Prediction of Tensile Strength, Hardness, and Melting Point of Nickel Superalloys Based on Composition Using Machine Learning

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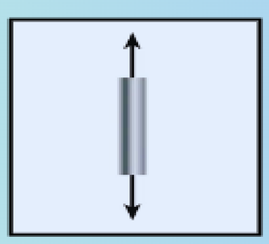
FAKULTAS TEKNIK

Introduction

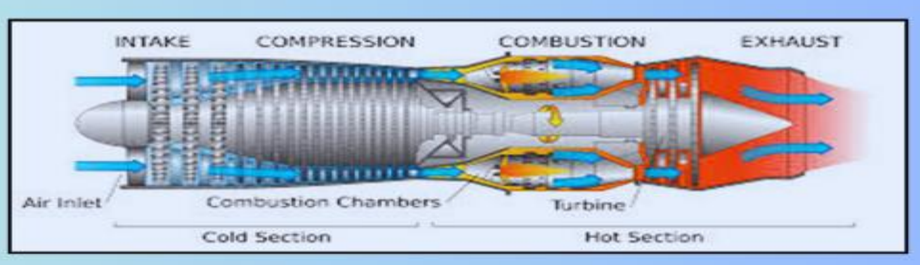
- Superalloys are a class of materials renowned for retaining mechanical properties at **elevated temperatures**.
- Extreme operating temperature conditions impact the **tensile strength, hardness, and melting point properties**
- Three machine learning models which are **KNN, ANN, and SVR** are used in this study **to predict properties based on composition (C2P)** and **composition based on properties (P2C)**

