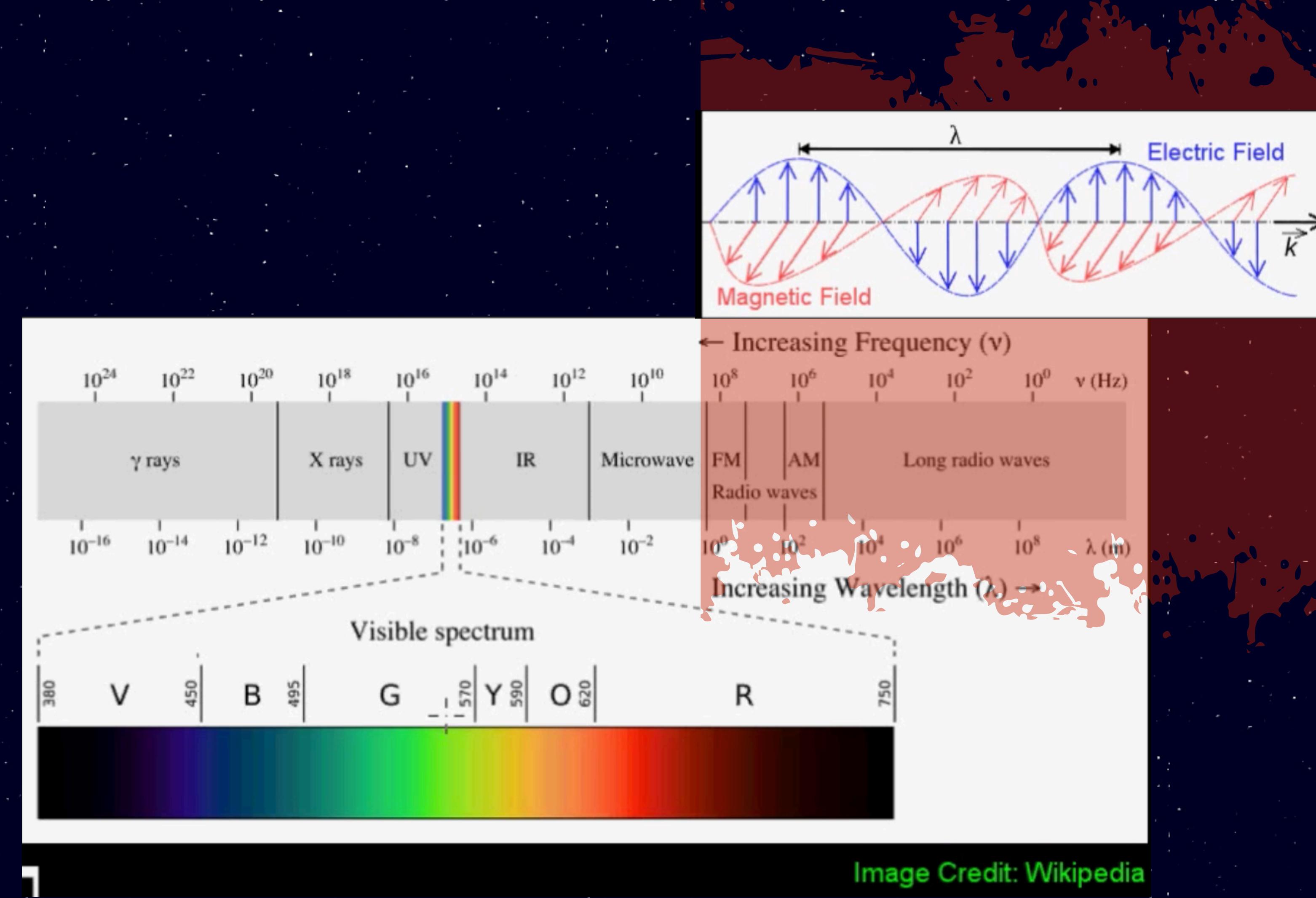
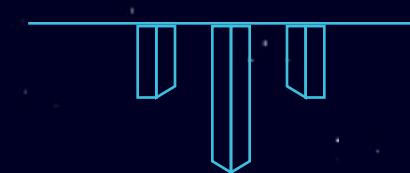


