



# Introduction to Data Analytics



# Agenda



Introduction – About US

Learning Path

Introduction to the field of Data Analytics

Applications of Data Analytics

Career Opportunities





# Hello!

## I am Satyajit Pattnaik



- ◇ Almost 10 years of industry experience
- ◇ Conducted various training sessions on Data Analytics, Data Science, ML & AI, as well as attended various International conferences as keynote speaker & guest in various colleges across APAC & Europe Region.
- ◇ Have been associated with UpGrad, Great Lakes, Edureka, SkillAnalytica, BeingDatum etc. as a freelance trainer in Data Science & Machine Learning.
- ◇ **Certifications:** Indian Speakers & Coach Forum Certified Speaker, Oracle Certified Java Developer, various other Cloud Certifications as well.



A decorative graphic on the left side of the slide. It features a large cyan hexagon in the center. Surrounding it are several smaller hexagons in various shades of blue and cyan. Some of these hexagons contain icons: a lightbulb, a thumbs-up, a smartphone, a magnifying glass, and a gear. There is also a network diagram icon with a central node and four connecting lines.

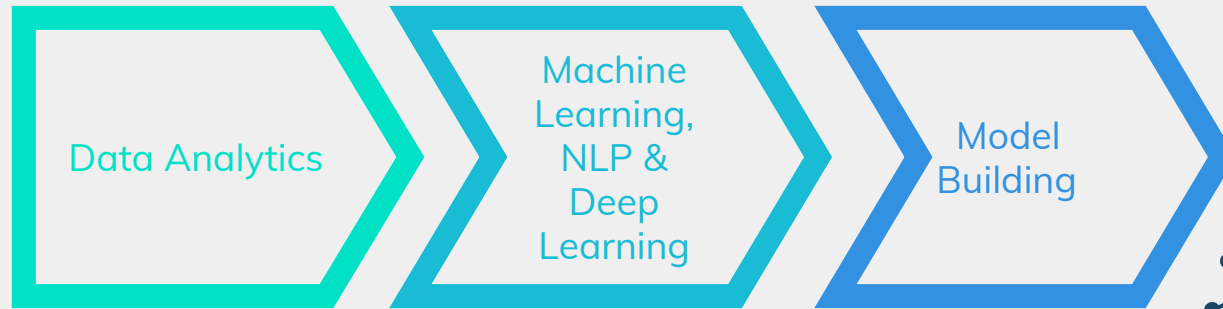
# What is iNeuron?

**Mission** - To make learning and career growth in the field of data, a community driven initiative and focus on NetWorking while Working and Earning while Learning.

