PROBLEM STATEMENT

For the sake of early screening and expeditious surveillance in large oilfields, workflow automation for water-control diagnostic plots has become inevitable.

Recent research have been concerned with employing machine learning algorithms in order to recognize water production mechanisms accordingly yet there were some limitations.

Challenges with previous work

1. Pretermitting bottom-water coning mechanism due to limited data.

2. Ineffectiveness with noisy production data that usually occur.

3. Inability to do consistent segmentation using classifiers.

Tackling the constraints

1. Constructed a larger dataset of 10,000 wells.

2. Removed anomalies using a combination of ML and statistics.

3. Implemented computer vision for effective segmentation.

It was important to solve those challenges as long as wells usually exhibit multiple water production mechanisms within their production history that is not uncommon to be noisy. This work was deployed on local machine so as to assist in eliminating bias, subjectivity, and tedious work.