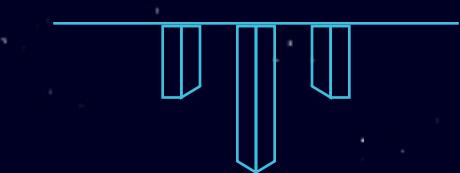
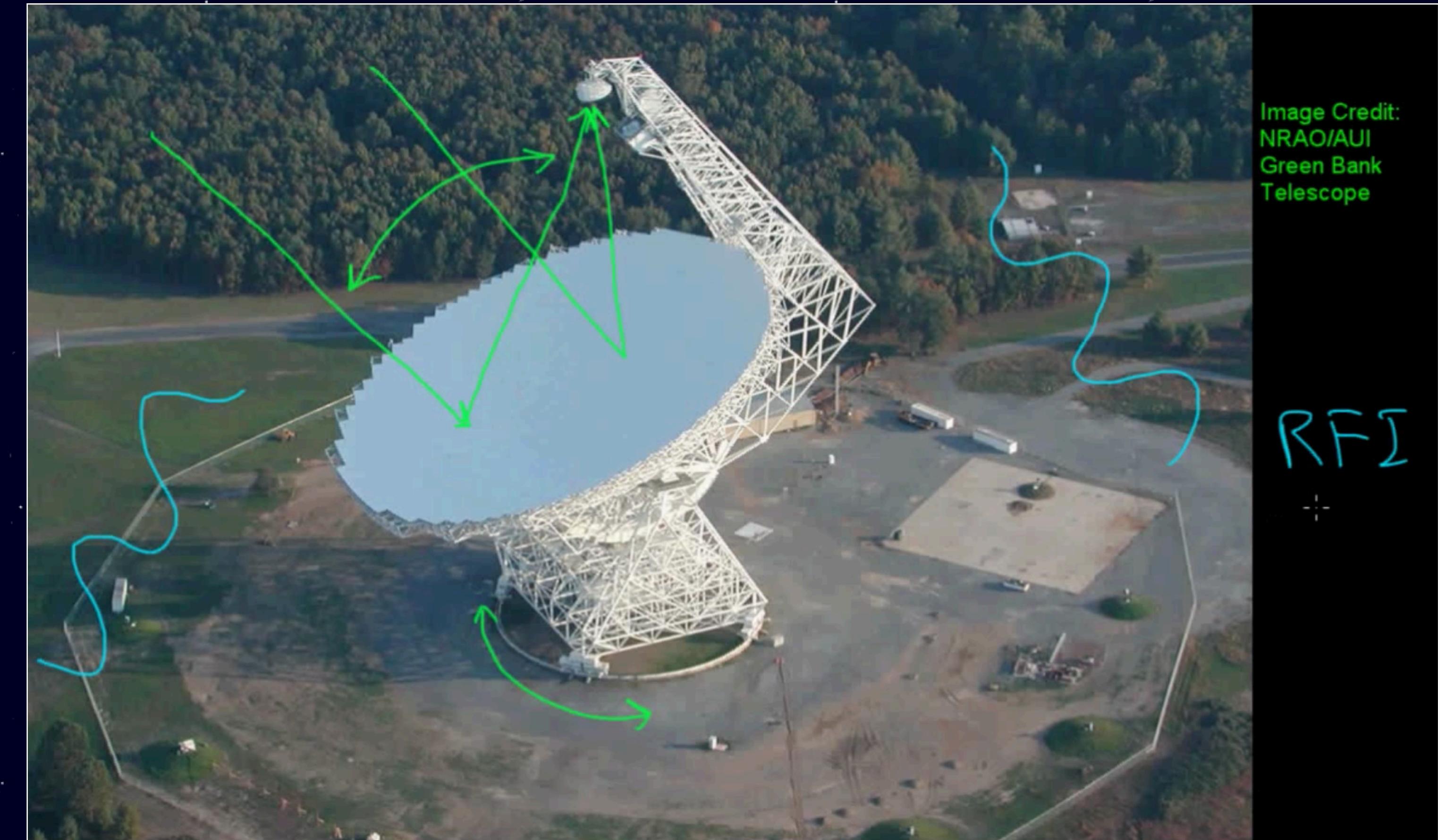
Image Credit: Wikipedia

