AFRICA DATA SCHOOL
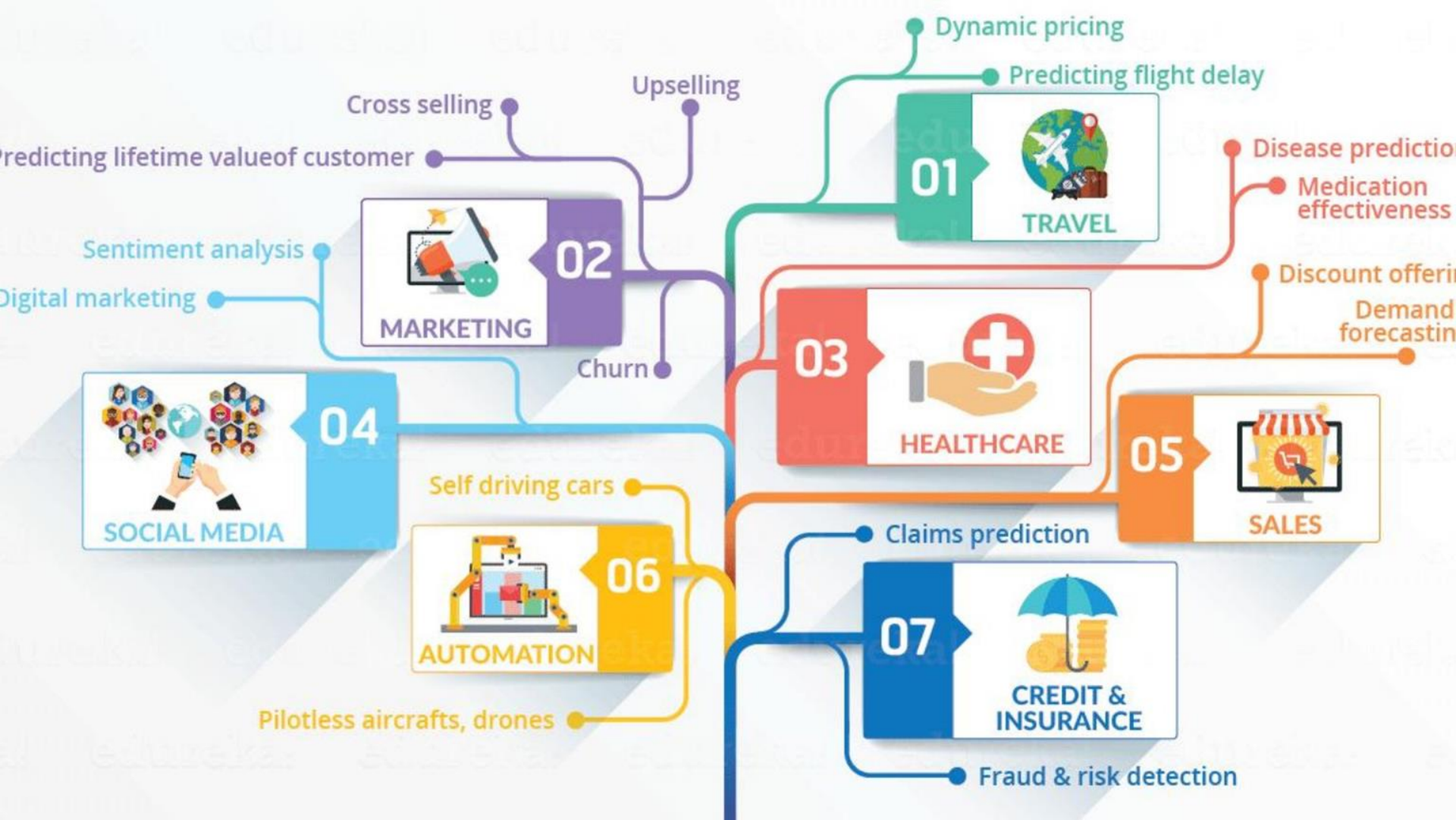
"AI is everywhere... In fact AI is the engine underpinning the 4th industrial revolution"

