EXOPLANET DETECTION

INTRODUCTION

NASA's Kepler mission to search for extrasolar planets has collected data from hundreds of thousands of star-systems, and has discovered nearly 1000 confirmed exoplanets to date in addition to over 3000 unconfirmed candidates. The mission detects exoplanets using transit photometry, which detects the transit of a planet in front of a star as transient drops in stellar intensity. Raw data is collected in the form of a sequence of stellar images, which are processed into "light-curves" tracking the brightness of a star over time. An algorithm automatically searches for periodic planetary transits in these light curves, but spurious intensity dips and other noise in the data due to non-planetary stellar variability has led to high false-positive rates for detecting transits. As the initial planetary candidates found by this search method require extensive and costly subsequent validation, there is a need to reduce the error rate in exoplanet candidate identification.

PROBLEM STATEMENT

Teams must come up with a machine learning algorithm to classify Kepler Objects of Interest (KOIs) as having exoplanets/not having exoplanet. This will be a daylong hackathon during the time of festival.

EVENT RULES AND SPECIFICATIONS

1. RULES
- A team may consist of maximum 3 members.
- Participants shall not be allowed to be part of more than one team
- Teams can start working on their algorithm immediately with the given train set.
- Teams must present their algorithms along with the documents mentioned below on the day of judging.

2. SPECIFICATIONS
- Only the data provided by us must be used. Use of additional data to improve accuracy can lead to disqualification.
- Plagiarism is strictly prohibited and may lead to penalties or disqualification.
- Organizers reserve right to modify rules at any point of time, with intimation to registered teams.
- Training data
  https://drive.google.com/a/iitj.ac.in/file/d/1XwImtibkmqEZDDsj43cKEvTBPnGqoNt2/view?usp=drive_web

3. JUDGING CRITERIA
- True skill scores and F scores for your test data (you must make your own test data and train data from the given link)
- True skill scores and F scores of test data (provided one week before the evaluation)
- Innovative architecture
- Novelty in the algorithm

CONTACT DETAILS
Vinit Joukani (9970834127)

All decisions taken by the organizing team will be deemed as final, and no more changes will be encouraged, thus holding the full authority to change any of the above rules as per circumstances.