Demystifying Machine Learning Model deployment

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JPMorgan: sales of AI-related software, hardware, and other services will grow from an estimated $12 billion last year to roughly $58 billion in 2021.

Salesforce: spending in ai deployment in CRM will jump from $7.9bn in 2016 to $43.6bn in 2021

“It's going to be interesting to see how society deals with artificial intelligence, but it will definitely be cool.” —Colin Angle
Success
Solution
SOCIAL NETWORK
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

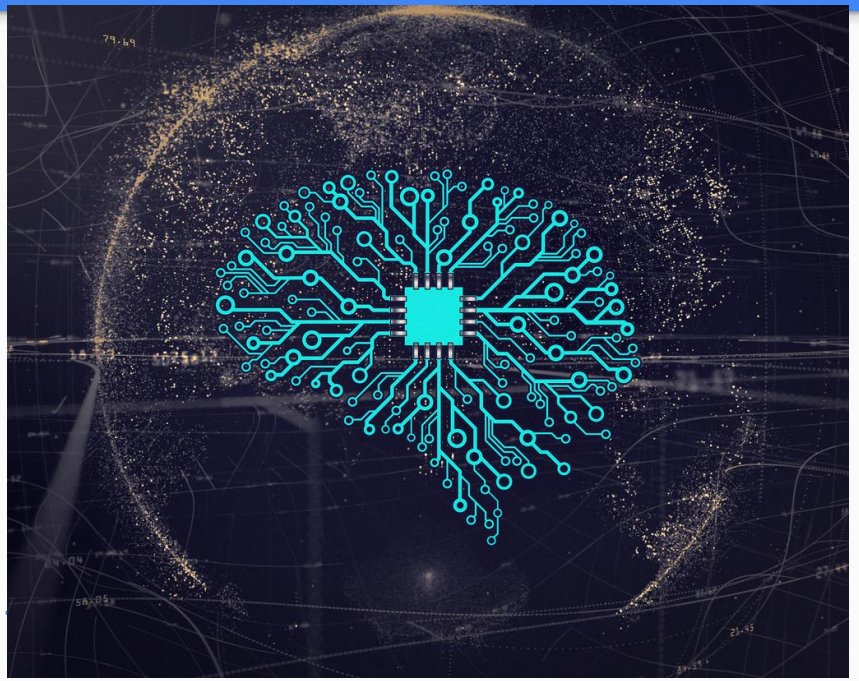
PwC AI predictions 2018:

1. AI will impact employers before it impacts employment.
2. AI will come down to earth—and get to work.
3. AI will help answer the big question about data.
4. Functional specialists, not techies, will decide the AI talent race.
5. Cyber attacks will be more powerful because of AI—but so will cyberdefense.
6. Opening AI's black box will become a priority.
7. Nations will spar over AI.
8. Pressure for responsible AI won't be on tech companies alone.

Full report

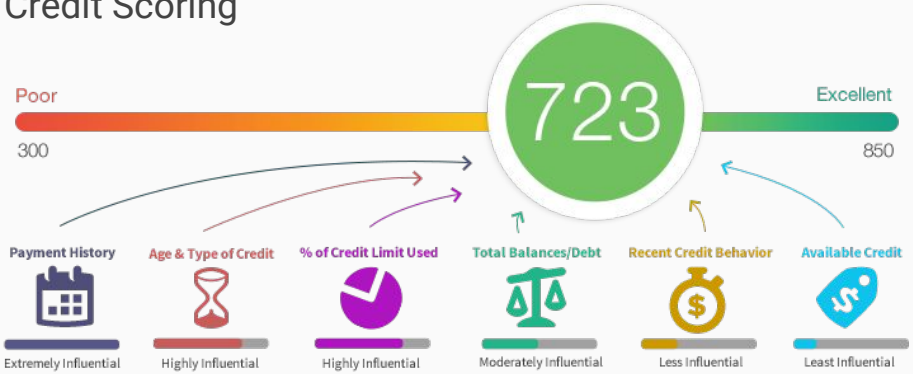
Artificial Intelligence

AI is typically defined as the ability of a machine to perform cognitive functions we associate with human minds, such as perceiving, reasoning, learning, and problem solving. Examples of technologies that enable AI to solve business problems are robotics and autonomous vehicles, computer vision, language, virtual agents, and machine learning.

