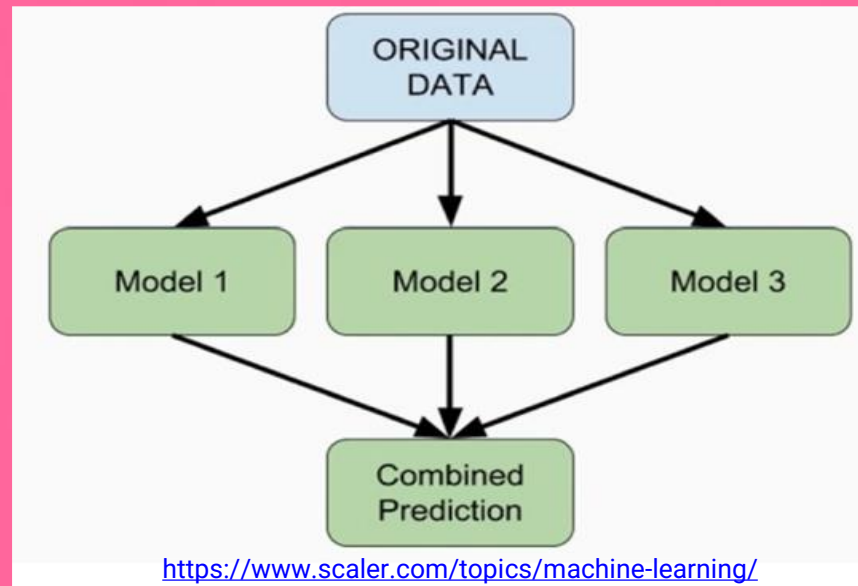
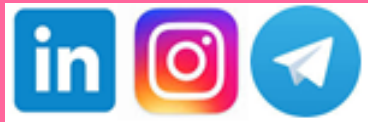


Machine Learning Ensemble Learning



behzad.amanpour





Ensemble Learning

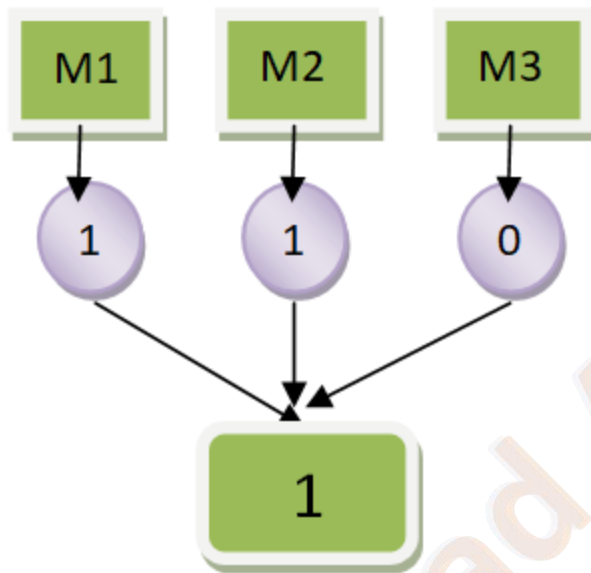
- Parallel Learning
 - **Voting**
 - **Stacking**
 - **Bagging**
- Sequential Learning
 - **Boosting**

<https://towardsdatascience.com/ensemble-methods-bagging-boosting-and-stacking-c9214a10a205>