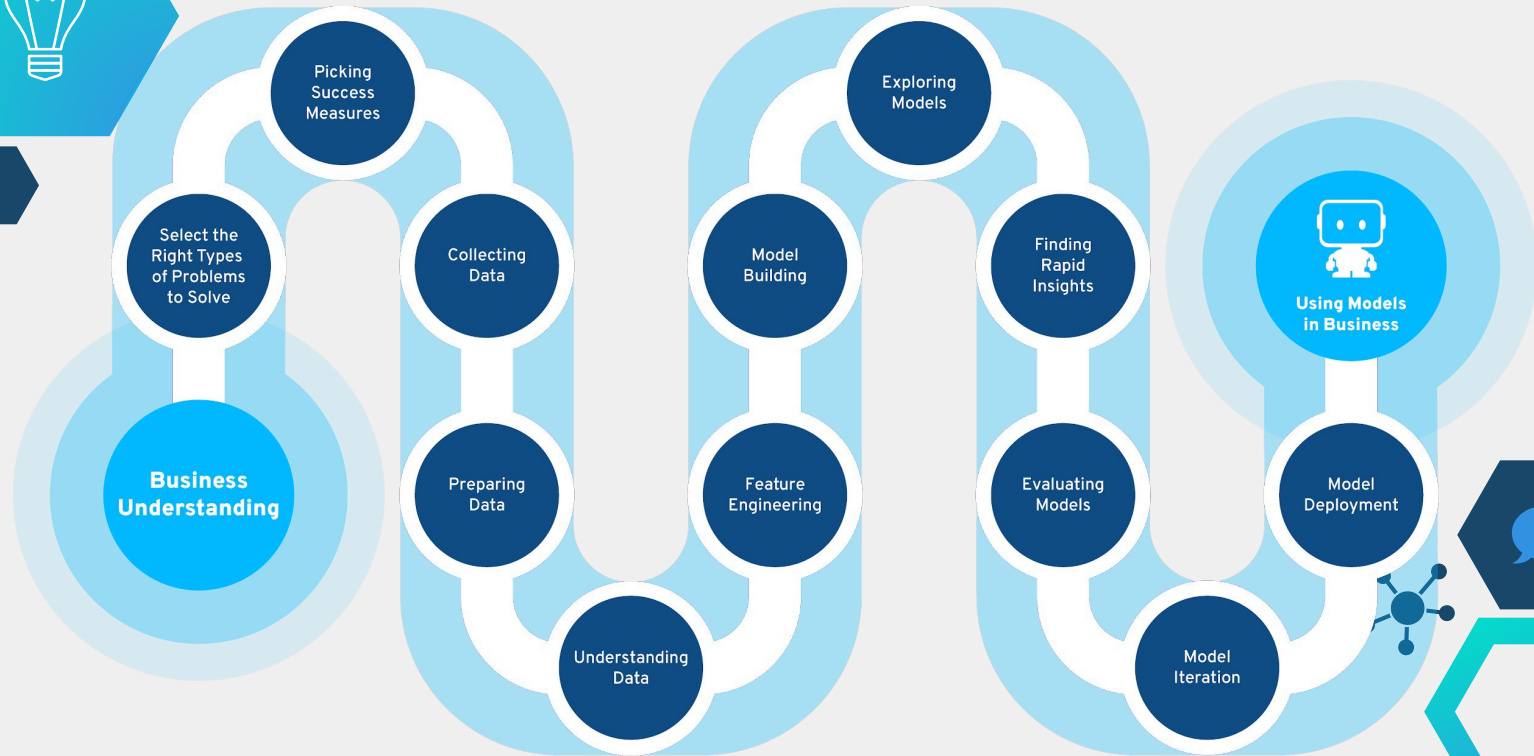
**Features** - A one stop platform for end to end learning experience in the field of Data Science, Big Data, Cloud and DevOps with the following features-

- Free Community of experts to help solve your problems (WhatsApp, Telegram, Facebook, Website etc)
- Free Courses (Text and Video based) (Website)
- Free Webinars and Seminars
- Free one-one mentorship sessions
- Instructor based end to end courses