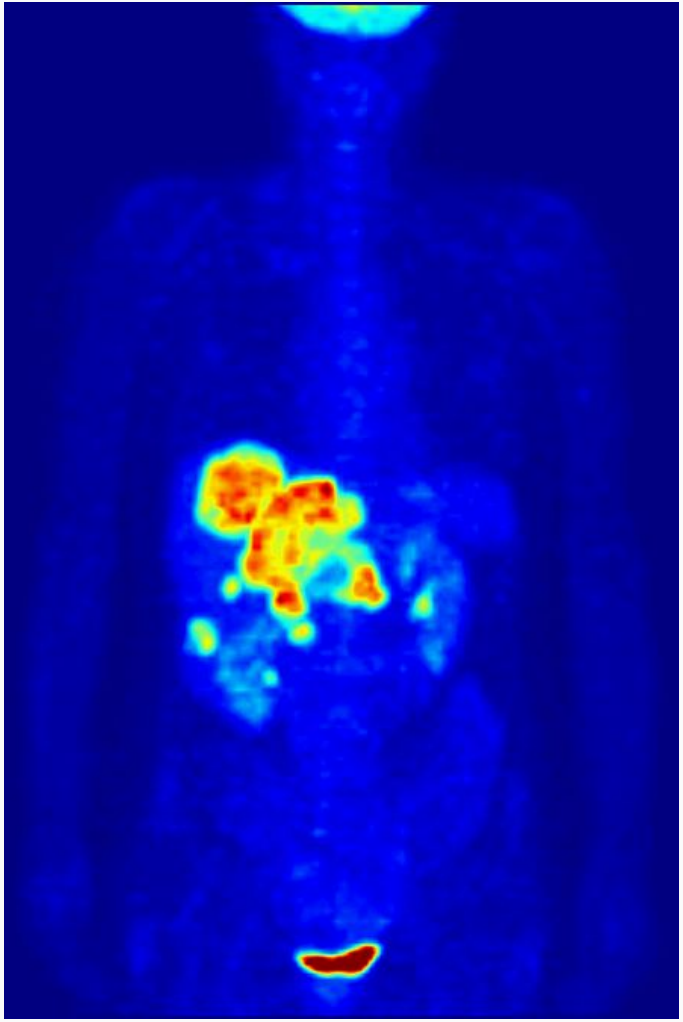


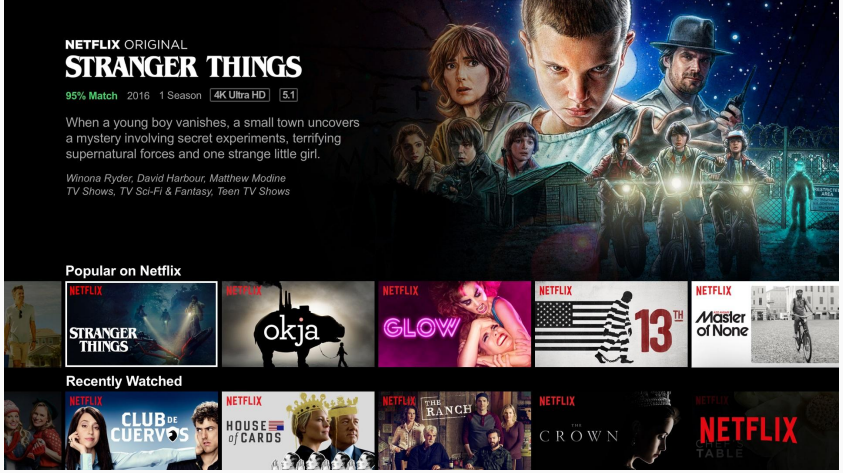
Self-driving cars

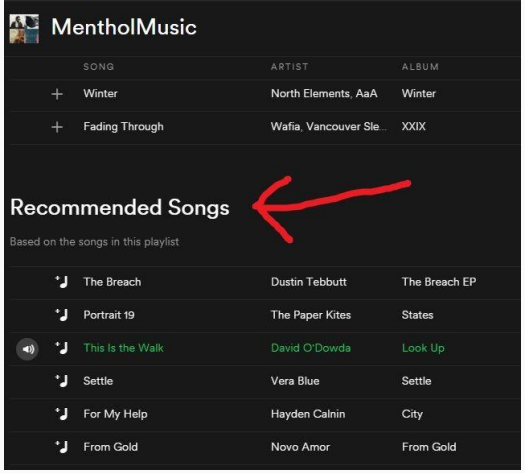
Credit Scoring



Computer Aided Detection Systems.