DETECTION

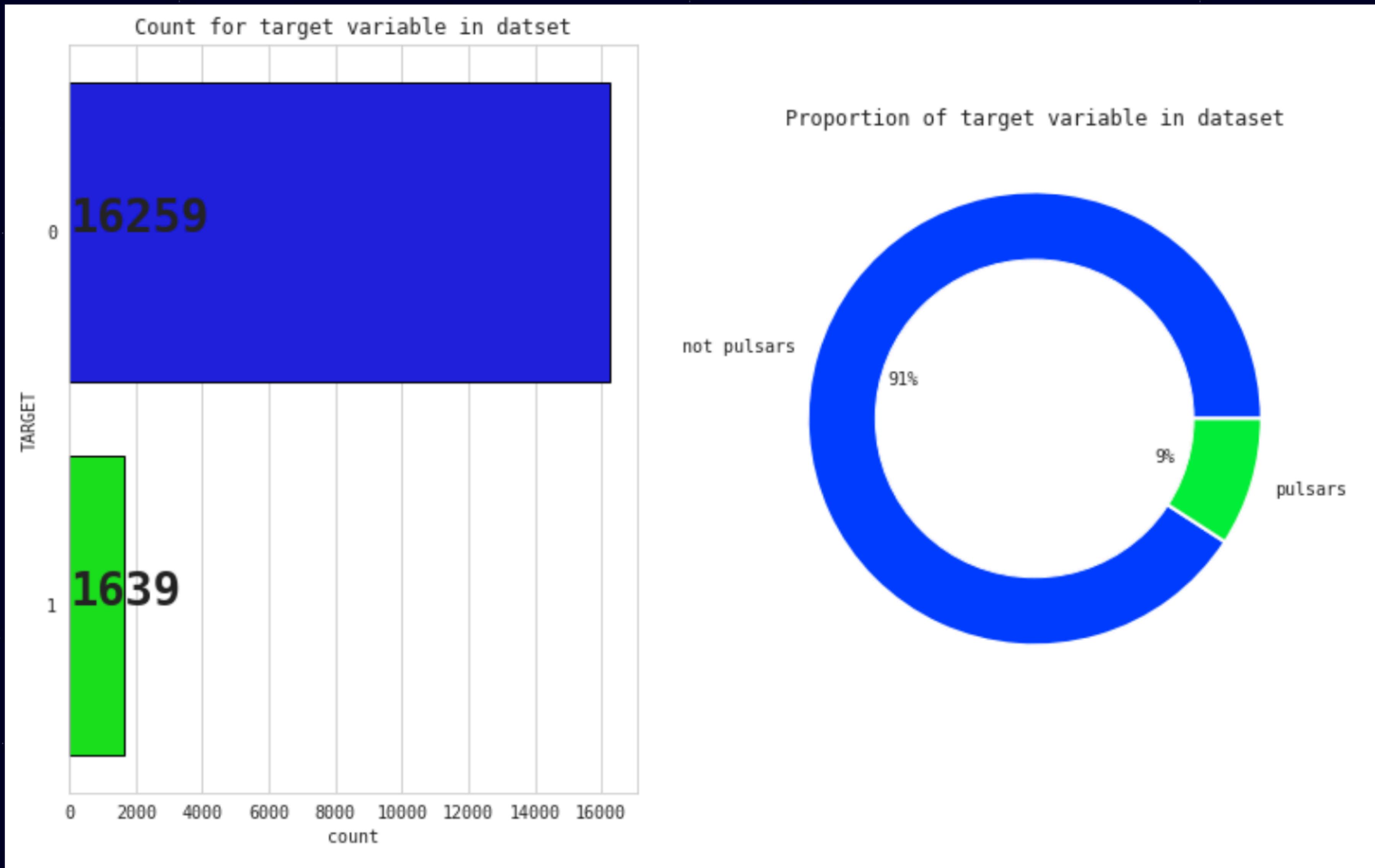


RFI

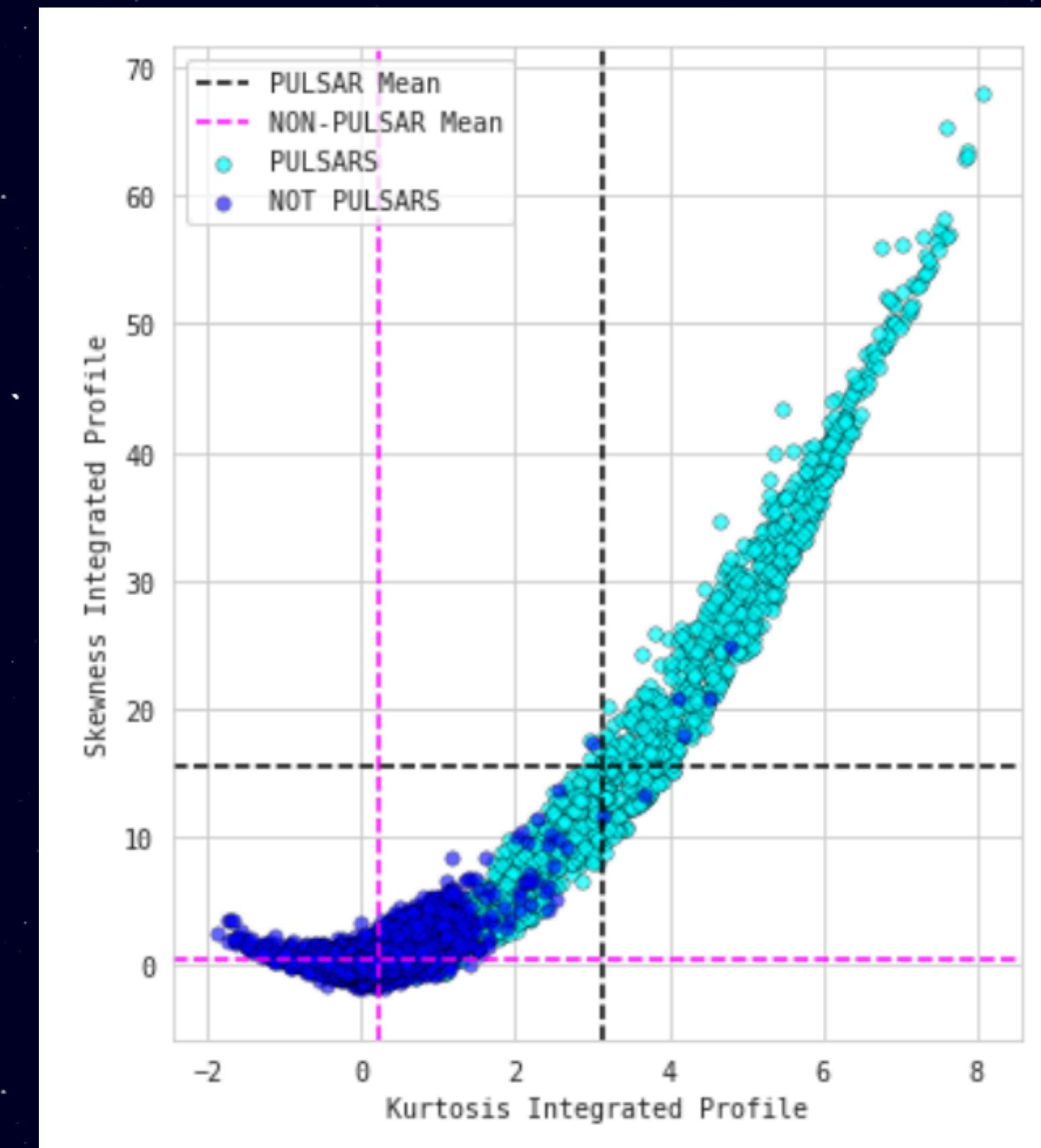
