Classifying Radio Signals from SETI

**In this project, you will learn how to classify radio signal using CNN,
how to display results and plot 2D spectrograms with Python in Jupyter Notebook.**

The data we are going to use consists of 2D spectrograms of deep space radio signals collected by the Allen Telescope Array at the SETI Institute. We will treat the spectrograms as images to train an image classification model to classify the signals into one of four classes.

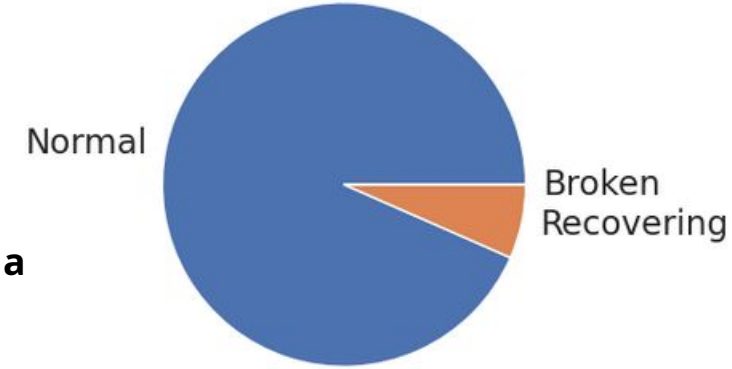
The project includes an introduction to Keras.

TensorFlow

Keras

Anomaly Detection with Autoencoders

In this project, we are processing sensor data to detect anomalies in a technical system.
We make use of a dataset provided by Kaggle.
Analyzing data for predictive maintenance, here given as data from a water pump, is similar to problems we encounter in astronomy regarding telescopes, instrumentation, spacecrafts, planetary rovers and data centers.



The problem can be solved by using an autoencoder from any of the common machine learning libraries such as PyTorch or Keras.

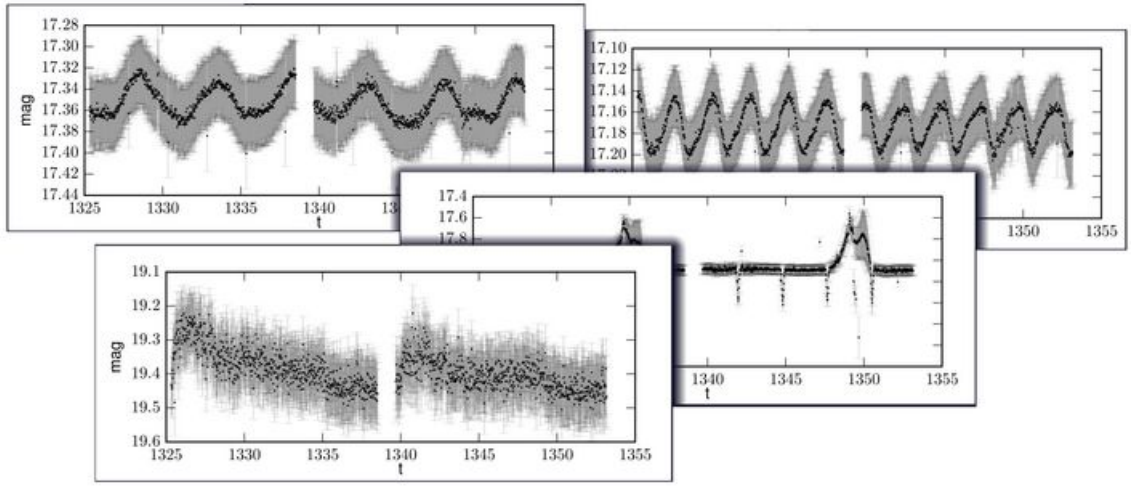
The project includes an introduction to Keras.

TensorFlow

Keras

Classifying Variable Star Light Curves from TESS

The project entails the development and testing of reliable and fast machine-learning methods in order to identify and classify rare types of variable stars and exoplanet systems in the Milky Way based on light-curves with a high temporal resolution.



What you will learn during this project:
Programming and testing (Python), algorithm design, more knowledge regarding processing astronomical data, in variable star light curves.