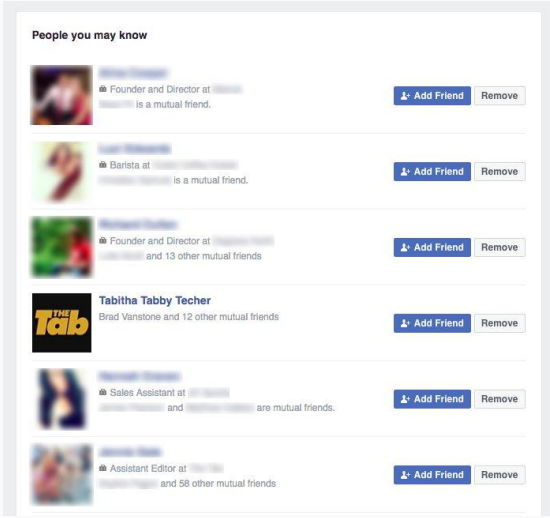


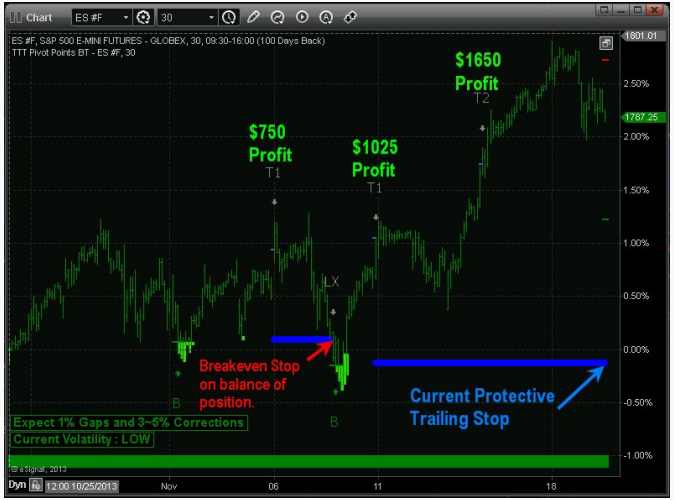
Netflix & iflix Movies

Facebook friends

Music

Trading algorithm





Recommendation Engines

Predictions

Chatbots

On a typical trading day, computers account for 50% to 60% of market trades, according to Art Hogan, chief market strategist for B. Riley FBR. When the markets are extremely volatile, they can make up 90% of trades.

ROI of Recommendation Engines

- 70% of what users are watching is from NETFLIX recommendation.
- Gomez-Uribe and Hunt said that by applying a more sophisticated recommendation system and personalized user experience, it has allowed them to save $1 billion per year from service cancellations.
- 35% of user purchases in Amazon are recommended products.
- Alibaba told InsideRetail Asiathat it generated 6.7 billion personalized shopping pages with a 20 percent conversion rate improvement from the event.

Ai can empower SMEs in 3 ways:

- Automating processes too complex for older technologies
- Identifying trends in historical data to create business value
- Providing forward-looking intelligence to strengthen human decisions.

How ready are we?

