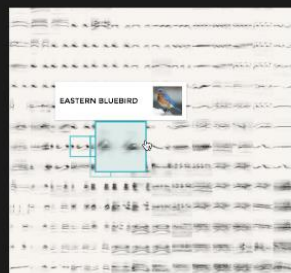


Machine Learning u praksi



Introducing A.I. Experiments.

Explore machine learning by playing with pictures, language, music, code, and more.

AutoDraw
by Google Creative LabGiorgio Cam
by Eric Rosenbaum & Yotam MannQuick, Draw!
by Google Creative Lab

Poznato?

Microsoft

CaptionBot



I can understand the content of any photograph and I'll try to describe it as well as any human. I'm still learning so I'll hold onto your photo but no personal info.



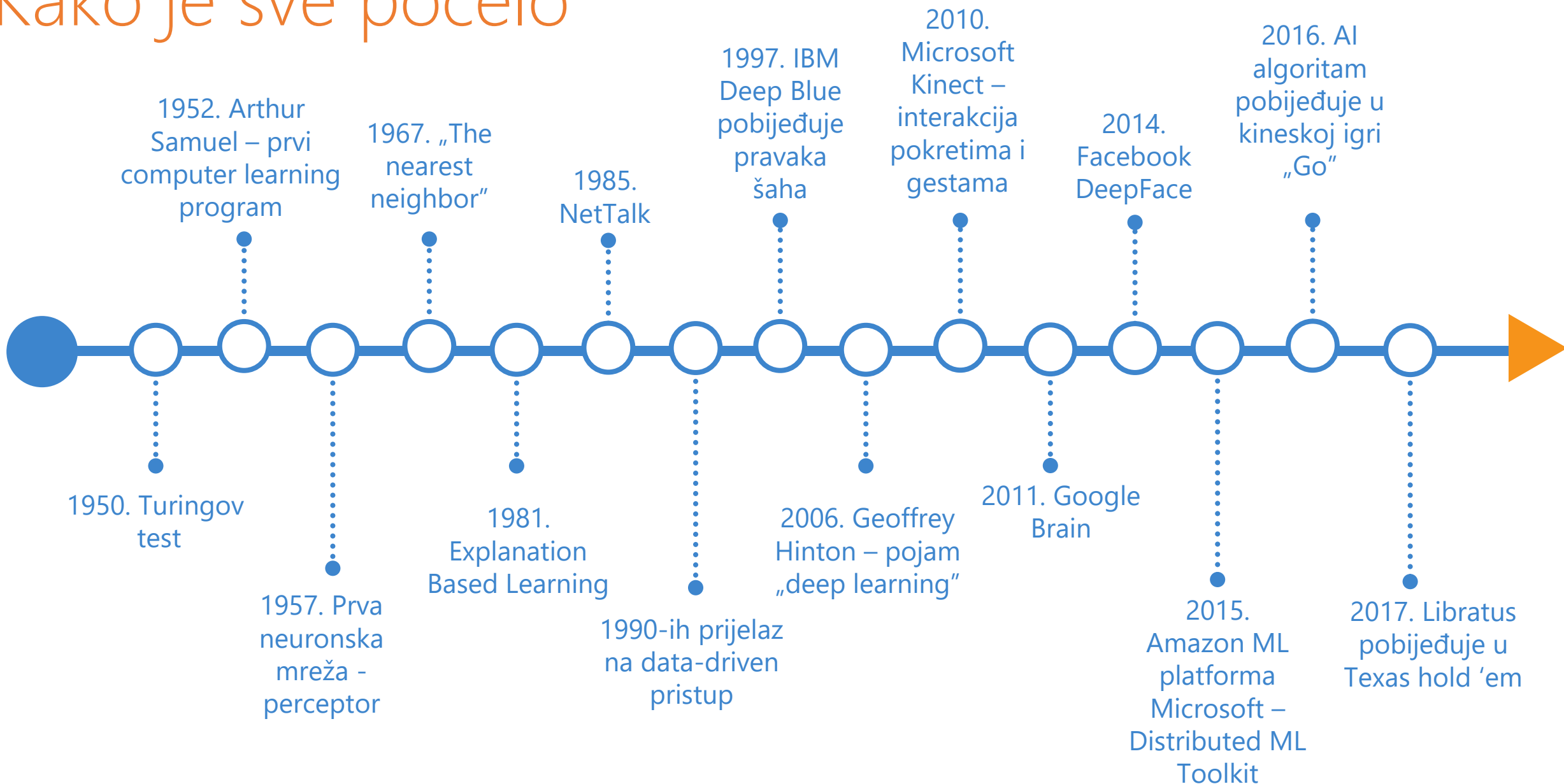
Upload a photo

Or

Give me the URL to an image

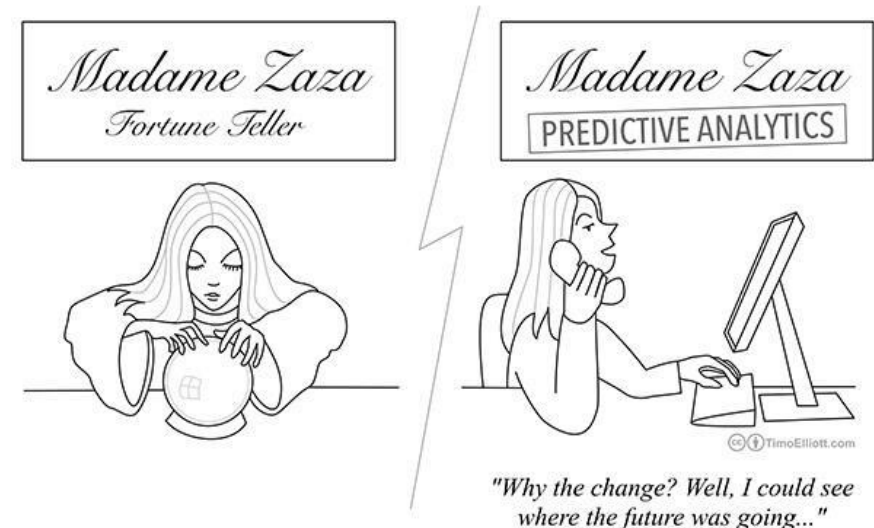
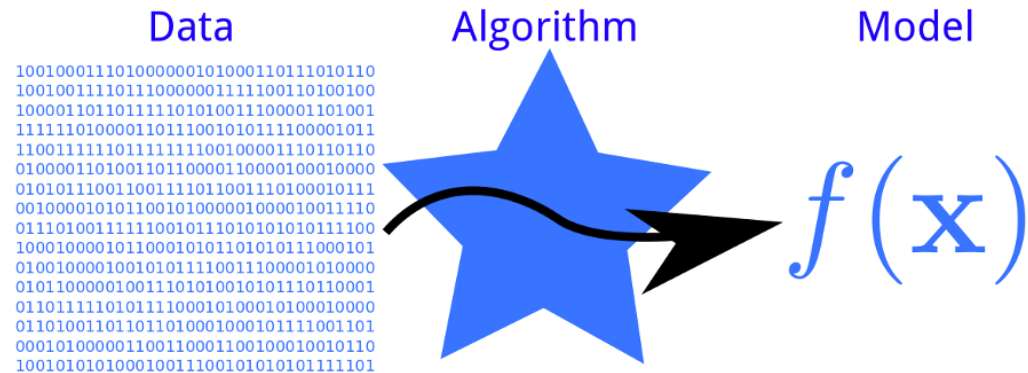
Go!

Kako je sve počelo



Machine Learning

- Omogućuje računalima sposobnost učenja bez da su eksplicitno programirana
- Pronalaženje uzoraka u postojećim podacima kako bi kreirali model i koristili ga za prepoznavanje uzoraka u novim podacima



Tko?



