

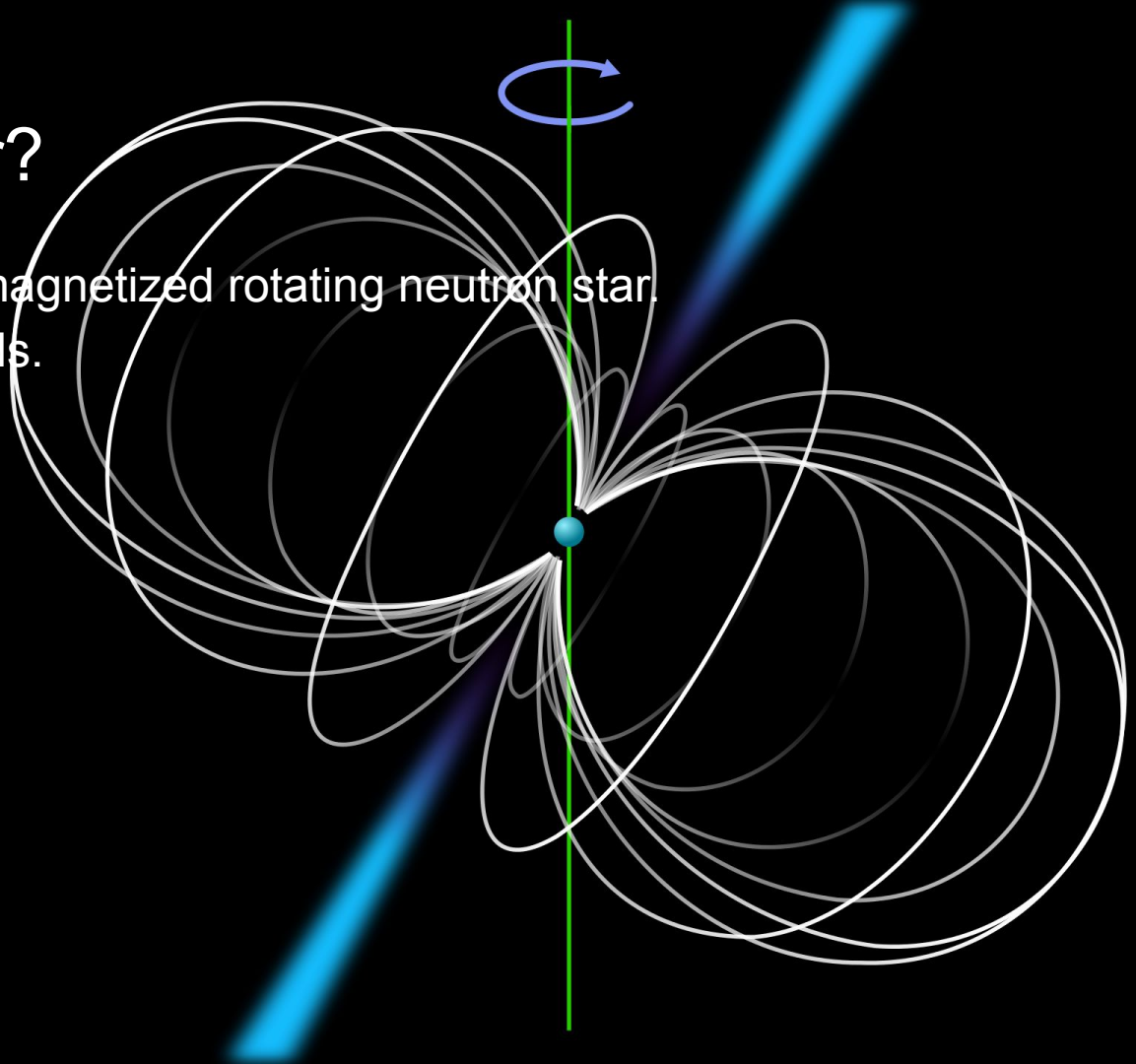
# Classification of Pulsars

A pulsar is depicted as a bright, glowing sphere at the center of a swirling, blue and white nebula. A sharp, white beam of light extends from the pulsar towards the top left. The background is a dark, starry space.

Ahmed Safdar

# What is a Pulsar?

- A pulsar is a highly magnetized rotating neutron star.
- Precise orbital periods.