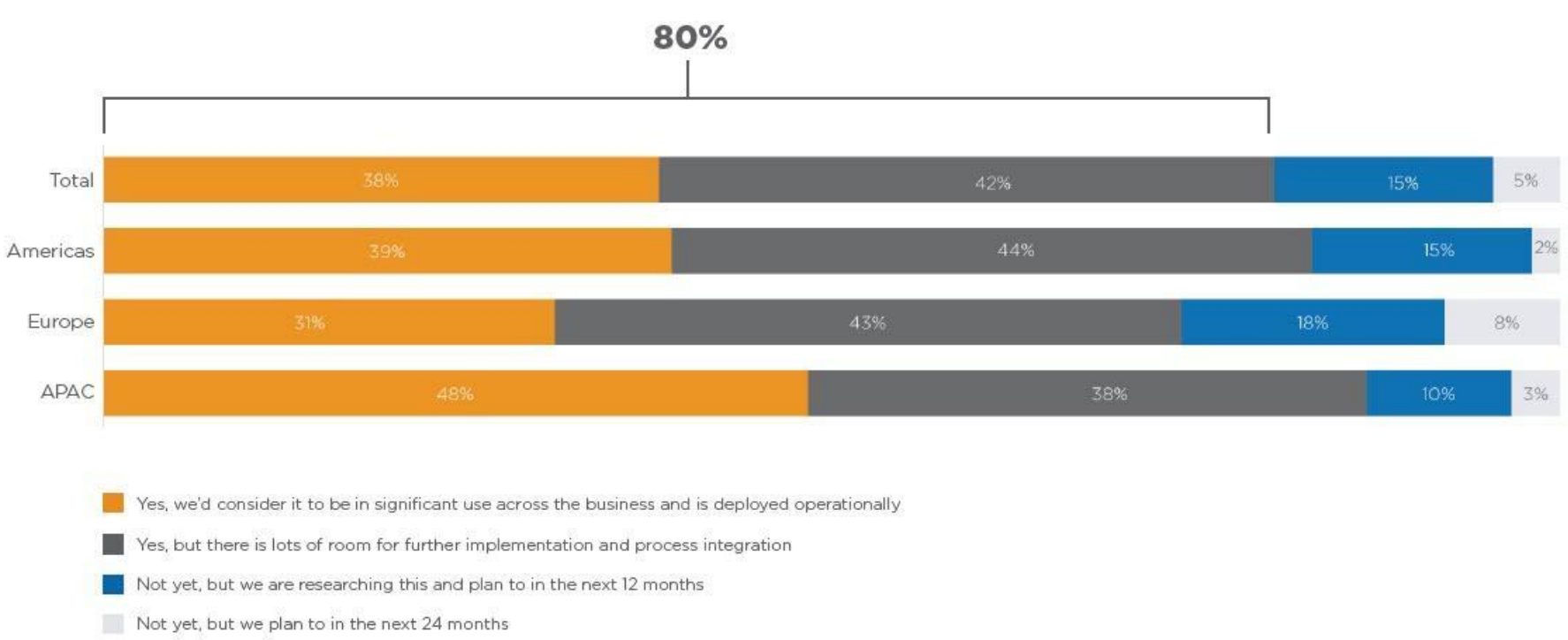


Figure 1: "Does your organization have any AI capabilities currently in production?" split by respondent region, asked to all respondents (260)

How to approach AI?

1. Business first, AI often approached by listing the technical skills and expertise needed, some organizations will hire data scientists and there will be no output for months to come.
2. Upskilling workforce and transforming the organization. New KPIs will need to introduced and things will get different.
3. Adopting new tools, cloud solutions, severless and opensource.

