



# **SNS COLLEGE OF TECHNOLOGY**

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## **Department of Biomedical Engineering**

**Course Name: 19ECT303 & Artificial Intelligence and machine  
learning**

**III Year : V Semester**

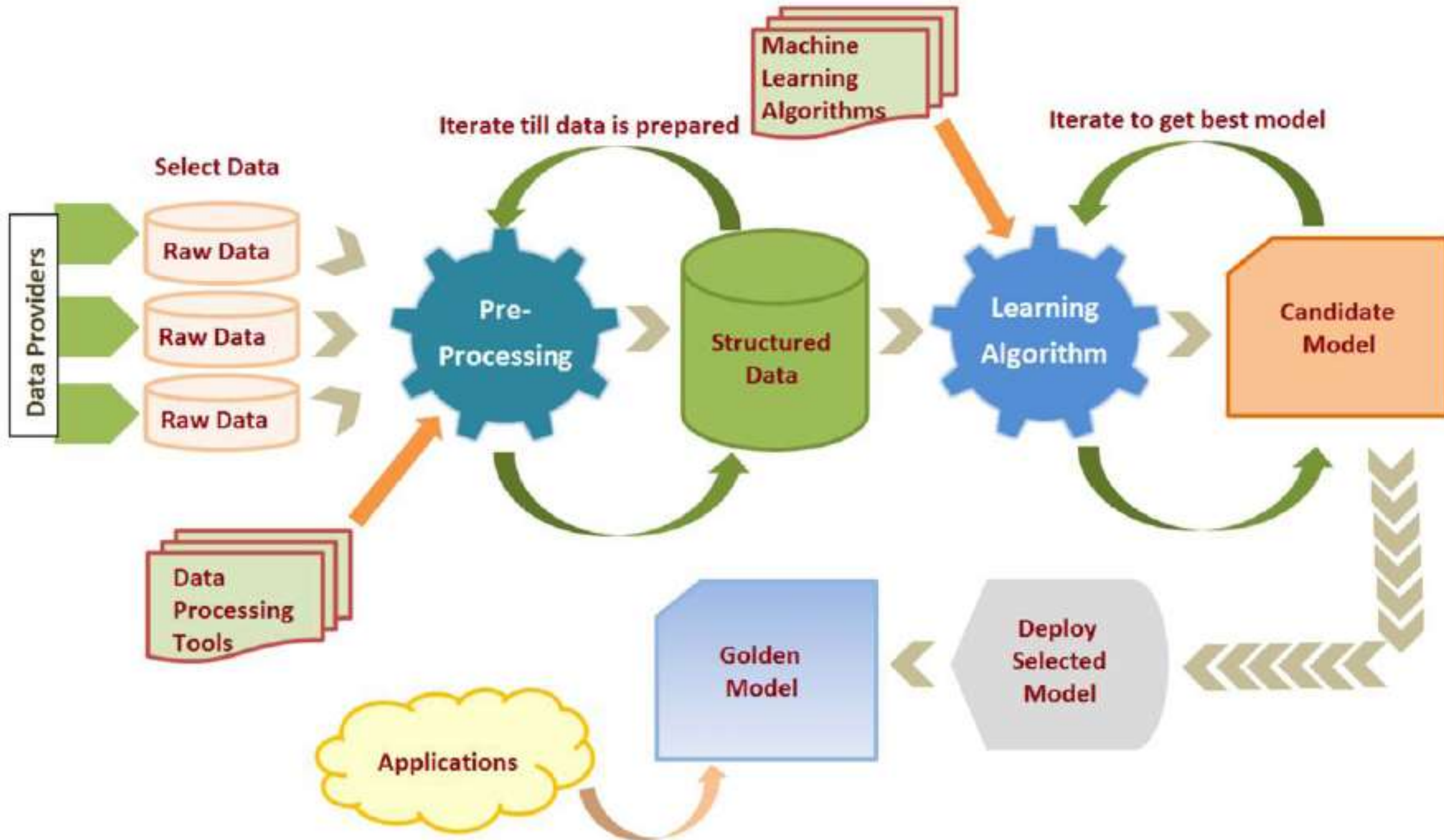
**Unit I – FUNDAMENTALS OF MACHINE LEARNING**