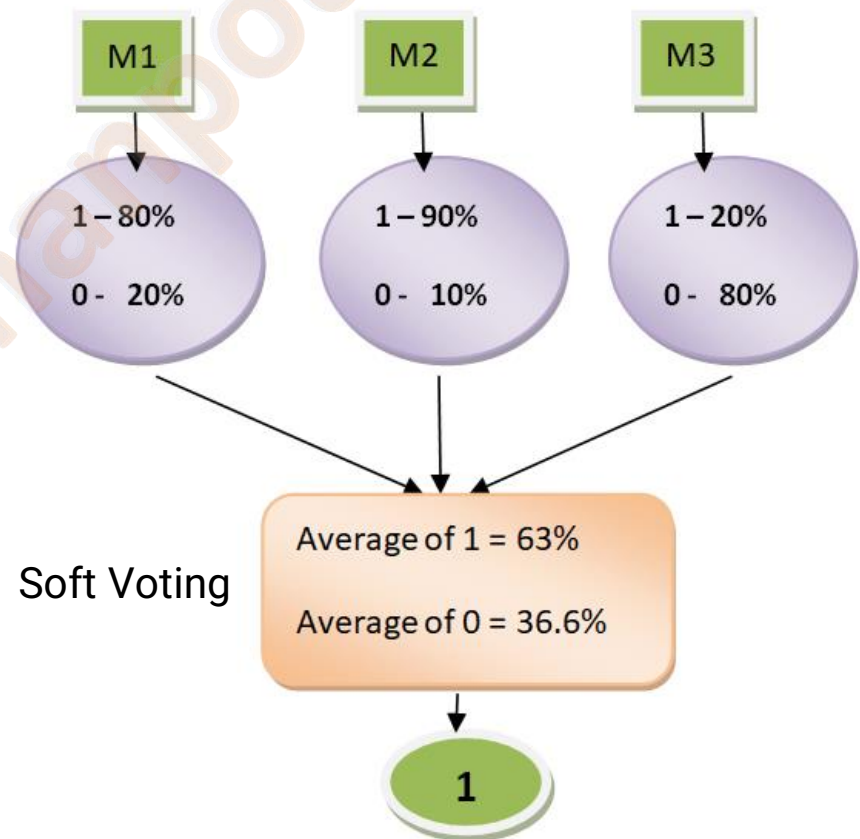




Voting



Hard Voting

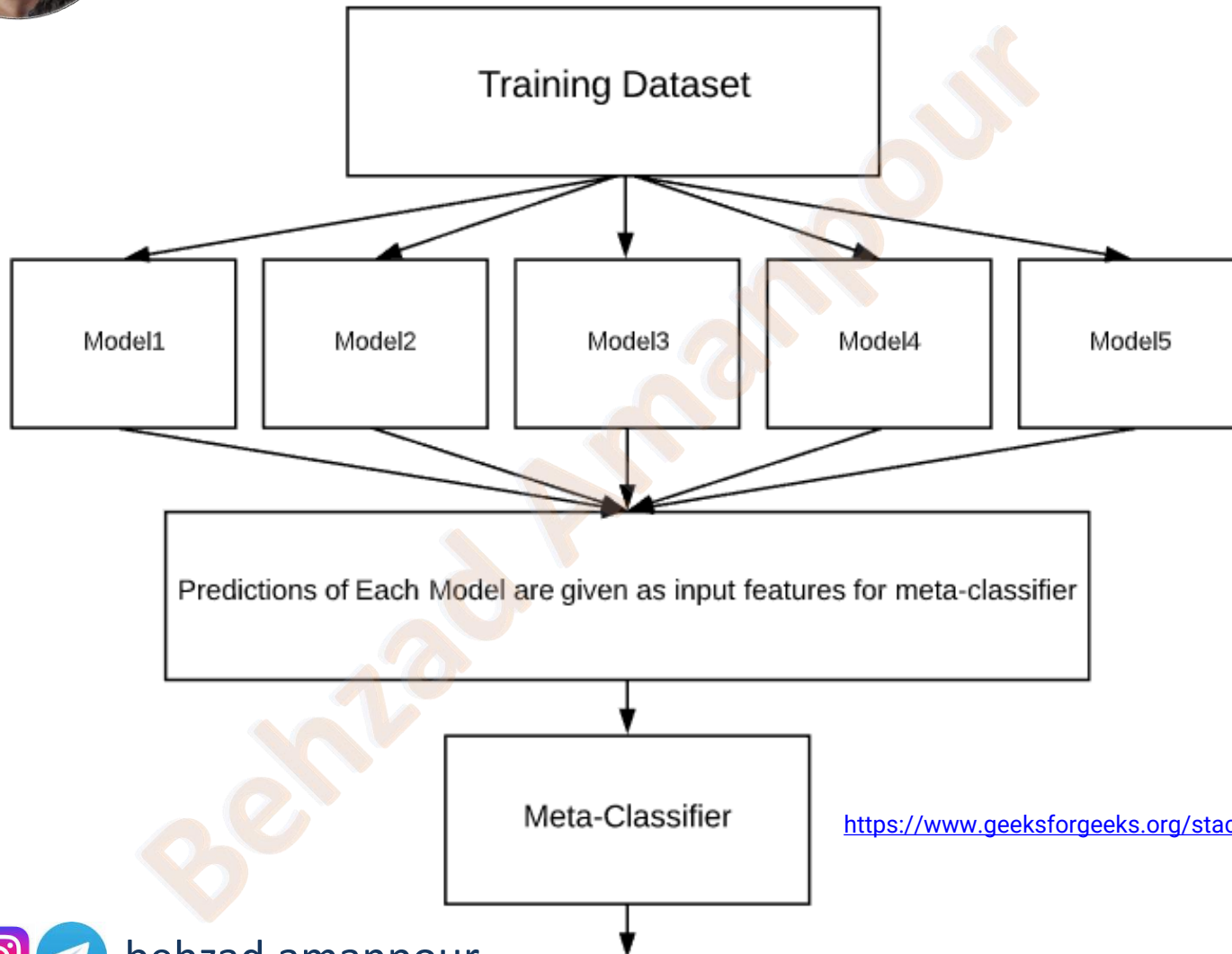


Soft Voting

<https://vitalflux.com/hard-vs-soft-voting-classifier-python-example/>