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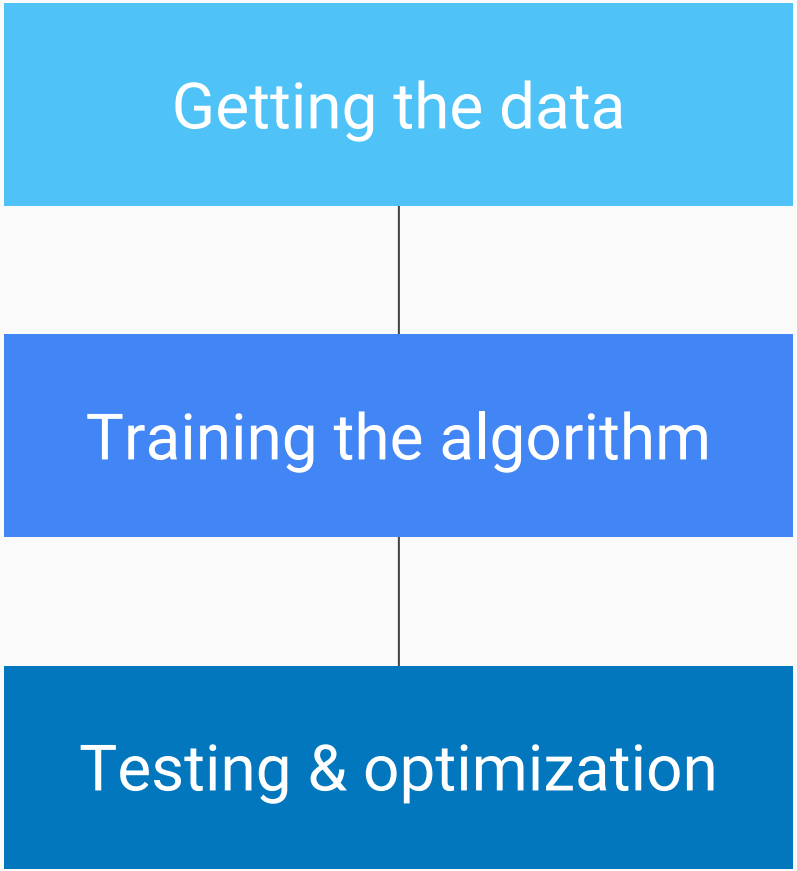
- Machine Learning for Business Intelligence.
- Introduction to Deep Learning with Nvidia Deep Learning initiative.
- Android and ios development certifications.

