

# Machine Learning In Python

Subject: Artificial Neural Network

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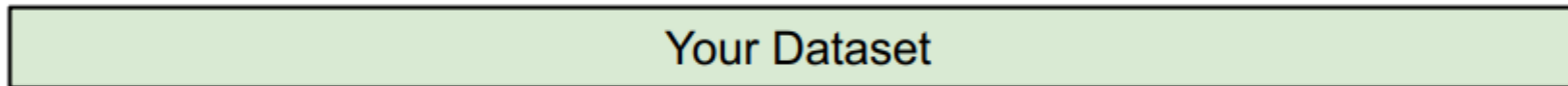
Hamedan University of Technology

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# Artificial Neural Network

**Idea #1:** Choose hyperparameters that work best on the data

**BAD:**  $K = 1$  always works perfectly on training data



**Idea #2:** Split data into **train** and **test**, choose hyperparameters that work best on test data

**BAD:** No idea how algorithm will perform on new data

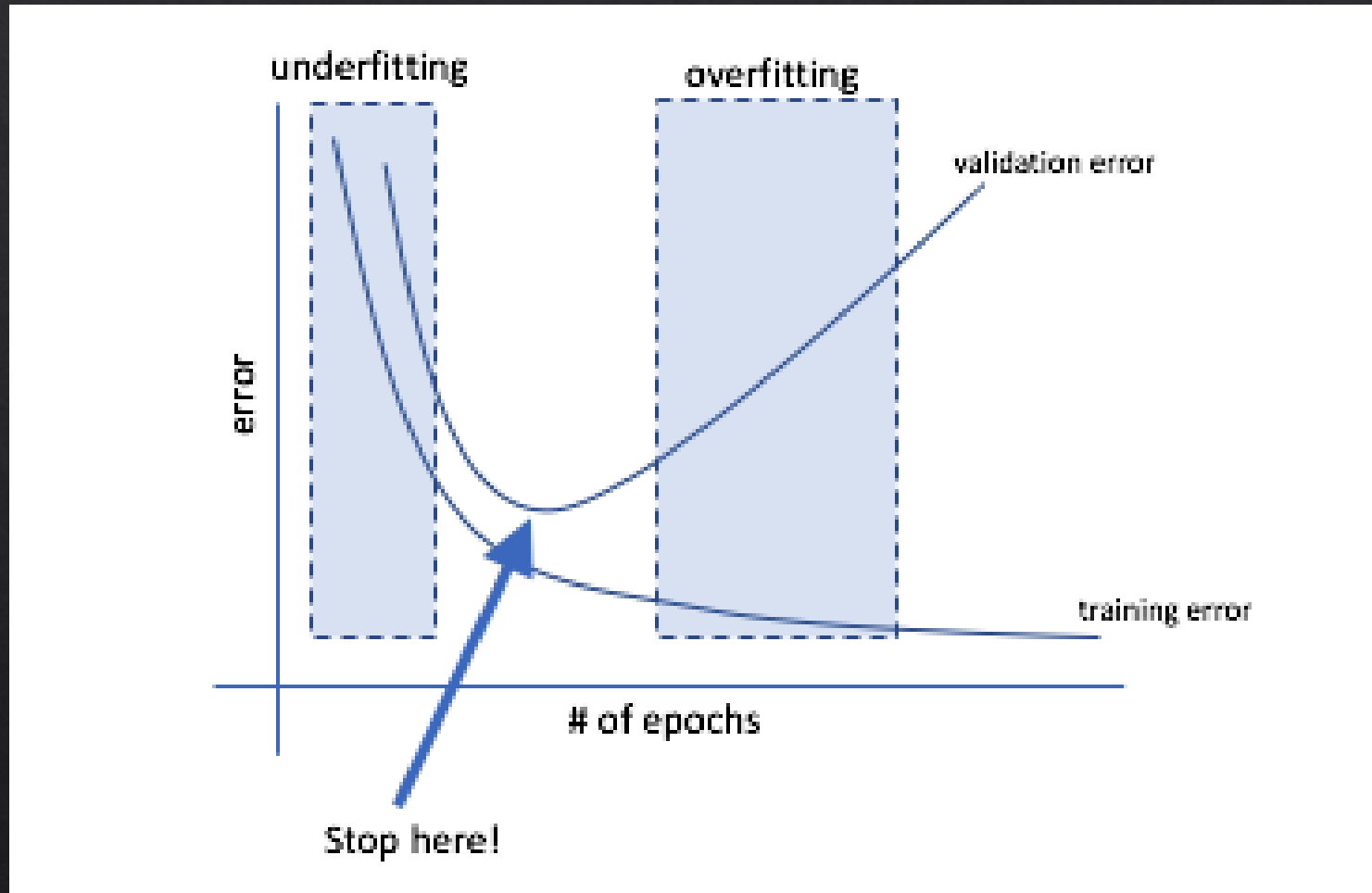


**Idea #3:** Split data into **train**, **val**, and **test**; choose hyperparameters on val and evaluate on test

**Better!**



# Artificial Neural Network



# Artificial Neural Network

## How to prevent Overfitting in neural networks

- Using a validation set in training procedure
- Using Dropout layer in the network.

