

# Machine Learning Live Class

## Instructors:

### Sagar Kandpal:

Sagar Kandpal completed M.Tech. in Computer Integrated Manufacturing from NIT Warangal in 2019. He also worked as a teaching assistant in NIT Warangal. He was also working as a PhD research fellow at IIT Gandhinagar before joining iNeuron as a Data Scientist. His main research is focused on the Application of Machine Learning and Deep Learning algorithms to real-world use cases. Research Interests: Mathematical Modelling and Optimization, Deep Reinforcement Learning, Geometric Deep Learning, Robotics and Computer Vision.

## Curriculum:

### Machine Learning Module 1

- Introduction machine learning module 1
- Supervised, unsupervised, semi-supervised, reinforcement
- Train, test, validation split
- Performance
- Overfitting, underfitting
- OLS
- Linear regression
- polynomial regression
- Assumptions R-square adjusted, R-square intro to Scikit-learn, training methodology, hands-on linear regression, ridge regression, logistics regression, precision-recall

### Machine Learning Module 2

- Decision tree, decision tree regressor, cross-validation

- Bias vs variance, ensemble approach, Bagging, boosting
- Random forest, stacking, variable importance
- XGBoost, hands-on XGBoost, gradient boost, ada boost

### **Machine Learning Module 3**

- K Nearest Neighbour, k-NN regressor, lazy learners, the curse of dimensionality, k-NN issues

### **Machine Learning Module 4**

- K-means, hierarchical clustering, DBSCAN
- Performance measurement, principal component analysis, dimensionality reduction

### **Machine Learning Module 5**

- Naive Bayes SVM
- Anomaly detection

### **Time series**

- Arima, Sarima, Auto Arima
- Time series using RNN LSTM, prediction of NIFTY stock price