**Target Audience** - For all enthusiasts, beginners, intermediate and experts alike.



# Learning Path



A GUIDE TO

# PROCESS FLOW FOR DATA ANALYTICS PROCESS

SATYAJIT PATTNAIK

01

DEFINE THE OBJECTIVE

02

DATA GATHERING

03

DATA CLEANING

04

FIELD LEVEL ANALYSIS

- MISSING VALUES TREATMENT
- HANDLING OUTLIERS
- DATA TYPE ANALYSIS

05

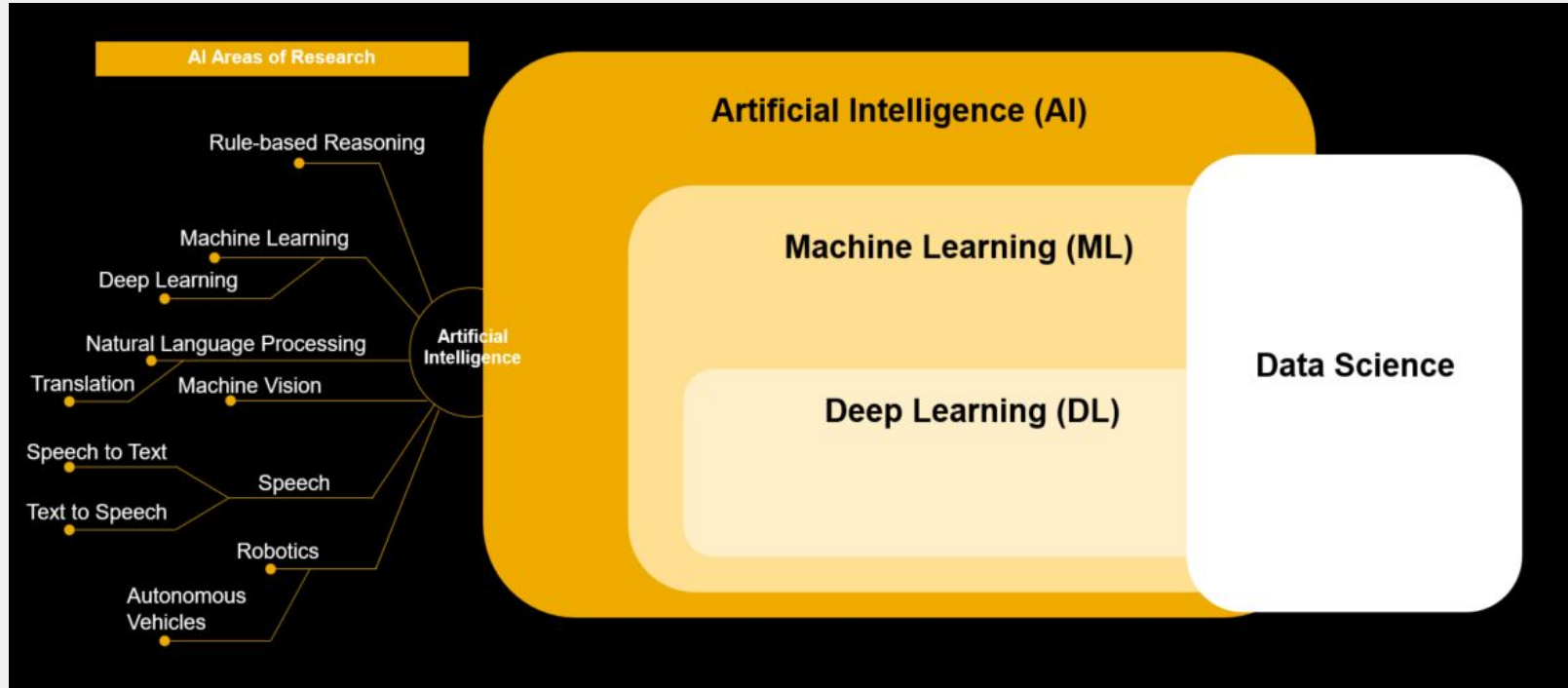
DATA CONSOLIDATION

- MERGING DATA
- DEFINING RELATIONSHIP IN DATA

06

DATA ANALYSIS &  
BUSINESS INSIGHTS

# Biggest Confusion: AI vs ML vs DL vs DS

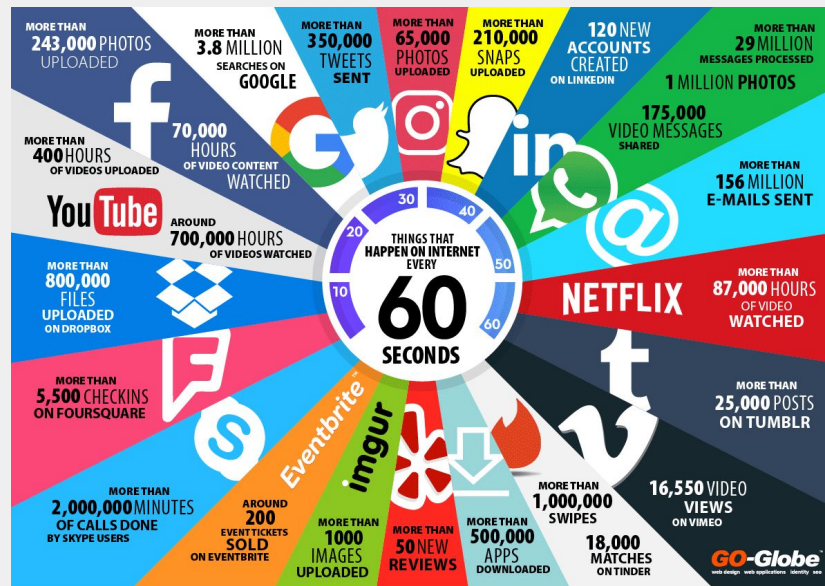




# What is Machine Learning

Machine learning is a type of artificial intelligence (AI) that provides computers with the ability to learn without being explicitly programmed.

Machine learning focuses on the development of computer programs that can teach themselves to grow and change when exposed to new data.



# Why do we need Machine Learning?

- Volume of data collected growing day by day.
- Data production is 44 times greater in 2020 than in 2009.
- Every day, 2.5 quintillion bytes of data are created
- Data is nearly doubling in size every two years.
- Knowledge Discovery is needed to make sense and use of data.
- Machine Learning is a technique in which computers learn from data to obtain insight and help in knowledge discovery