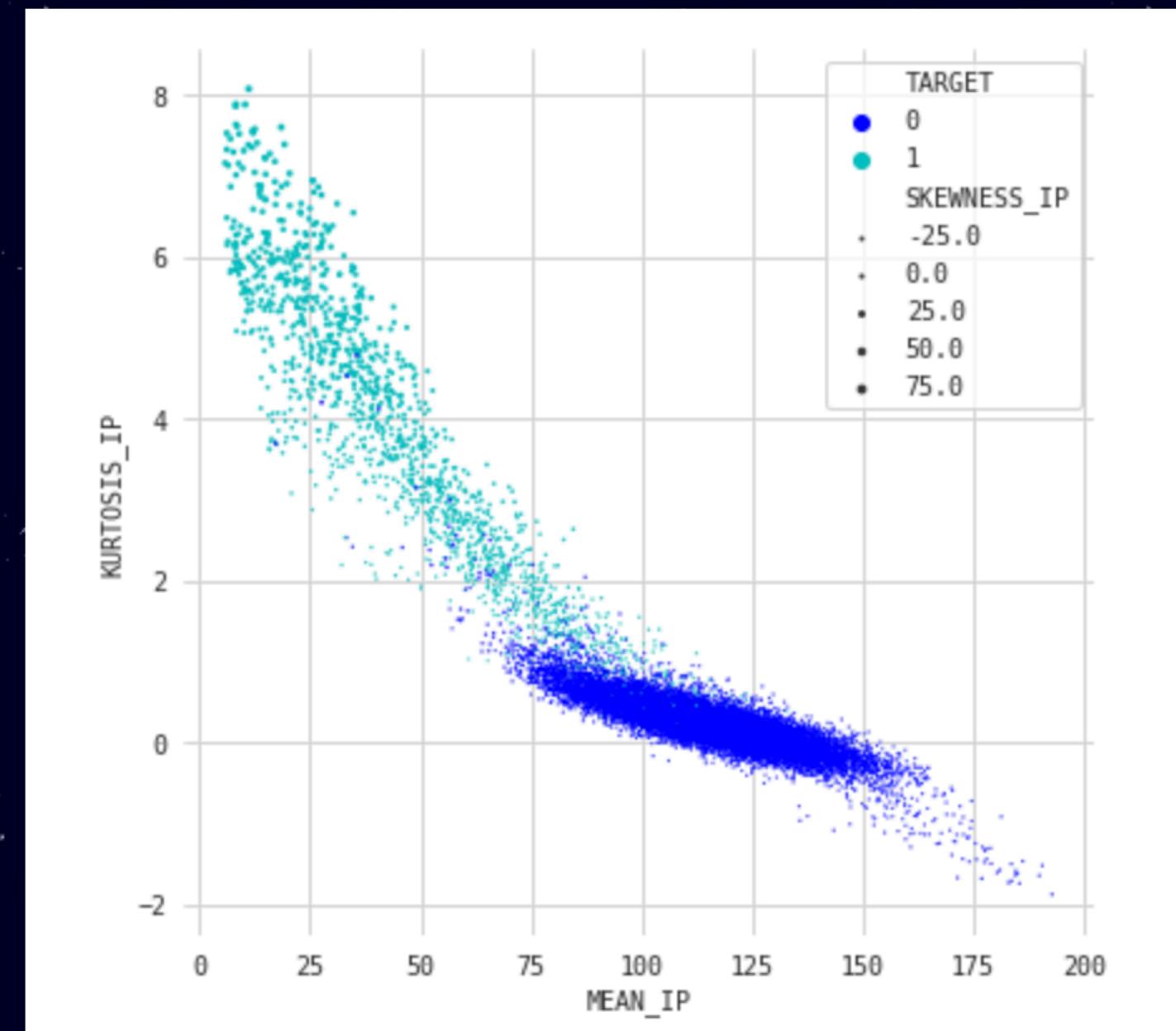
- **LOTS OF NOISE**
from radio frequency
interference (RFI)
makes analysis
difficult.