Targeted Properties



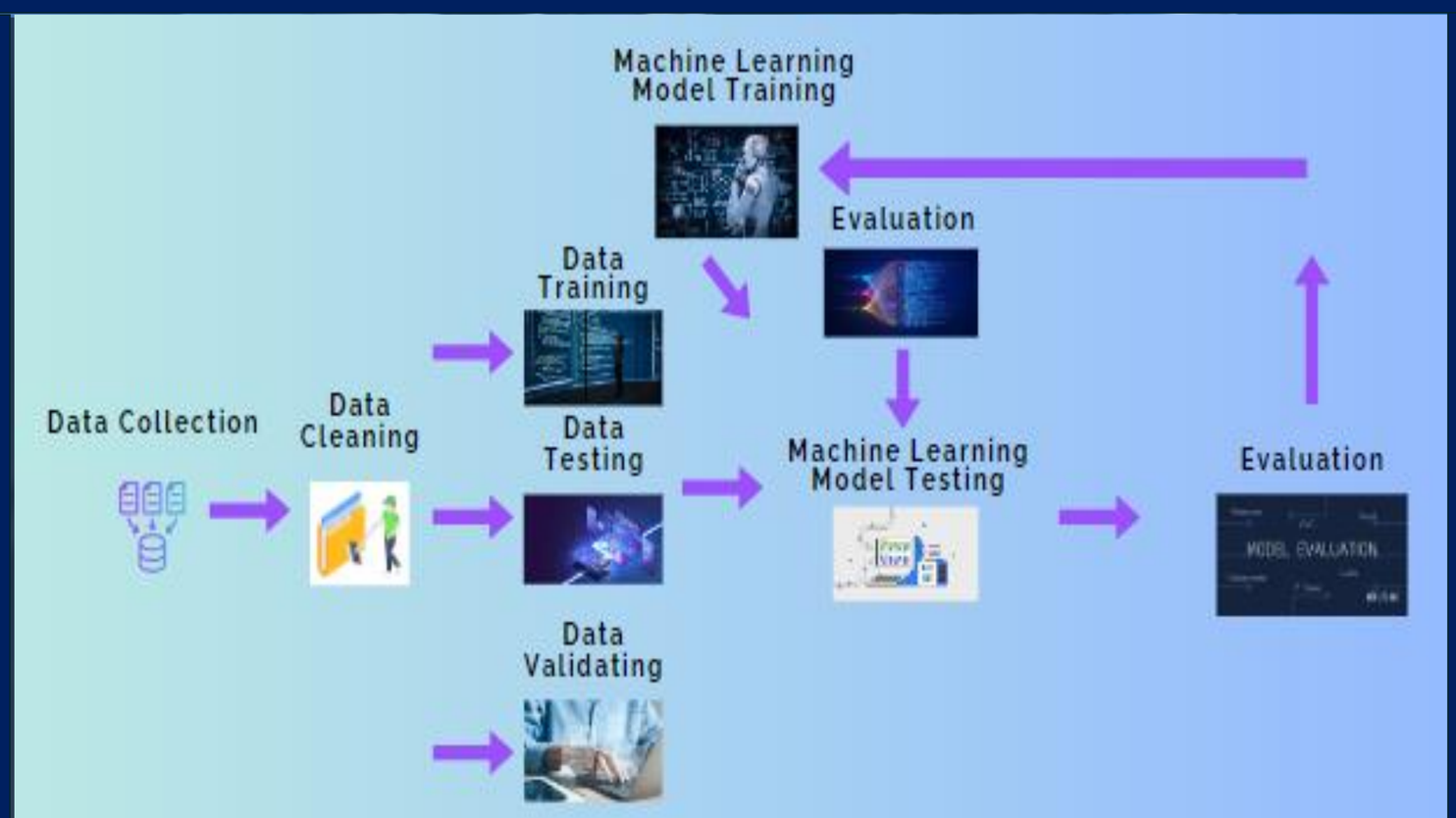
High Tensile Strength

High Hardness

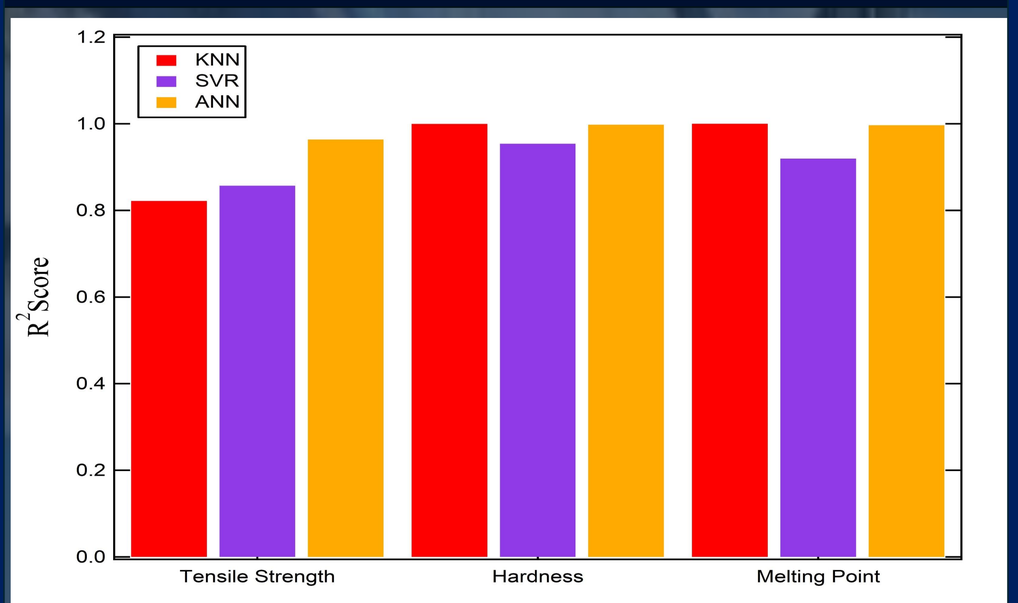


High Melting Point

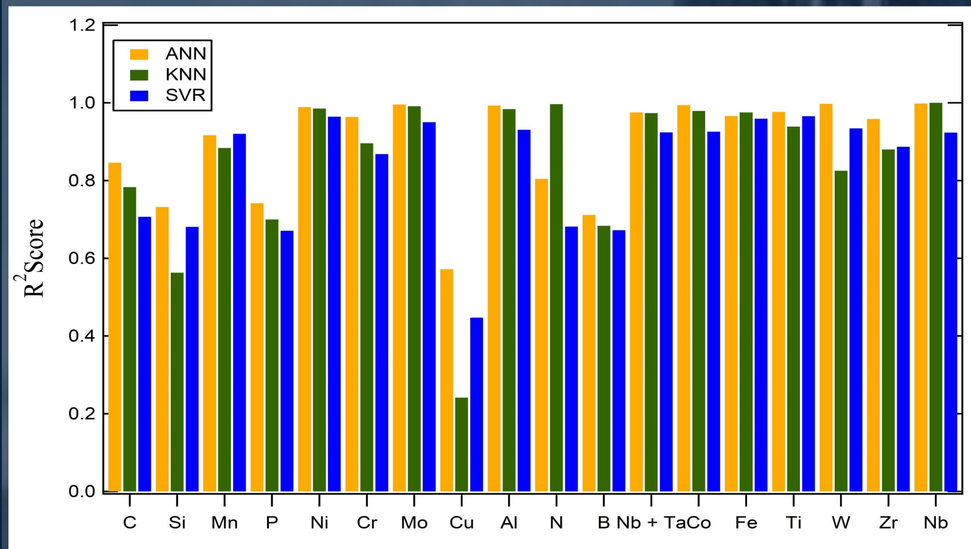
Research Metodology



Performance C2P Predictions



Performance P2C Predictions



Most Influenced Element for Each Properties