# ARTIFICIAL INTELLIGENCE, Machine Learning, and Deep Learning Non Exhaustive LIST OF SECTORS TRANSFORMED

## Health Core

Drug Discovery

Medical imaging

Disease Detection

## Finance



Regtech KYC – using  
face detection



Fraud detection



Trader oversight



Investment Portfolio Optimization  
& ETF replication for index tracking



Payments – pay with face



Customer Experience  
and support

## Insurance



Automated claims



Customer Experience  
and support



KYC



Fraud Prevention

## Retail



Robots in  
Warehouses

Inventory  
Optimization

Visual Search

Payments pay  
with face

Recommendations

Virtual Stylist

## Marketing



Hyper  
personalisation



Recommendation  
systems



Smarter targeted  
advertising

## Transport



Autonomous Cars



Autonomous Drones

## Industry



Automation



Robotics



Security



Cameras with  
intrusion detection



Crowd counting



Behavioural Detection



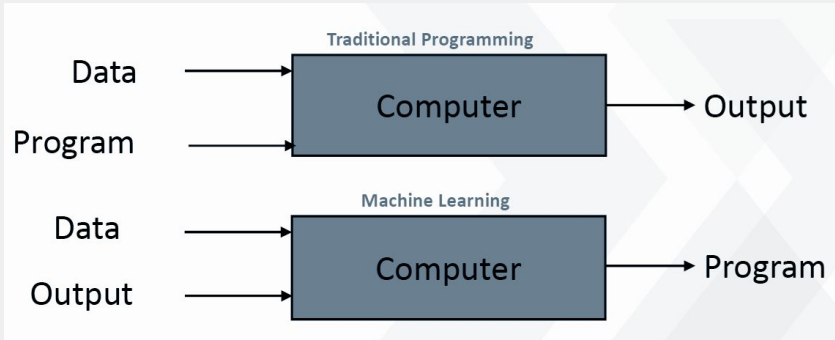
Cyber in fighting  
malware

The edge (AI) is the future

AI will move to the real world via intelligent devices that will interact in real time by themselves throughout the day

www.dls  
@deeplearnoor

# Traditional Programming Vs Machine Learning



$$y = f(x)$$

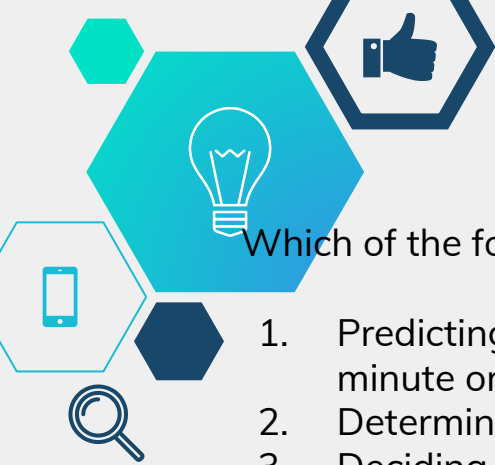
output      prediction function      Image feature