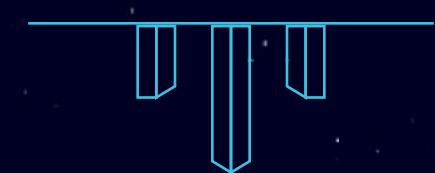
DATASET

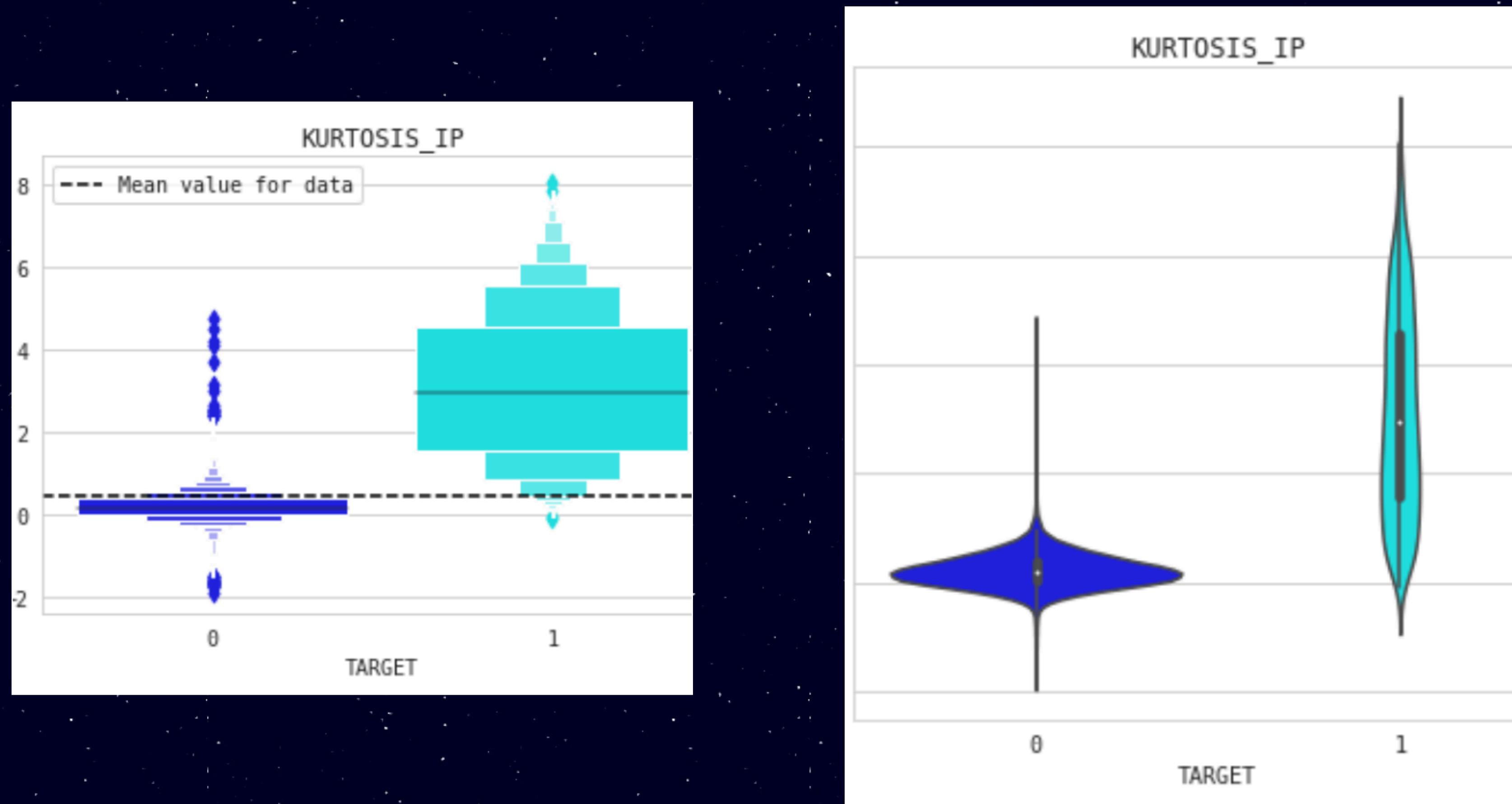


- **17,898** total examples:
- **16,259** spurious examples caused by RFI/noise
- **1,639** real pulsar examples.