Kay Firth-Butterfield, Head of AI and ML, World Economic Forum

bootstrap labs | #AAI18

Dynamic pricing

Predicting flight delay

Upselling

Cross selling

Predicting lifetime valueof customer

Disease prediction

Medication effectiveness

01 TRAVEL

Sentiment analysis

Digital marketing

02 MARKETING

Discount offering

Demand forecasting

Churn

03 HEALTHCARE

04 SOCIAL MEDIA

05 SALES

Self driving cars

Claims prediction

06 AUTOMATION

07 CREDIT & INSURANCE

Pilotless aircrafts, drones

Fraud & risk detection

Machine learning ⊆ artificial intelligence

ARTIFICIAL INTELLIGENCE

Design an intelligent agent that perceives its environment and makes decisions to maximize chances of achieving its goal.
Subfields: vision, robotics, machine learning, natural language processing, planning, …

MACHINE LEARNING

Gives "computers the ability to learn without being explicitly programmed" (Arthur Samuel, 1959)

SUPERVISED LEARNING
Classification, regression

UNSUPERVISED LEARNING
Clustering, dimensionality reduction, recommendation

REINFORCEMENT LEARNING
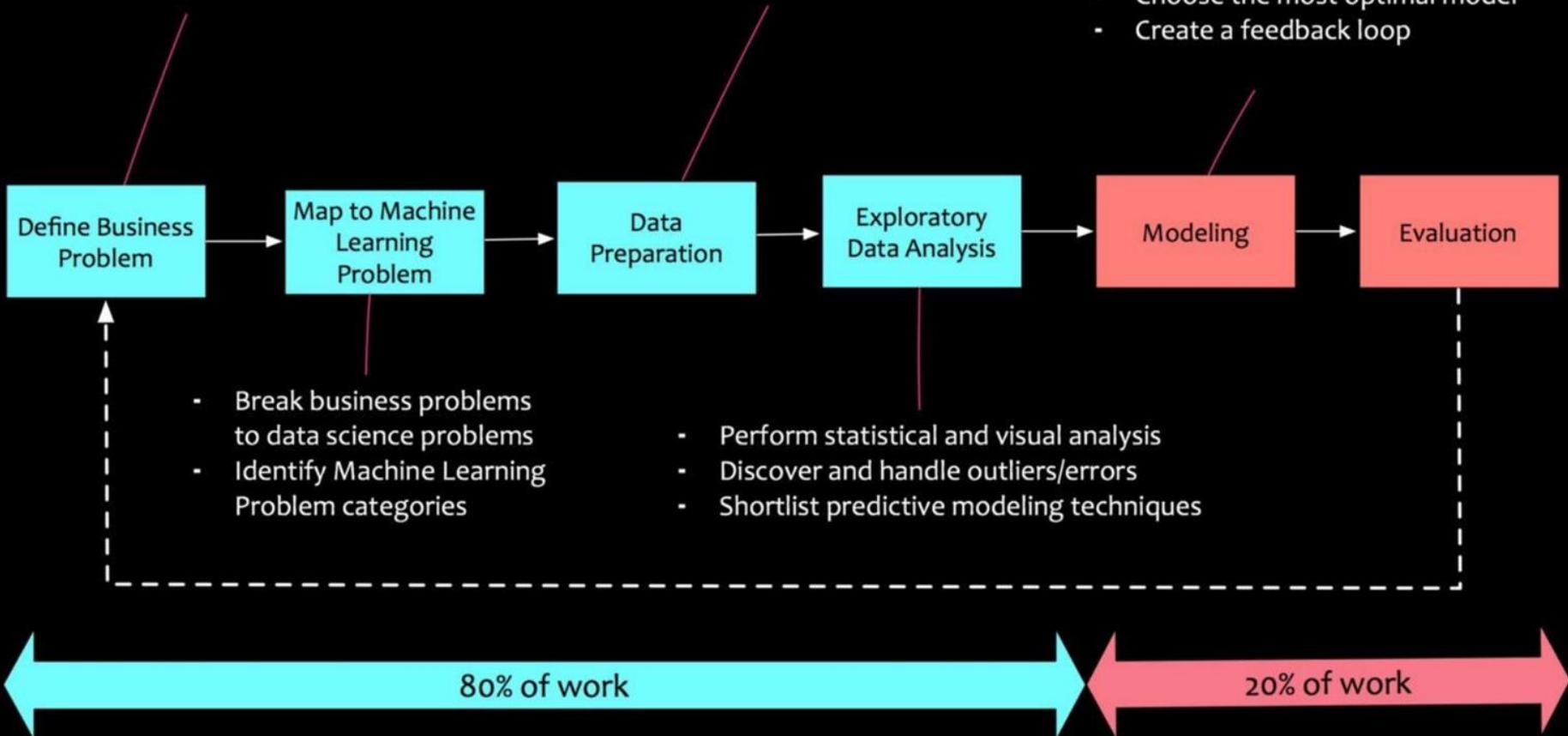Reward maximization