- **Training:** given a *training set* of labeled examples  $\{(x_1, y_1), \dots, (x_N, y_N)\}$ , estimate the prediction function  $f$  by minimizing the prediction error on the training set
- **Testing:** apply  $f$  to a never before seen *test example*  $x$  and output the predicted value  $y = f(x)$

Which of the following is best suited for machine learning?

1. Predicting whether the next cry of the baby girl happens at an even-numbered minute or not
2. Determining whether a given graph contains a cycle
3. Deciding whether to approve credit card to some customer
4. Guessing whether the earth will be destroyed by the misuse of nuclear power in the next ten years.





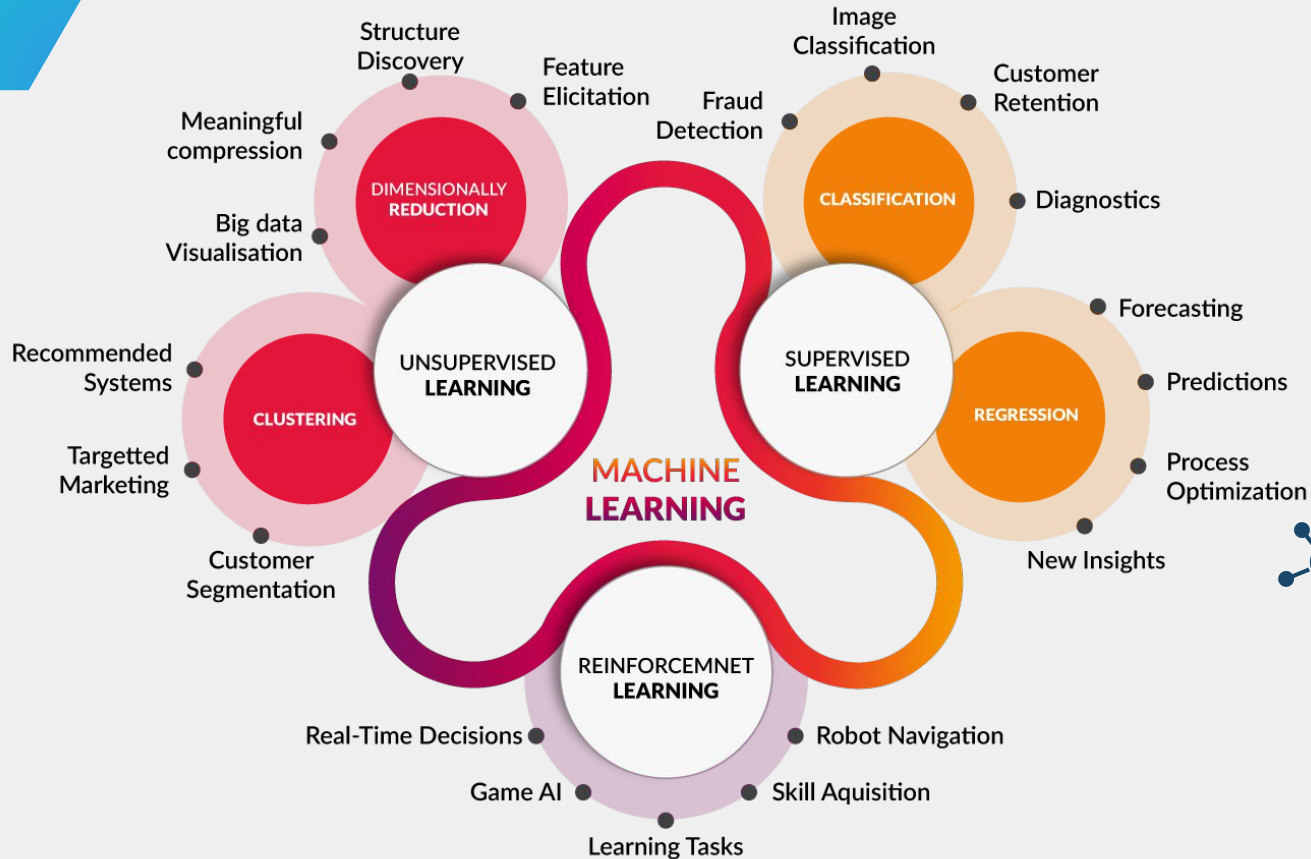
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1. No pattern
2. Programmable definition
3. Pattern: customer behavior; definition: not easily programmable; data: history of bank operation
4. Arguable no (or not enough) data yet



