What is Machine Learning ?

Reference : Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow,

By **Aurélien Géron**

Definition-

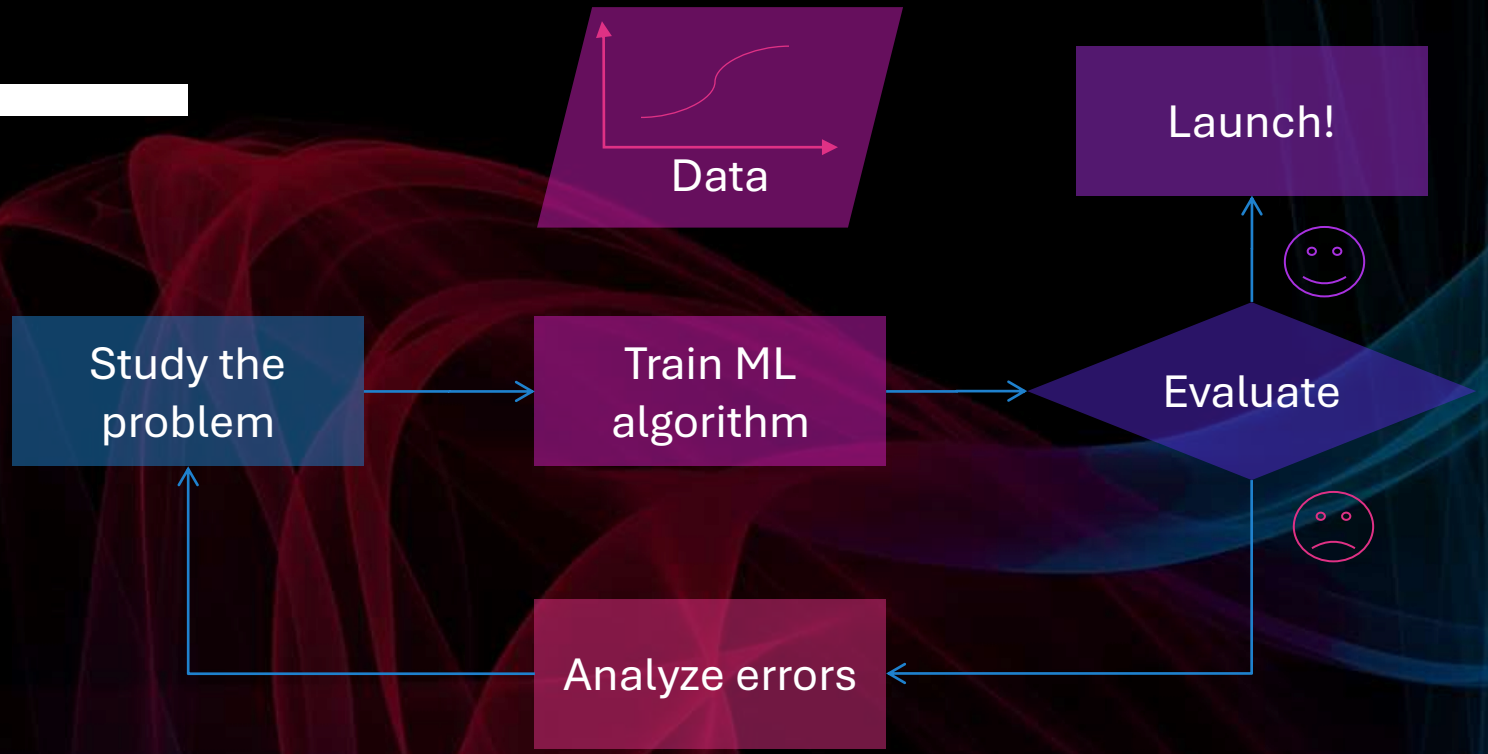
Machine Learning is the science of programming computer so they can learn from data.

Why use Machine Learning ?

