**“An Introduction To Quantum Machine Learning”**

**Quantum ML: What to infer from this?**

Quantum + Machine Learning(ML) : As suggested by the name, this is a technology in which quantum physics comes together with the machine learning concepts to provide a pace to various problem solving techniques. Quantum mechanics being a very well known concept of our 12th standard physics includes various topics like atoms and molecules, wave and particle natures, etc. And, ML has concepts of neural networks, deep learning, linear regression, etc. It involves both quantum and classical processing to speed up the tasks. Quantum machine learning associates to classical machine learning methods applied on data generated by quantum experiments.

**Quantum’s influence on Machine learning...**

When some concepts of quantum mechanics like quantum(at subatomic level, energy is contained in a packet which behaves as both wave and particle and is known as quanta), superposition(a quanta can have various states at a similar time, and under supervision it undergoes changes losing superposition), entanglement(even while separated by a large distance, quanta communicates correlated to each other) comes together with that of the Machine Learning like Kernel evaluation, deep learning, it gives an efficiency to reduce the problem solving time to nearly about 1.57 billion times on a quantum computer than the time taken even by the largest classical computer using existing algorithms would take for the same. Quantum computers can provide the immense classification of up to nth dimensions of the objects.

**Concepts building quantum machine learning-**

* **QUANTUM DATA-** It is a naturally or artificially occurring data source. It could be a data generated by a quantum computer which represents superposition and entanglement leading to a requirement of exponential amount of classical computational resources.
* **HYBRID QUANTUM CLASSICAL MODELS-** It can generalize data with quantum mechanical origin.

**CONCLUSION-**

Quantum machine learning will show its fruit full results soon in some upcoming years. The development in the process has already started and would be giving beneficial results. Its efficiency in improving time, speed and results obtained is going to be of great interests and solving of great issues and giving out efficient results.