

Integration of Blockchain and Machine Learning (ML)

- ⇒ Blockchain technology - Decentralized database emphasize on data security and privacy
- ⇒ Consensus mechanism make sure data is legitimate and secure

issue {
 → majority attack
 → double spending

Why data analytics will be required?
Data analytics required

ML

How Blockchain Related to this?

eg. → Smart applications - SG, UAV, smart cities

Generate huge amount of data

↓ - Data is concern
security issues

what is the concern?

to handle data

↓
B.T. used

what is this?

contained a time stamped series of tamper proof records.

managed by a cluster of distributed computers

B.T. {
 → Immutability
 → Decentralization
 → Transparency

opens door for various applications

↓
Digital Currency

{
 majority attack (51% attack)
 Sybil attacks for fake identity generation
} → to handle these

⇒ Advanced Intrusion Detection is required

→ what kind of intrusion?
Describe how it happens?

to detect intrusion and attack patterns

↓
M.L. (analyse the traffic) ^{which traffic?}

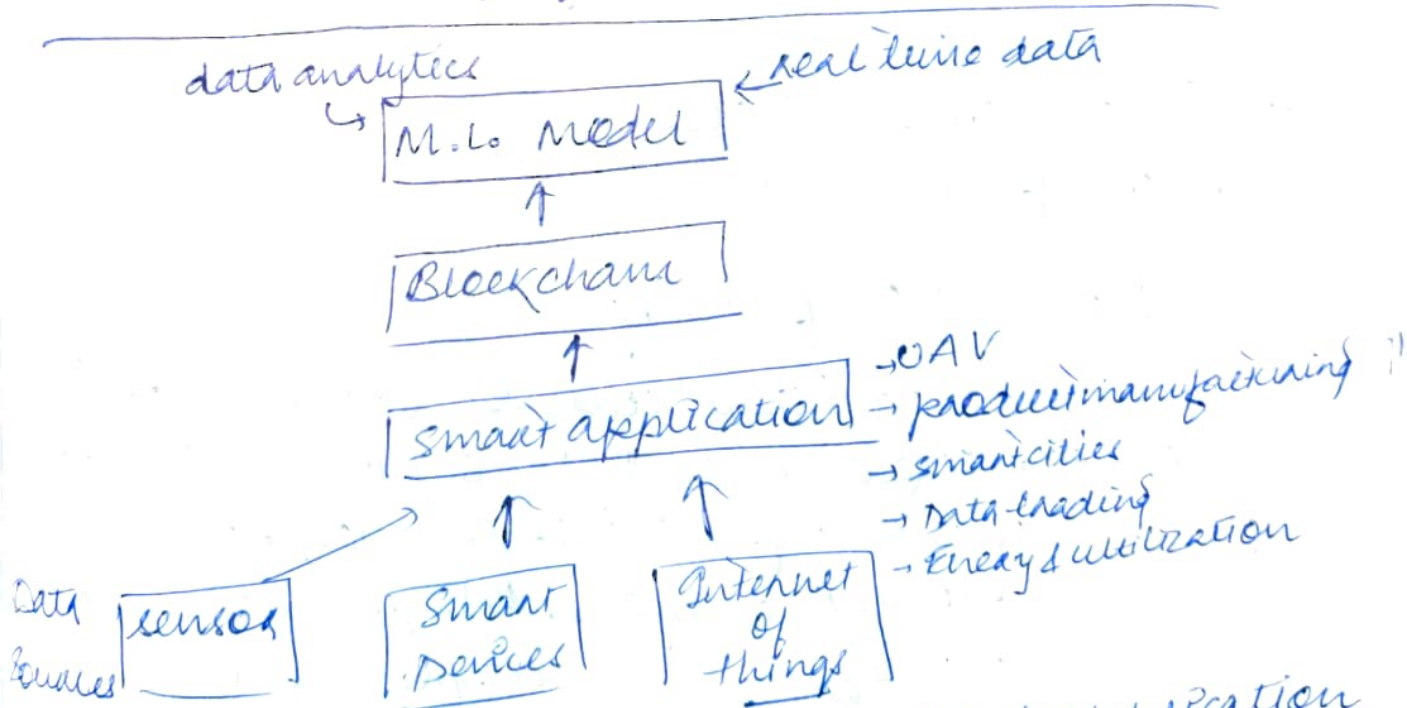
⇒ M.L. helps computers to study, think and act without intervention of human. ^{how this happens?}

⇒ In smart application data should be secure.

BT ensures data security & ML provides confidence to predict untrustworthy nodes based on past patterns.

⇒ ML is a decision building application that learns through experience, application specific.

ML → Supervised
 → unsupervised } learning
 → Reinforcement



Integration of ML in Blockchain based application

⇒ could be based on specific segment of chain rather than entire data → need elaboration

⇒ could be used - fraud detection & identity theft detection → how?

⇒ Benefit when ML is applied →

- i) legitimate user authentication] → why it cannot be done without ML?
- ii) Blockchain integrates public ML models into smart contracts to ensure terms and conditions are sustained.

iii) BT is incentive based system, it encourages users to contribute data, → helps to improve ML model performance.

It incentivizes mining

not clear. Why this

iv) ML models can be updated on chain environment of BT with small fee

is better than other alternatives? what are other alternatives?

v) like Ethereum, deal with thousands of decentralized machines all over the world, ensuring users that it is never completely unreachable or offline.

not clear.

⇒ Smart Applications

A) Customer Service

B) Product Manufacturing -

c) Unmanned Aerial Vehicle - (drone) Kuzmin proposed blockchain based UAV-Net model - includes devices such as N/W of satellites, cellular base stations and ground control stations. BT - preserve the integrity of data, Communication B/w satellite & G.S. is prone to electromagnetic jamming. BT based technology enables to store relevant coordinates & operates autonomously within jamming zone.

d) Smart cities - like smart homes, smart parking system, smart weather and water system, smart vehicular traffic, surveillance system,

healthcare, etc.

⇒ challenges →

⇒ Privacy.

⇒ Memory

⇒ Implementation.

⇒ Security.

What is the real life scenario, you are looking at?

What questions have occurred, which need to be answered?

ML - Blockchain



What problems, each one of them solve individually?

In what scenarios, both classes of problems will happen together?