Consider How you would write a spam filter using traditional programming techniques.

ML Approach!

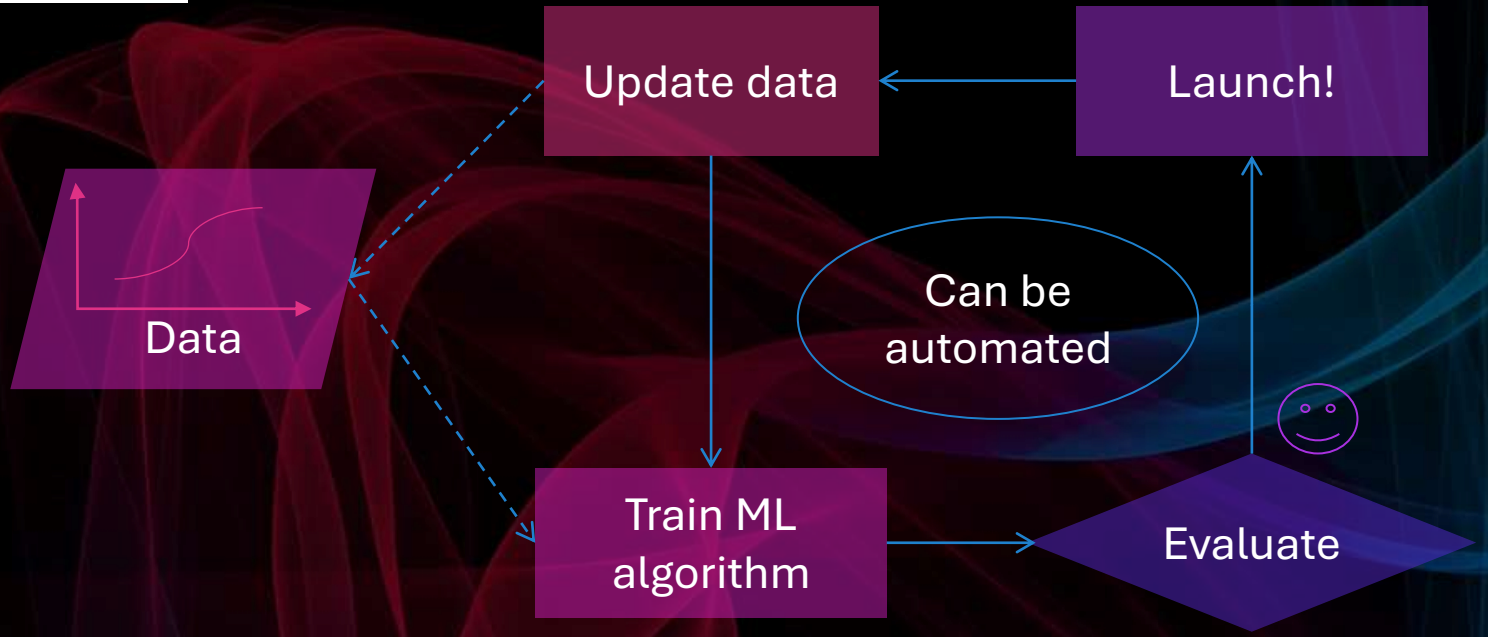
In contrast, a spam filter based on Machine Learning techniques automatically learns which words and phrases are good predictors of spam by detecting unusually frequent patterns of words in the spam examples compared to the ham examples.