CURRICULUM

1 INTERMEDIATE COURSE

2 ADVANCED COURSE

3 SELF-DRIVING CAR COURSE (COMING SOON)

GOAL

- Clearly defined business problem
- Set success criteria
- Define clear data science objectives

- Understand data points and constraints
- Formulate data analytics strategy
- Perform required transformation

- Experiment with multiple models
- Choose the most optimal model
- Create a feedback loop

Define Business Problem → **Map to Machine Learning Problem** → **Data Preparation** → **Exploratory Data Analysis** → **Modeling** → **Evaluation**

- Break business problems to data science problems
- Identify Machine Learning Problem categories

- Perform statistical and visual analysis
- Discover and handle outliers/errors
- Shortlist predictive modeling techniques

80% of work

20% of work

INTERMEDIATE COURSE

- **DATA ANALYSIS**

  Pandas & Numpy

- **DATA VISUALIZATION**

  Seaborn,Matplotlib & Plotly

- **REGRESSION**

  Linear Regression & Model Evaluation in Regression Models

- **CLASSIFICATION**

  KNN, Decision Trees, Logistic Regression and SVM

- **CLUSTER ANALYSIS**

  k-Means

- **DIMENSIONALITY REDUCTION**

  PCA

- **DEPLOYMENT**

  Pickle & API

- **PROJECTS**

  Lead Scoring

  Credit Scoring

ADVANCED COURSE

- **DEEP LEARNING**

  Neural network, CNN ,RNN & GAN

- **NATURAL LANGUAGE PROCESSING (NLP)**

  Text summarizer & Text classifier

- **RECOMMENDATION SYSTEM**

  Item based & User based

- **BIG DATA WITH PYSPARK**

  DataBricks Platform,MLLIB & AWS

- **COMPUTER VISION**

  Convolutional neural network & Open cv

- **CAPSTONE PROJECT**

FAKE OBAMA CREATED USING AI VIDEO TOOL

Video

AI GENERATED ROCK MUSIC

Video

OPENAI'S REALISTIC TEXT-GENERATING AI

Video

AFRICADATASCHOOL

RECOGNITIONTELECOMMUNICATIONTHEOREM

HEALTH
RECOGNITIONSTRUCTURAL
PERCEPTIONMACHINE
LEARNING
BEHAVIOR
ENGINEERINGSPEECH
MININGSOFTWARE
ANALYSISGENERAL
GAME

ENGINESSENTIMENT
LANGUAGE
FRAUD
MARKET

LOCOMOTIONSEARCH
SYSTEMSROBOT
TRANSLATIONMARKETINGMEDICAL
CONTROLMACHINE PROVINGTIME
RETRIEVALINSURANCEINTERNET

MONITORINGSYNTACTIC
DIAGNOSISNATURAL
PROCESSINGNATURAL
PATTERN
CLASSIFICATION\
PLAYINGHANDWRITING
RECOGNITIONINFORMATION
DETECTIONLINGUISTICSMACHINE
UNDERSTANDINGONLINE ANALYTICS
ADVERTISINGOPTIMIZATIONRECOMMENDER
LANGUAGE SERIES
ANALYSISSEQUENCE
FORECASTINGUSER