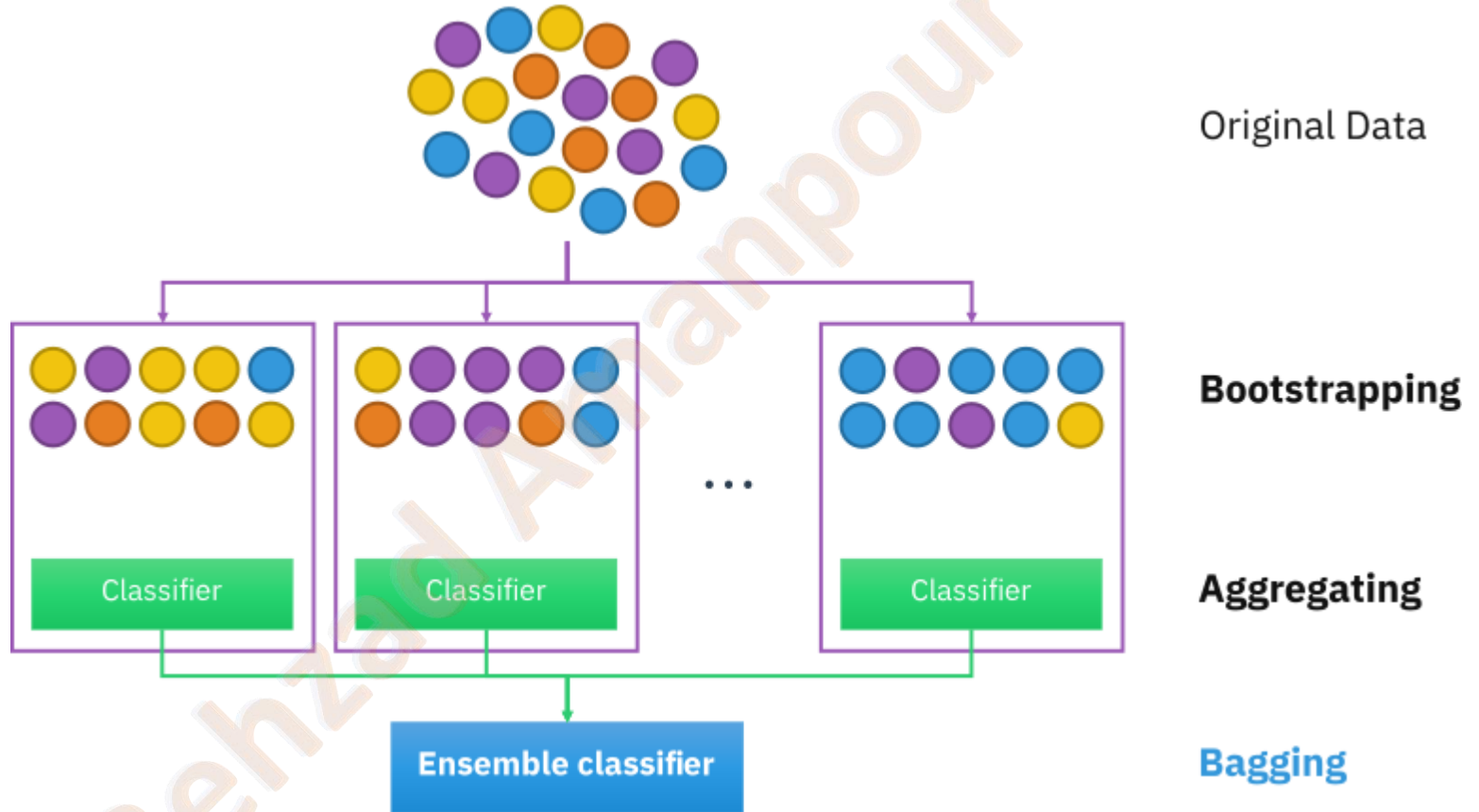
Stacking



<https://www.geeksforgeeks.org/stacking-in-machine-learning-2/>



Bagging

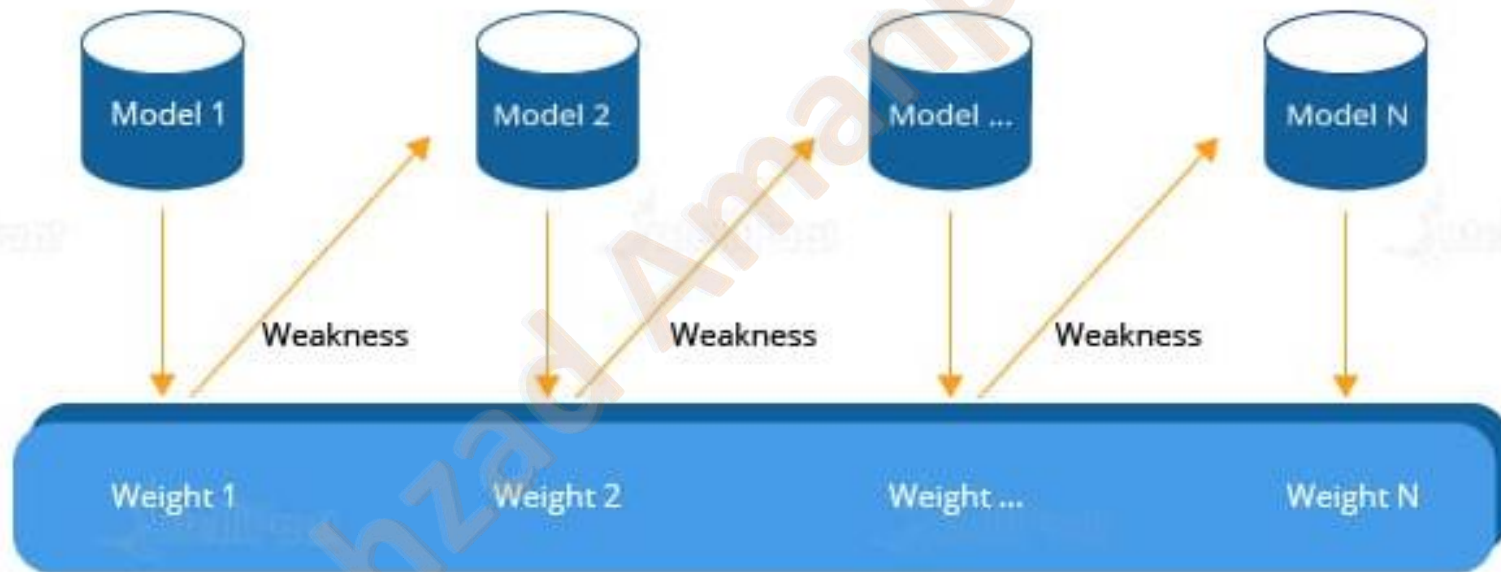


https://en.wikipedia.org/wiki/Bootstrap_aggregating



Boosting

Sequential Ensemble Method (Boosting)



<https://intellipaat.com/blog/gradient-boosting-in-machine-learning/>



Boosting

- **AdaBoost:** Adaptive Boosting
- **XGBoost:** eXtreme Gradient Boosting