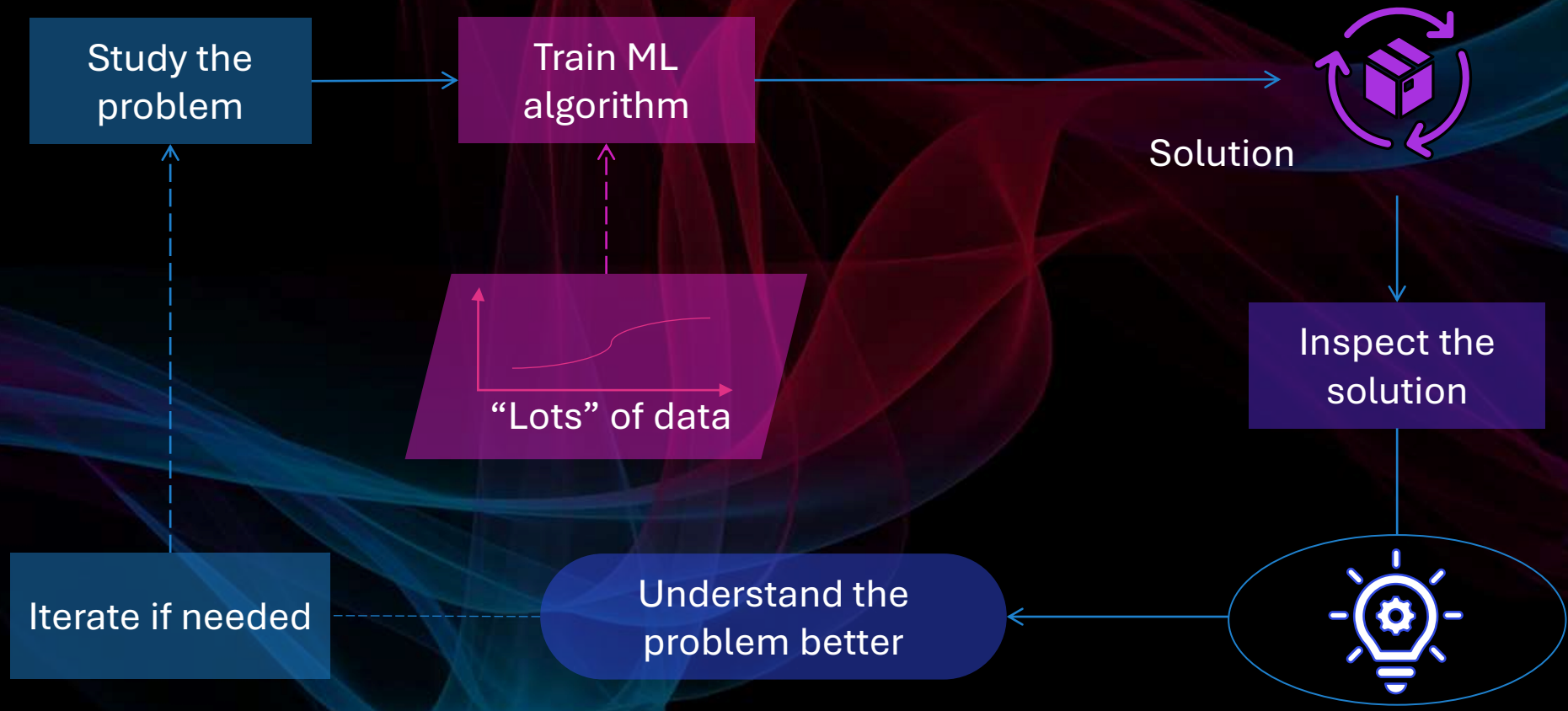
What if ?

Spammers notice that all their emails containing "4U" are blocked?

They might start writing "For U" instead.



Too Complex!


Study the problem
Train ML algorithm
Solution
Inspect the solution
"Lots" of data
Iterate if needed
Understand the problem better

Summarize-

Machine Learning is great for :

- *Problem for which existing solutions require lot of fine- tuning or long list of rules.*
- *Complex problems for which using a traditional approach yields no good solution.*
- *Fluctuating environments*
- *Getting insights about complex problems and large amount of data.*

Examples of Applications-

- *Detecting tumors in brain scans.*
- *Creating a chat bot or a personal assistant.*
- *Credit Card Fraud.*
- *Product Recommendation Systems.*

and so on...