Machine Learning hands on using Python

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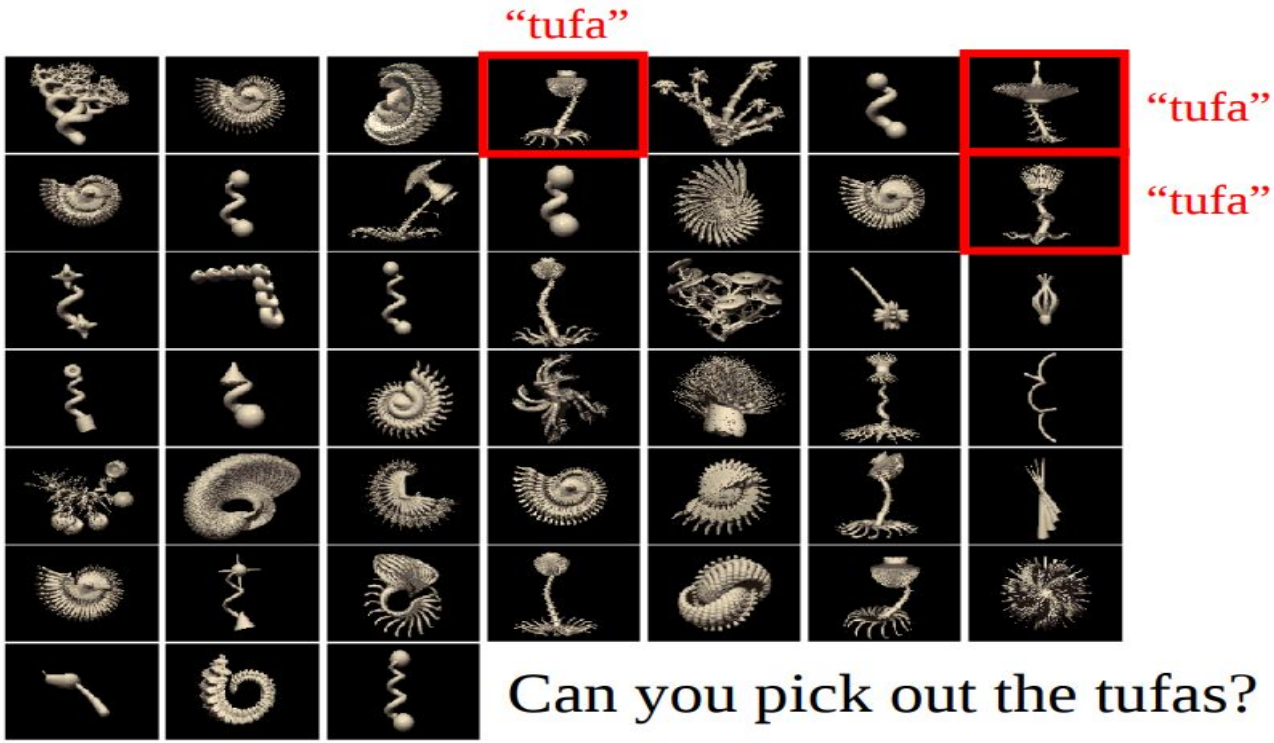
Presentation Flow

1. Looking at LEARNING from different perspectives
2. Tasks performed using Machine Learning
3. When to apply Machine Learning?

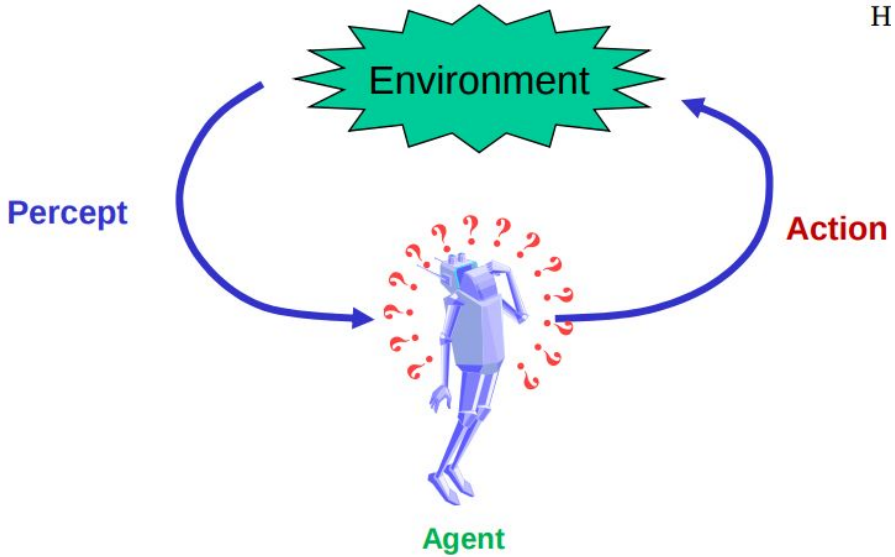

"tufa"
"tufa"
"tufa"
Can you pick out the tufas?

Another way of looking at Learning

Agent :

- Interacts with the environment (action)
- Has goals (want to become better at some task *T)*
- Receives feedback (percept or a quantitative performance measure *P*)

Learning is about using each interaction with the environment as an opportunity to do better next time you encounter a similar task.



Tasks performed using Machine Learning

extracting features to solve ***predictive*** tasks

- **Forecasting** :
  Ex : Predicting room temperature to be set by AC depending on number of people in the room.

- **Filling missing data :**
  Ex : Numerous movies/shows on Amazon Prime are not rated yet. Rating them based on ratings given to other similar movies /shows.

- **Detecting anomalies :**
  Ex : Anomaly based Intrusion Detection System

Tasks performed using Machine Learning

extracting features to solve ***predictive*** tasks

- **Classifying** :
  Ex : same as what we did with “TUFA” on slide 3
  Another example : spam/ham

- **Summarizing :**
  Ex : Sentiment Analysis based on Tweets

- **Ranking :**
  Ex : Content Based Image Search Engine

When to apply Machine Learning?

Few of the many places where Machine Learning can be applied to :

- Humans are unable to explain their expertise (e.g., Speech Recognition, Vision, Language).
- Solution needs to be adapted to particular cases (e.g., Biometrics : Finger Print Recognition on Phone).
- Problem size is too vast for our limited reasoning capabilities.

Assignment

Watch the video by Nando de freitas on Introduction to Machine Learning :

https://www.youtube.com/watch?v=w2OtwL5T1ow&list=PLE6Wd9FR--EdyJ5lbFl8UuGjecvVw66F6

Slide deck used in that video :

https://github.com/PollenJain/PESU_I_O/blob/master/Machine_Learning_Hands_On_Using_Python/Week1/Resources/l1_nando_de_freitas.pdf

Feel free to explore the internet for the given tasks.
Any doubts?
Drop a mail on paragjainpes@gmail.com

Or

Put up your question on StackOverflow and then drop a mail with the link.

Thank You.