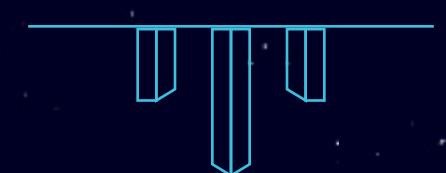


PULSARS VS NOISE

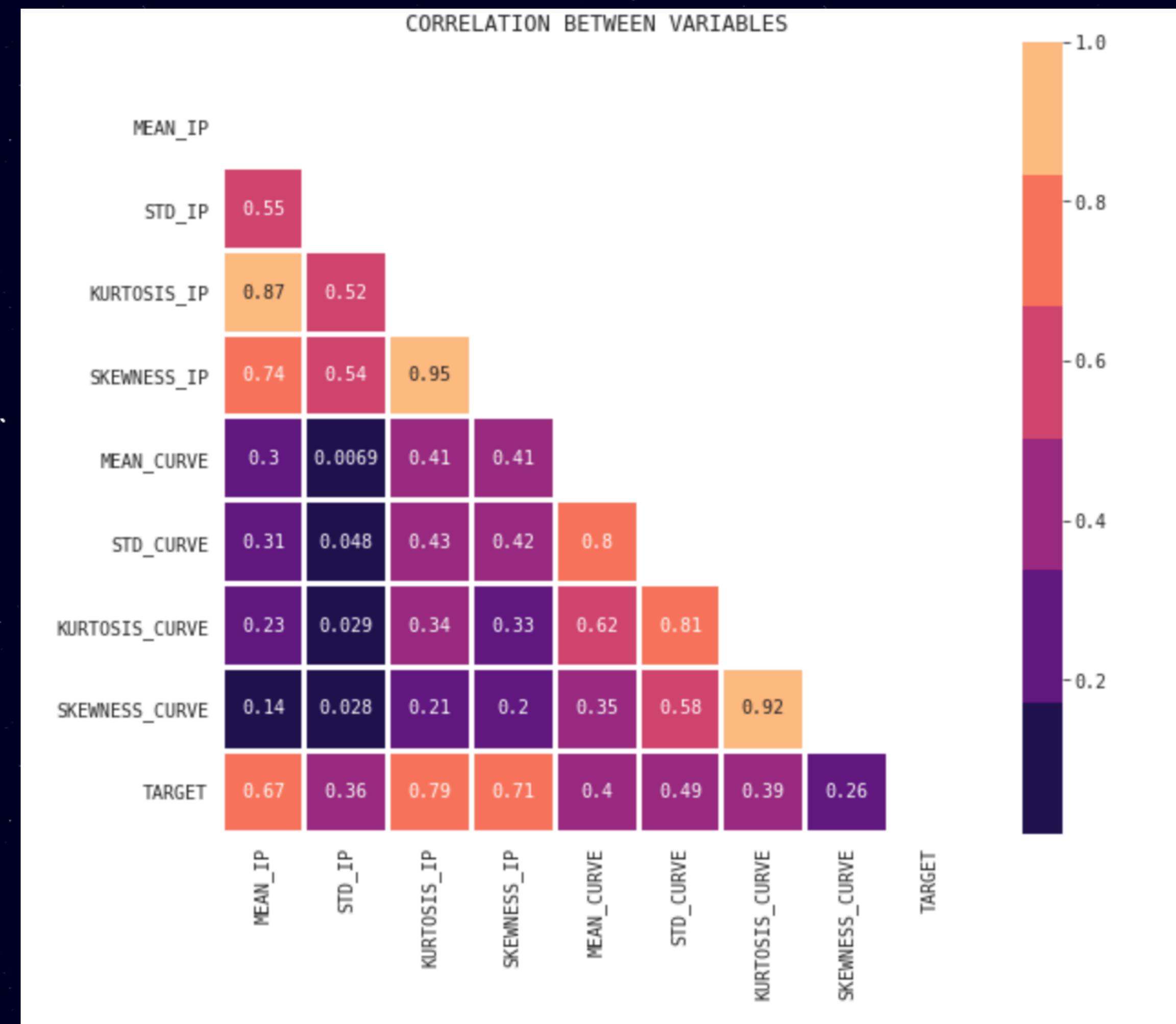




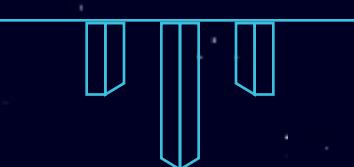
PULSARS VS NOISE



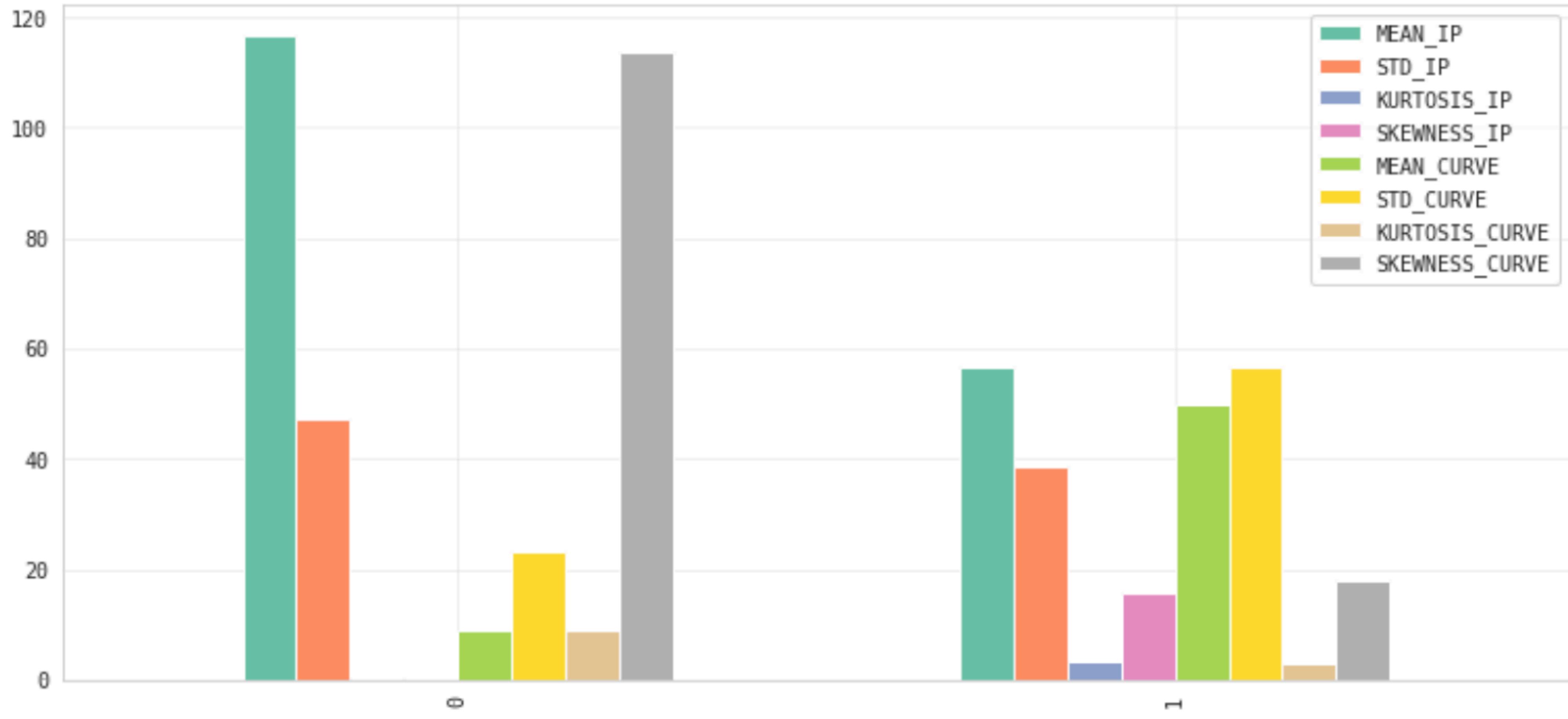
CORRELATION BETWEEN VARIABLES



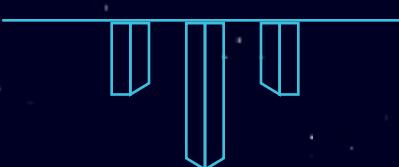
FEATURES



COMPARING MEAN OF ATTRIBUTES FOR TARGET CLASSES

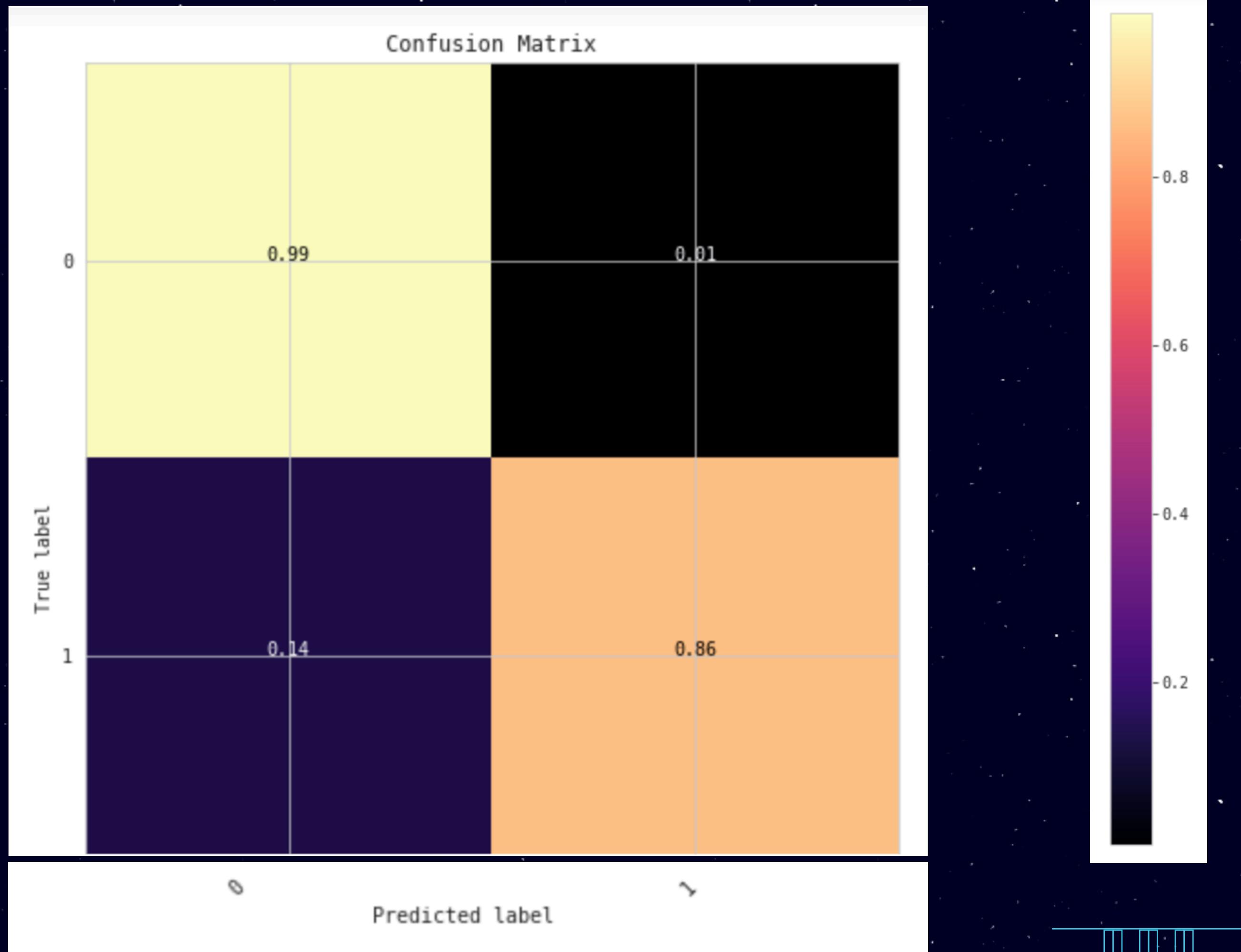


FEATURES



RESULTS

Our model accuracy was 98%, with 1% False Negatives and 14% false positives identified.



