

## ABSTRACT

*Energy Signature in a building can be seen by comparing Energy Usage Intensity (EUI) with Outdoor Temp. The method for identifying Energy Signature is Inverse Modeling. The Inverse modeling method itself can be used with Machine Learning. The Inverse modeling method starts when simulating six (6) buildings with various geometries. The results of the building simulation are building parameters namely window to wall ratio, walls, glass, ventilation, infiltration conditions, AC COP (Coefficient of Performance) values, AC temperature setpoints, building occupancy, and climate. The research data shows that each building shows a different EUI value. At this time machine learning is used to find the accuracy value of each building. This study uses Python as a machine learning programming language and Artificial neural networks (ANN) as a method used for training simulation data. After training, the accuracy values of each building are obtained using one (1), three (3), up to five (5) hidden layers with 25 neurons each.*

**Keywords:** *Energy Signature, Artificial Neural Networks (ANN), building paramater.*