PROJECT OVERVIEW

STRUCTURAL HEALTH MONITORING OF HOHENZOLLERN BRIDGE USING ML AND AI

PROJECT OBJECTIVE:

Detecting structural imperfections and predicting their precise locations through the utilization of simulation data from Hohenzollern Bridge as inputs for a supervised ML algorithms

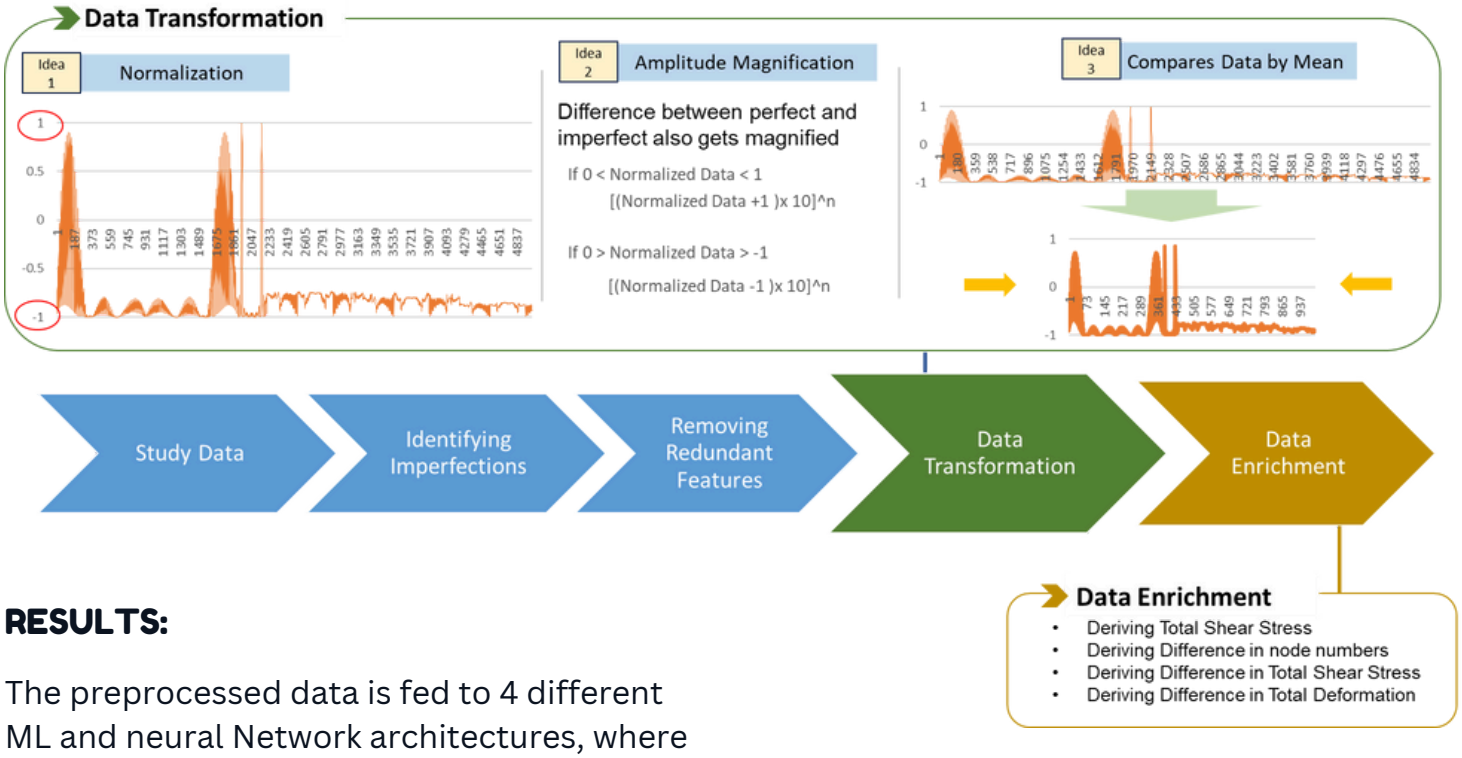
PROJECT APPLICATIONS:

- Strategically placed sensors help determine the imperfections or faults in live structures
- Performance-based Maintenance over traditional Periodic Maintenance

INPUT DATASET(S):

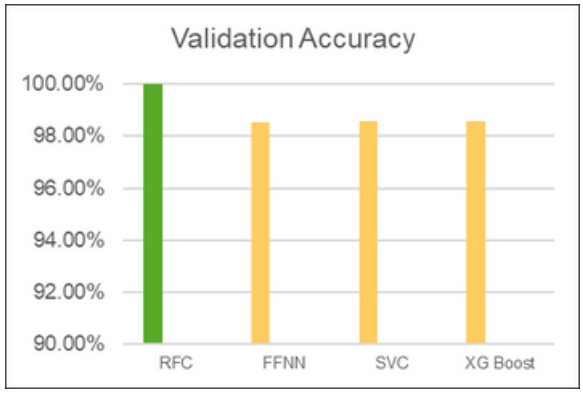
Physical measures, currently from FEM (Ansys: Transient Analysis) results, such as deformation and shear stresses, for varied operating conditions of the bridge were used as inputs

DATA ANALYSIS & PRE-PROCESSING:



RESULTS:

The preprocessed data is fed to 4 different ML and neural Network architectures, where RFC model was chosen as the best model due its faster computation time (6.39s) and higher accuracy (99.6%) with the test set.



OUTLOOK:

The model shall be studied further to be trained and implemented using real-time sensor data