# Data

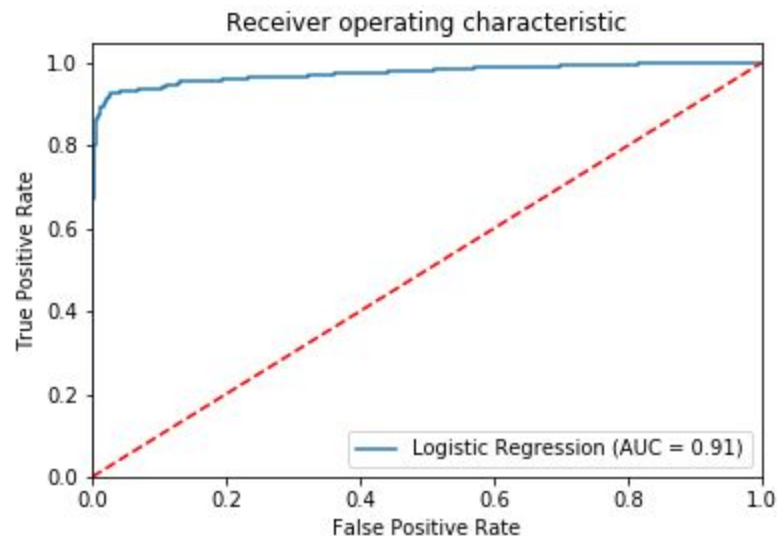
University of Manchester

1. Mean of the integrated profile
2. Excess kurtosis of the integrated profile
3. Standard deviation of the integrated profile
4. Skewness of the integrated profile
5. Mean of the DM-SNR curve
6. Excess kurtosis of the DM-SNR curve
7. Standard deviation of the DM-SNR curve
8. Skewness of the DM-SNR curve

17,900 data points

# Exploration

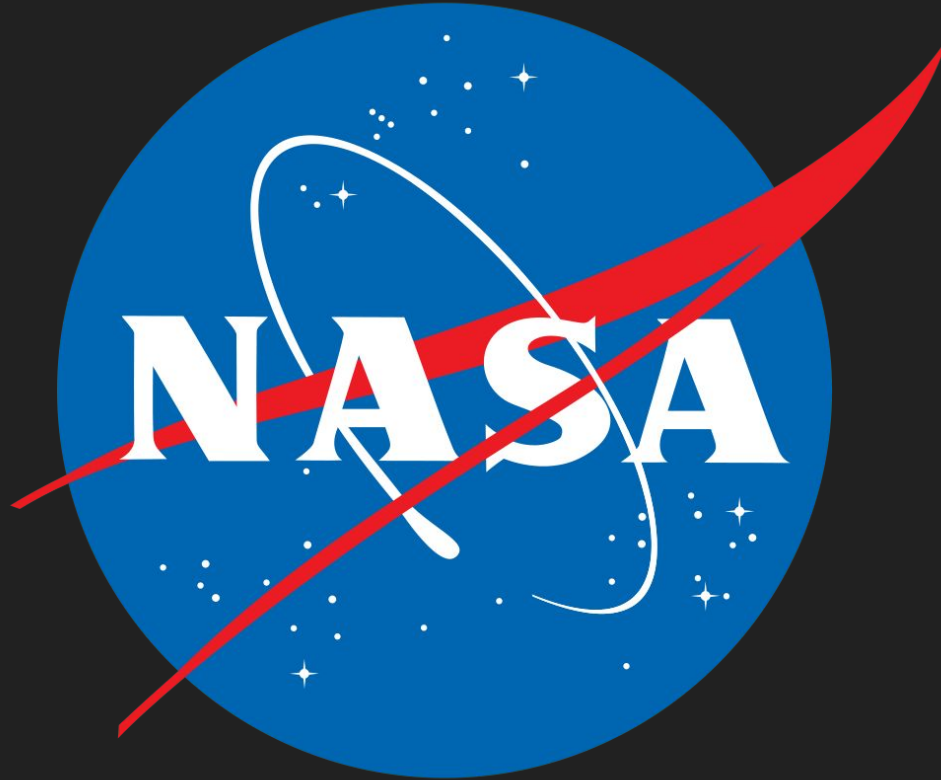
- Data cleaned, normalized
- Skewed target variable
  - Tried oversampling, undersampling, and SMOTE
- Created base model (logistic regression)



# Results

Model (grid search)	AUC
SVM (SGD)	0.969
SVM (LinearSVC)	0.964
Logistic Regression	0.960
Random Forest	0.957
KNN	0.953
ADABoost	0.951
Decision Tree	0.941

# Recommendations





GOODBYE!