# Types of Learning & Applications








# Course Curriculum

- **Module 1:** Python for Data Analytics
- **Module 2:** SQL & Advanced SQL for Data Analytics
- **Module 3: Business Statistics**
- **Module 4:** Descriptive Analytics: How to collect, clean & describe data you have, including summary statistics
- **Module 5:** Exploratory Data Analysis (EDA)
- **Module 6:** Data Visualization & Business Intelligence
  - Excel
  - Power BI
  - Tableau

## Bonus Lectures:

- **Module 7:** Predictive Analytics I—Machine Learning
  - **Module 8:** Predictive Analytics II—Neural Networks
  - **Module 9:** End to End Live Projects
  - **Module 10:** Bonus Lecture on Big Data Opportunities
  - **Module 11:** Resume building activities
- 



TOP  
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INTERESTING CAREERS  
TO EXPLORE IN

# DATA

## DATA SCIENTIST

These people use their analytical and technical capabilities to extract meaningful insights from data.

## DATA ENGINEER

They ensure uninterrupted flow of data between servers and applications and are also responsible for data architecture.

## BIG DATA ENGINEER

Big Data Engineers build the designs created by solutions architects. They develop, maintain, test and evaluate big data solutions within organisations.

## MACHINE LEARNING SCIENTIST

They work in the research and development of algorithms that are used in adaptive systems. They build methods for predicting product suggestions and demand forecasting, and explore Big Data to automatically extract patterns.

## BUSINESS ANALYTICS SPECIALIST

A business analytics specialist supports various development initiatives, assists in testing activities and in the development of test scripts, performing research in order to understand business issues, and developing practical cost-effective solutions to problems.

## DATA VISUALIZATION DEVELOPER

They design, develop and provide production support of interactive data visualizations used across the enterprise. They possess an artistic mind that conceptualizes, design, and develop reusable graphic/data visualizations and uses strong technical knowledge for implementing these visualizations using the latest technologies.

## BUSINESS INTELLIGENCE (BI) ENGINEER

They have data analysis expertise and the experience of setting up reporting tools, querying and maintaining data warehouses. They are hands-on with big data and take a data driven approach to solving complex problems.

## BI SOLUTION ARCHITECT

They come up with solutions quickly to help businesses in making time sensitive decisions, have strong communication & analytical skills, passion for data visualization, and a drive for excellence and self motivation.

## BI SPECIALIST

They are responsible for supporting an enterprise-wide business intelligence framework. This position requires critical thinking, attention to detail, and effective communication skills.

## ANALYTICS MANAGER

An analytics manager is responsible for configuration, design, implementation, and support of data analysis solution or BI tool. They are specifically required to analyze huge quantities of information gathered through transactional activity.

## MACHINE LEARNING ENGINEER

Machine Learning engineer's final "output" is the working software, and their "audience" for this output consists of other software components that run autonomously with minimal human supervision. The decisions are made by machines and they affect how a product or service behaves.

## STATISTICIAN

They gather numerical data and then display it, and help companies to make sense of quantitative data and to spot trends and make predictions.



