

Building AI projects

Introduction

Starting a AI projects

- Workflow of projects
 - Sequence of steps to be followed
 - Example of birthday party
 - selecting a venue
 - Inviting guests
 - Ordering a cake
 - Ordering food
 - So on...
- Selecting an AI project (wast verity of projects can be selected)
 - Seleting by your self if having knowlage
 - Contact friends on other company to select a project
- Organizing data and team for projects

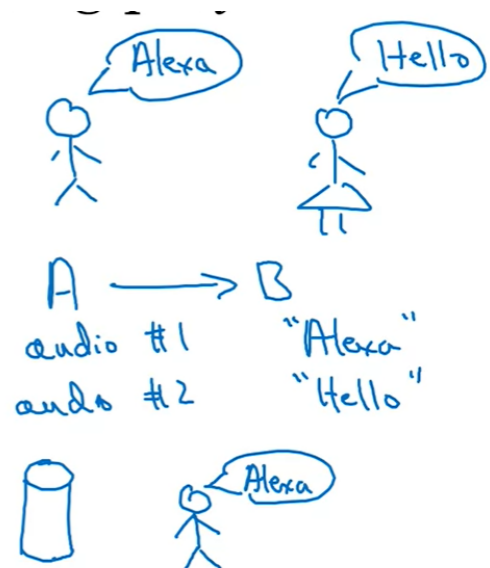
Workflow of machine learning project

Key steps for machine learning projects

Echo/Alexa

Echo / Alexa

- 1. Collect data
- 2. Train model
 - Iterate many times until good enough
- 3. Deploy model
 - Get data back
 - Maintain / update model



1. Collect Data

- Collect data from muliple people
- Collect different words/same words pronouncing by different people

2. Train Model

1. Iterate multiple times until good enough
 - Provide audio #1 (Input #1) to learn word "Alexa" (output 'B')
 - Provide audio #2 (Input #2) to learn word "Hello" (output 'B')
3. Deploy Model
 1. Get data back
 - Audio data could be collected from one region and deployment of device done on another region.
 - Amazon echo may not be able to recognize voice due different accent in different region
 - Retrain model which region data required in this case.
 2. Maintain/update model
 - Provide more relevant data in case model is not good enough after deployment.

Self driving cars

Self-driving car

1. Collect data

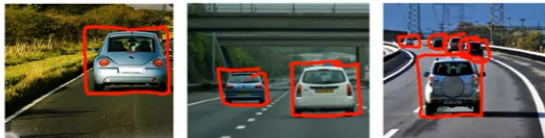


image → position of other cars

2. Train model

Iterate many times until good enough



3. Deploy model

Get data back

Maintain / update model



1. Collect data

- Click images and get position of other cars

2. Train Model

- Initially the model may detect wrong objects
- With more data, the accuracy will increase and it will be able to detect right objects
- Some unpredictable objects also may come in the picture (like golf cart), which in turns we have to update the model.

3. Deploy model

- Deploy model after training the model and maintain it.

Workflow of a data science project

- Data science projects having slightly different approach than AI.

Optimizing a sales funnel



- Selling mugs websites usually have 4 steps
 - selecting a mug
 - Check price and other things and add to cart
 - Go to cart and check payment
 - Checkout

Optimizing a sales funnel

1. Collect data

2. Analyze data

Iterate many times to get good insights

3. Suggest hypotheses/actions

Deploy changes

Re-analyze new data periodically

User ID	Country	Time	Webpage
2009	Spain	08:34:30 Jan 5	home.html
2897	USA	13:20:22 May 18	redmug.html
4893	Philippines	22:45:16 Jun 11	mug.html

1. Collect data

- Collect data of purchase from different users and from different countries.
- This data may have country, time and webpage/website information.

2. Analyze data

- Check and analyze data multiple times to have insights.
- Insights may derive when sale is higher/lower, time of higher or lower sale.
- Sales could differ during different festival period (higher/lower)

3. Suggest hypotheses/actions

- Based on insights, hypotheses/actions can be derived which could help to optimize the sales strategy, showing number of ads (save cost of showing ads) and save cost in running redundant servers.

Mug manufacturing line

Manufacturing line






Mix clay

Shape mug

Add glaze

Fire kiln

Final inspection



Clay Batch #	Supplier	Mixing time (minutes)
001	ClayCo	35
034	GooClay	22
109	BrownStuff	28

Mug Batch #	Humidity	Temperature in kiln (F)	Duration in kiln (hours)
301	0.002%	1410°	22
302	0.003%	1520°	24
303	0.002%	1420°	22

1. Collect data

2. Analyze data

3. Suggest hypotheses/actions

Iterate many times to get good insights

Deploy changes

Re-analyze new data periodically

1. Collect data from different mug manufacturing line stages.

2. Analyze data
 - Know if what temprature is best suitable at what time (different temp at morning/afternoon/evening)
 - Same for humidity

3. Suggest hypotheses / actions
 - May use different temp/humidity at different time to avoid cracks and better quality.
 - Re-analyze new data collected to have better action plan

Every job function needs to learn how to use data

- Now a days people prefer to use digital notes, instead of notes on papers.
- Like to have a survey or to have doctors prescription