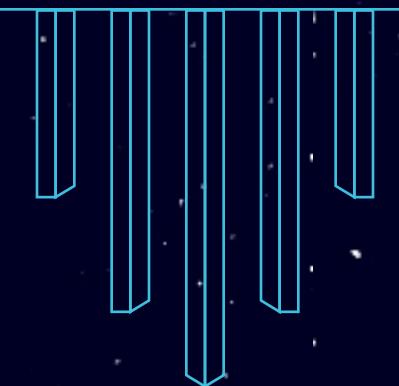


FUTURE WORK



Understanding more about black holes, anti-matter and our universe.

THANK YOU



APPENDIX

- [http://hubblesite.org/newscenter/newsdesk/
archive/releases/2002/24/image/a](http://hubblesite.org/newscenter/newsdesk/archive/releases/2002/24/image/a)
 - What is a Pulsar? (NASA) [https://
www.youtube.com/watch?v=gjLk_72V9Bw](https://www.youtube.com/watch?v=gjLk_72V9Bw)
 - Observing Pulsars with Radio Telescopes
[https://www.youtube.com/watch?
v=AVGNWfKP9VM](https://www.youtube.com/watch?v=AVGNWfKP9VM)
- [https://en.wikipedia.org/wiki/Crab_Pulsar#/media/
File:Crab_Nebula_pulsar_x-ray.jpg](https://en.wikipedia.org/wiki/Crab_Pulsar#/media/File:Crab_Nebula_pulsar_x-ray.jpg)
- [https://en.wikipedia.org/wiki/Crab_Pulsar#/media/
File:Crab_Lucky_video2.gif21](https://en.wikipedia.org/wiki/Crab_Pulsar#/media/File:Crab_Lucky_video2.gif21)
- <https://fermi.gsfc.nasa.gov/inc/img/spacecraft.jpg>