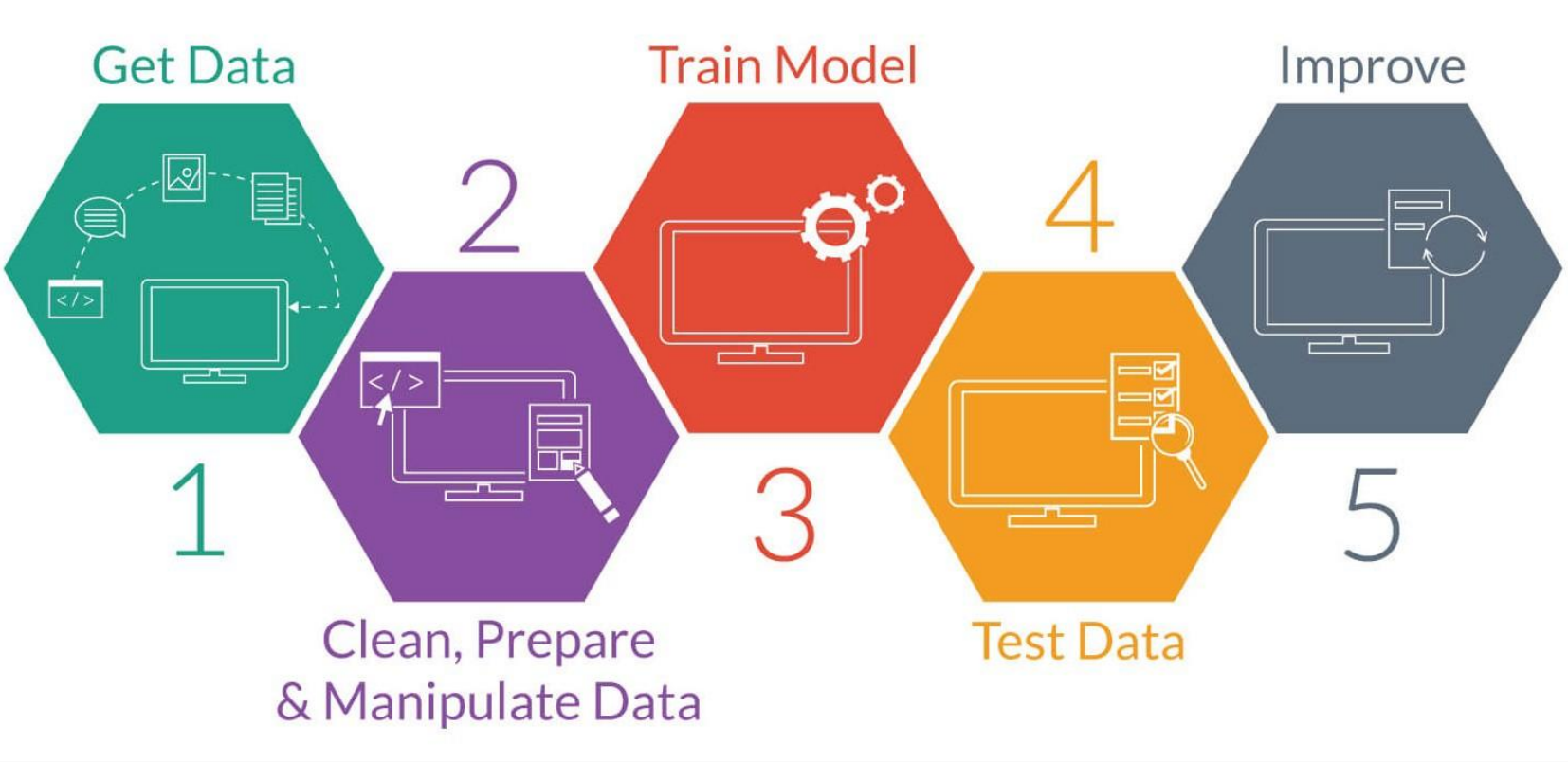
Deploying
Machine Learning
Models

Build a model

Conceptually can be done in 3 steps

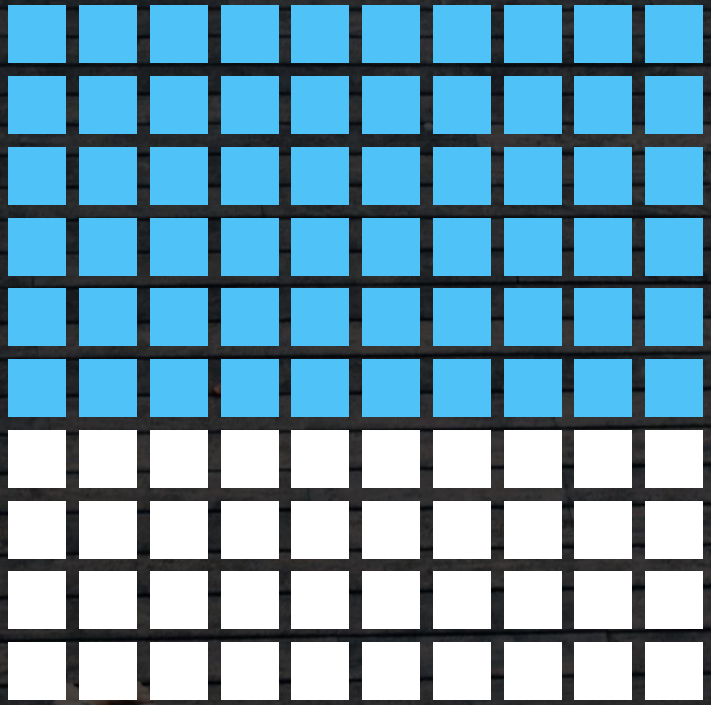


Machine Learning workflow



What is next?

After you have the coolest model ever, how to get it to the world or integrate it to your business.



Deployment options

Guess which is the easiest option?

- **Rewriting the whole code in the language that the software engineering folks work.**
- **API first approach**

APIs are you entry to do AI

Web APIs have made it easy for cross-language applications to work well. If a frontend developer needs to use your ML Model to create a ML powered web application, they would just need to get the URL Endpoint from where the API is being served.

Deploying

IN PROCESS ...

DONE

Believe it or not that was a model ready for the world

Easy?

What’s after next?

- Error handling: What happens when the data is not correct or missing, what feedback should the model provide.
- Automated testing: we don’t want to test things manually, or do we?
- Data Collection: we are not recording any of the received that in this implementation yet.
- Scaling the model: should we go serverless?
- CI/CD: what if we have new version?

In essence

There is a lot of to learn and transfer from software engineering practices and really that is a big advantage.

Think now, ai is happening and you can reap the benefits and improve the user experience, add value to the enterprise and automat the mundane tasks.

You can bring your business use case and things will follow.

Thank you