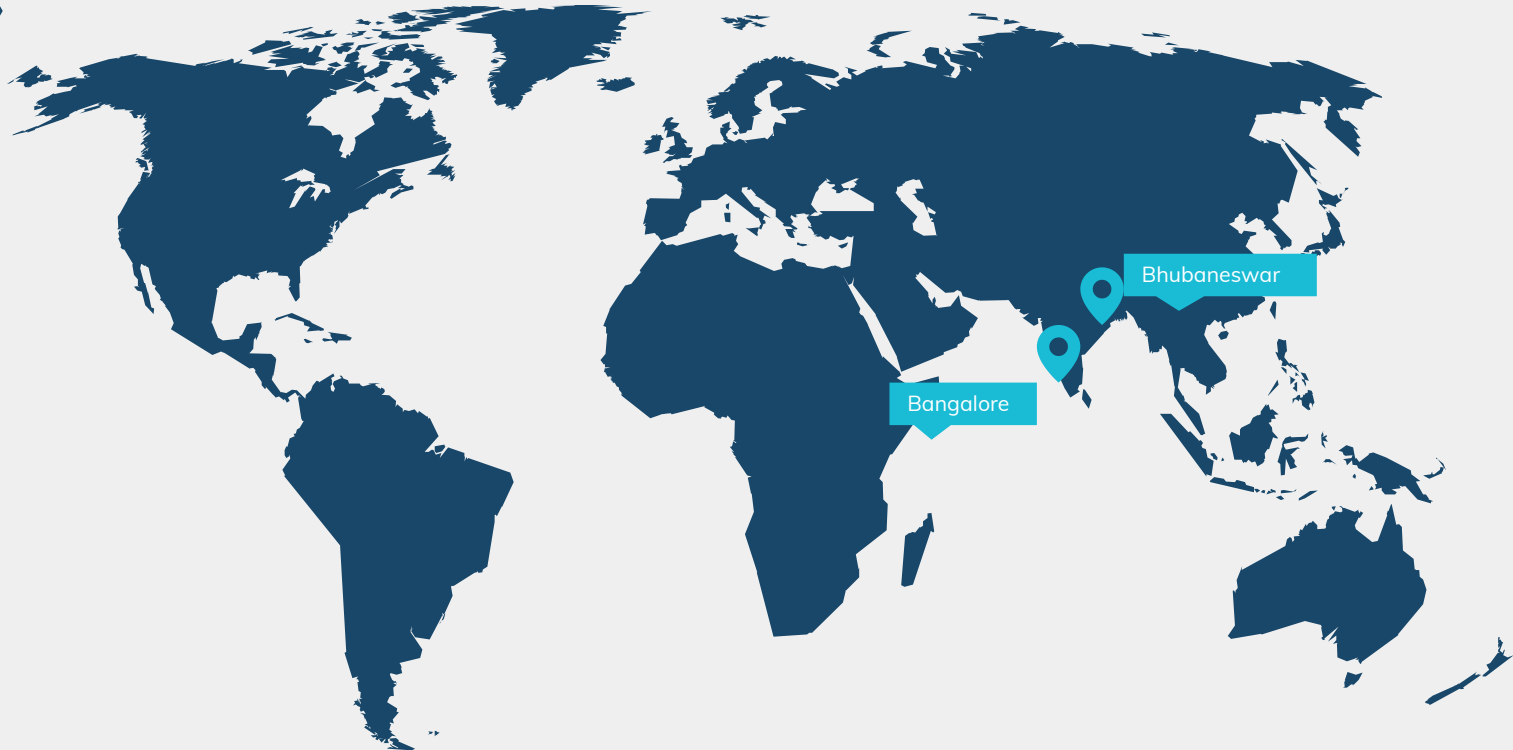


# Program Highlights

- ◇ Online Instructor Led
- ◇ Mentors from Top Product Based Companies & Abroad
- ◇ Unlimited Community Support
- ◇ Free Access to Online Webinars



# Our Offices





# Thanks!

## Any questions?

You can find us at:

◇ [query@ineuron.ai](mailto:query@ineuron.ai)

