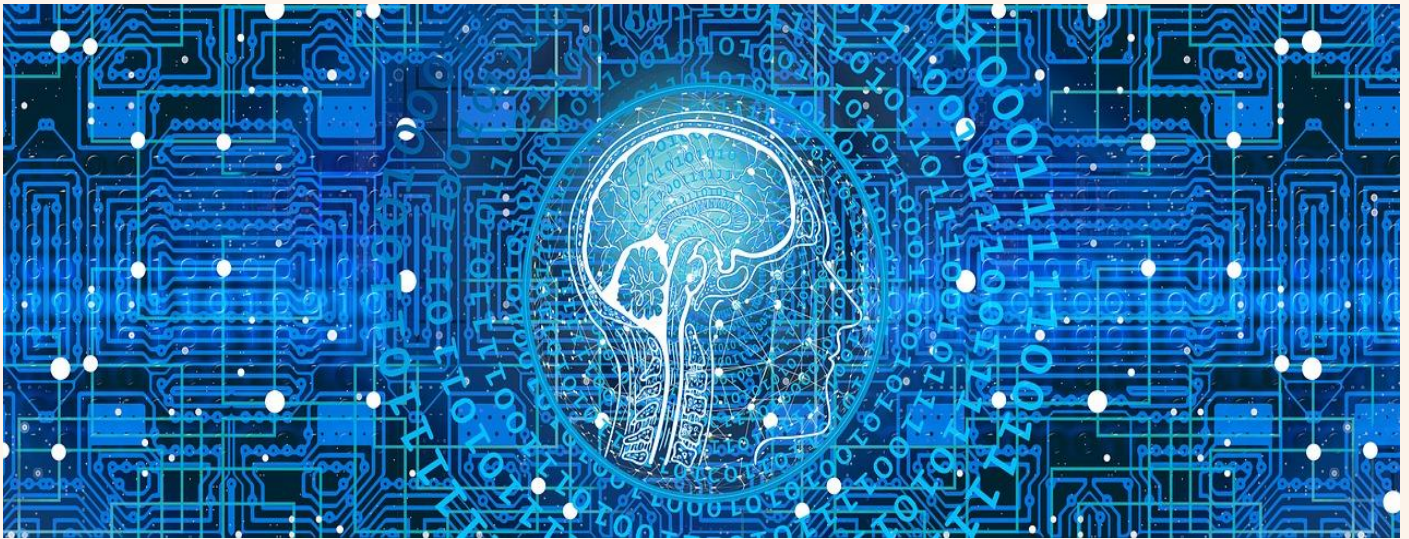# FLAIR 4BD – IGIDR Summer School
July 2 – 6, 2019

OVERVIEW OF FLAIR 4BD

FLAIR 4BD is an initiative of Indira Gandhi Institute of Development Research (IGIDR) that seeks to **F**oster **L**earning, **A**nalysis, **I**nsights and **R**esearch **4 B**ig **D**ata. The initiative is supported by a grant from the Bill and Melinda Gates Foundation. The summer school consists of a series of twenty lectures which will provide strong foundation in the field of Machine Learning and Artificial Intelligence.

RESOURCE PERSONS

Jayatu Sen Chaudhury has more than 20 years of experience in developing Data Science and Big Data Solutions to Business Problems in Marketing and Risk. He has a PhD from Indira Gandhi Institute of Development Research and is currently Head of Enterprise Digital and Analytics (EDA) at a leading MNC in Gurgaon. He is a visiting faculty at IIM Bangalore as well.

Aashish Prakash is a seasoned professional with more than a decade of experience in the field of Credit Risk and Analytics. He is an alumnus of IIT Kharagpur as well as IIM Bangalore and is currently Head of Modelling and Analytics at an Investment Management Group in Gurgaon. He is also a visiting faculty at IIM Bangalore.

SUMMER SCHOOL OUTLINE

Topic 1
What is Next Generation Data Science?
- Why is there a huge revolution today?
- What are the fields in which Data Science can be applied?
- How will this field evolve in the next few years?

Topic 2
Agenda for the next 20 Lectures
- Five Use Cases across Industries
- Finance and Banking
- Medicine
- Telecom
- Solve the Problems Together
- Understand the Solutions

Topic 3
**Prelude to Machine Learning –
Next Generation Tools**
- Logistic
- Random Forest
- XGBOOST/Gradient Boosting Machines
- SVM: Support Vector Machines
- KNN: K Nearest Neighbour
- Deep Learning

Topic 4
**Case Study One: Prediction of Medical
Cost of Insurance**
- Understand the Data
- Data Analysis
- Prediction
- Validation

Topic 5
**Case Study Two: Modelling Default
Behaviour of Companies**
- Setting up the Data
- Objective Function
- Data Analysis
- Prediction (using different tools)
- Validation

Topic 6
**Case Study Three: How do you Measure
Credit Risk for a Bank's Portfolio**
- Setting up the Business Problem
- BASEL Framework: Following from Case Study Two
- Following Credit Metrics
- Implications for the above

Topic 7
**Case Study Four: How do you measure
Market Risk of a Stock portfolio?**
- VaR of a Single Stock
- VaR of a Portfolio
- Portfolio Optimization

Topic 8
Determining Optimal Investments
- Combining Credit and Market Risk
- Next Generation of Risk Management - Nassim Taleb

**Topic 9: Case Study Five: Prediction of
Occurrence of Fraud**
- Setting up the Problem
- Objective Function
- Unbalanced Data
- Prediction Tools
- Validation

Topic 10
**Case Study Six: Churn Analysis for the
Telecom Industry**
- Setting up the Problem
- Objective Function
- Unbalanced Data
- Prediction Tools
- Validation

Topic 11
**Case Study Seven: Prediction of
Occurrence of Cancer**
- Understanding the Data
- Data Analysis
- Prediction (using different Models)
- Validation

Topic 12
Case Study Eight: Prediction of Stock Price
- Traditional Time Series
- Deep Learning

Closing
- What Lies Ahead?

The IGIDR – FLAIR 4BD team will be creating an AI-ML network soon. Details will be provided on the IGIDR website. Please make sure to update your Email ID with us.