**Topic : Machine learning process**

19ECT303/Artificial Intelligence and Machine Learning/Unit 1/Mr.  
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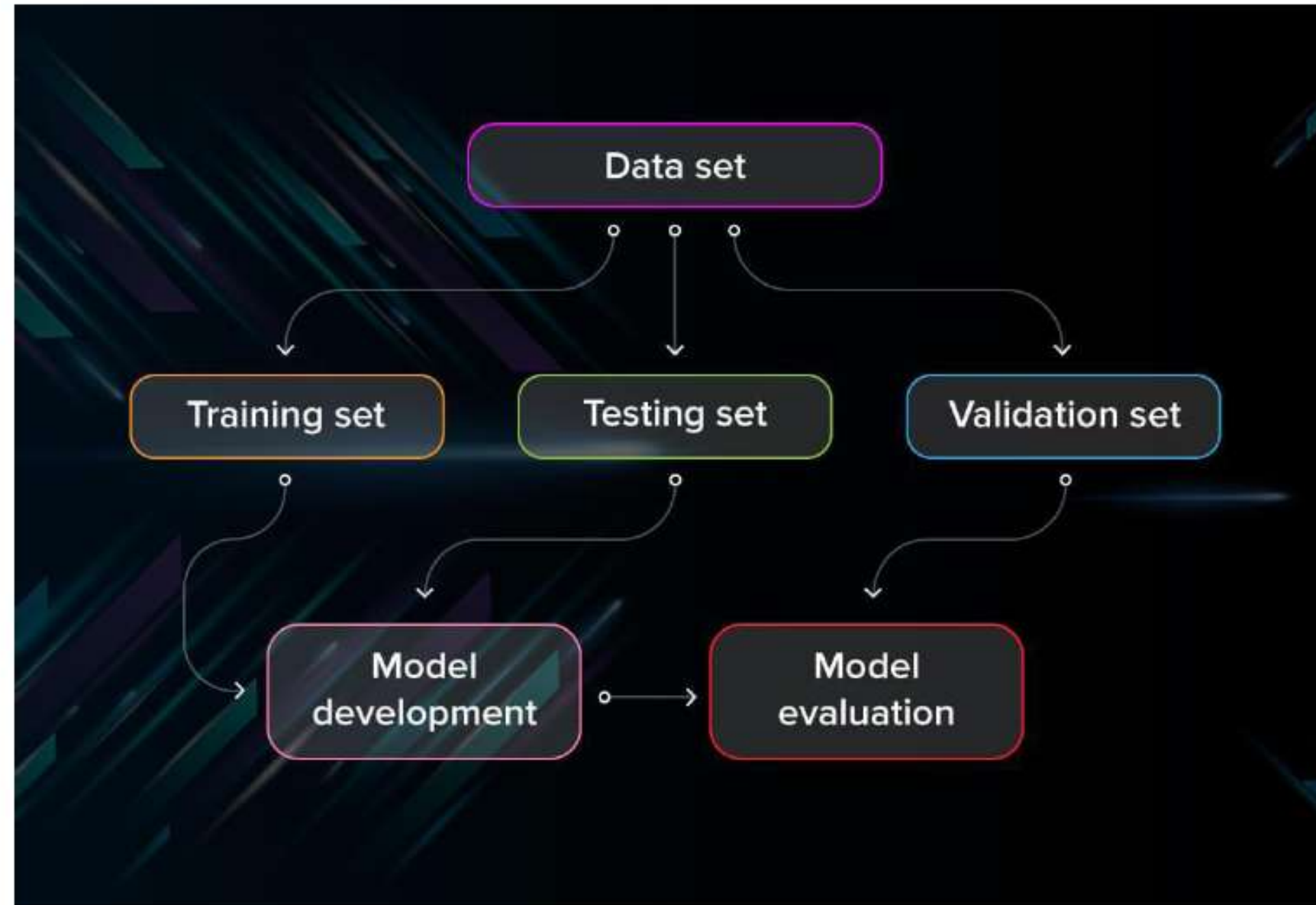


# Machine Learning





# Testing machine algorithm



Vision Title 3



- Performing ML tests is necessary if you care about the quality of the model.
- ML testing has a couple of peculiarities: it demands that you test the quality of data, not just the model, and go through a couple of iterations adjusting the hyperparameters to get the best results.



## Validation set:

Having only a training set and a testing set is not enough if you do many rounds of hyperparameter-tuning (which is always).

And that can result in overfitting. To avoid that, you can select a small validation data set to evaluate a model. Only after you get maximum accuracy on the validation set, you make the testing set come into the game.



# Test set



In order to assure that, you select samples for a testing set from your training set — examples that the machine hasn't seen before. It is important to remain unbiased during selection and draw samples at random. Also, you should not use the same set many times to avoid training on your test data. Your test set should be large enough to provide statistically meaningful results and be representative of the data set as a whole.



# Cross-Validation



Cross-validation is a model evaluation technique that can be performed even on a limited dataset. The training set is divided into small subsets, and the model is trained and validated on each of these samples.



# MCQ



To avoid overfitting, we use

- a) Testing dataset
- b) Training dataset
- c) Validation dataset
- d) Random dataset

Vision Tit 2

Vision Title 3





# MCQ



The testing data set can be

- a) Biased
- b) Selected from Training dataset
- c) Selected such that the model will have best accuracy
- d) Selected in a very less number

Vision Title 3



# MCQ



\_\_\_\_\_ is a model evaluation technique that can be performed even on a limited dataset

- a) Testing
- b) Training
- c) Validation
- d) Cross-validation

Vision Tit 2

Vision Title 3



# THANK YOU



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## QUESTIONS ??

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