Data scientist



Developeri

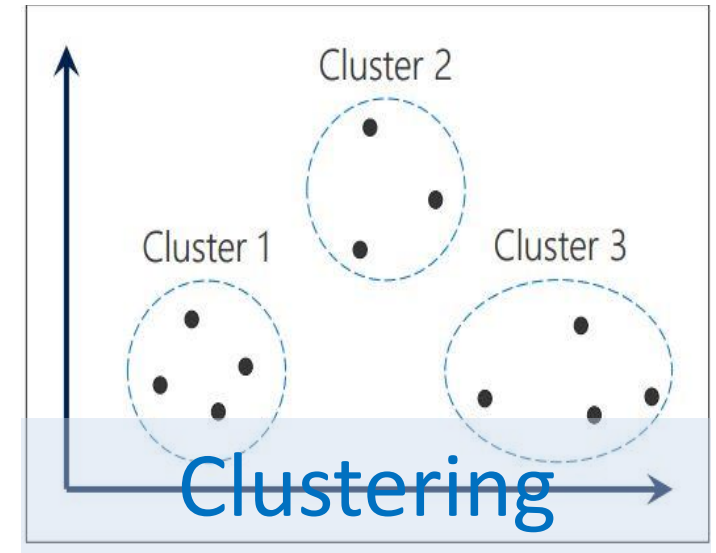
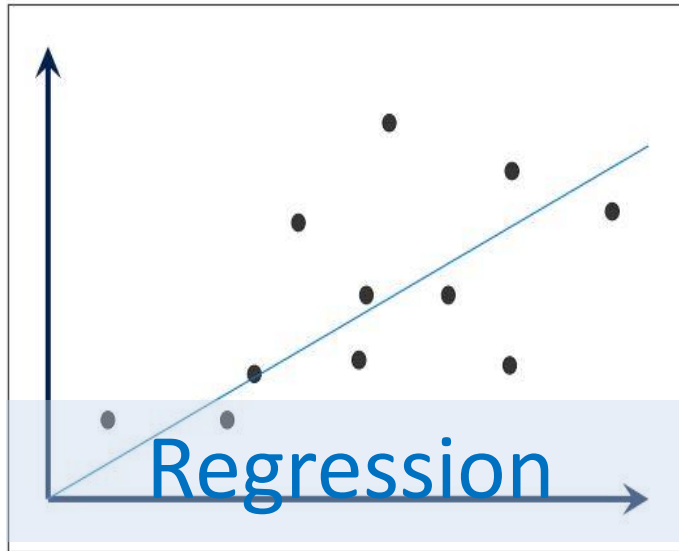


Poslovni ljudi

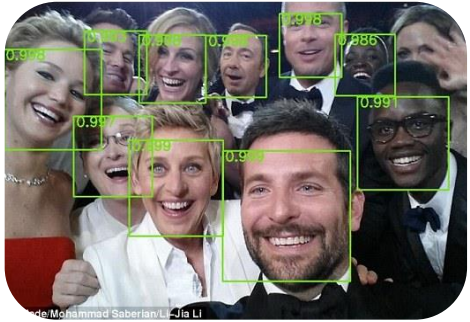
Machine Learning metode

	Unsupervised	Supervised
Continuous	Clustering & Dimensionality Reduction <ul style="list-style-type: none">• K-means, SVD, PCA	Regression Decision Trees Random Forest
Categorical	Association Analysis Hidden Markov Model	Classification

Machine learning problemi



Primjene Machine learninga



Software



Security



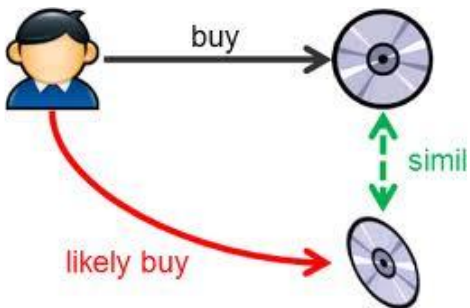
Retail



IoT



Web tražilice



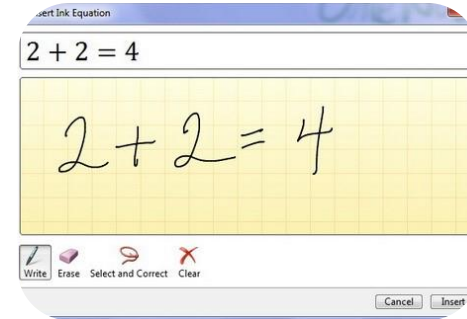
Sustavi
preporuka



Medicina



Računalni vid



Prepoznavanje
uzoraka



Optimizacija
poslovanja

Jezici za Machine Learning



The Machine Learning Cycle

Prikupljanje podataka

Sređivanje podataka

Alati za obradu

Prezentacija rezultata

Definiranje procesa



Procesiranje podataka

- osobno računalo
- klaster računala
- cloud – based usluge



Skladištenje podataka

- fizički diskovi: HDD, SSD
- cloud – based pohrana



Privatnost podataka

- Kulturalne norme
- Anonimnost korisničkih podataka
- Hash vrijednost

```
$ printf '%s' "Jason Bell" | md5sum  
a7b19ed2ca59f8e94121b54f9f26333c -
```

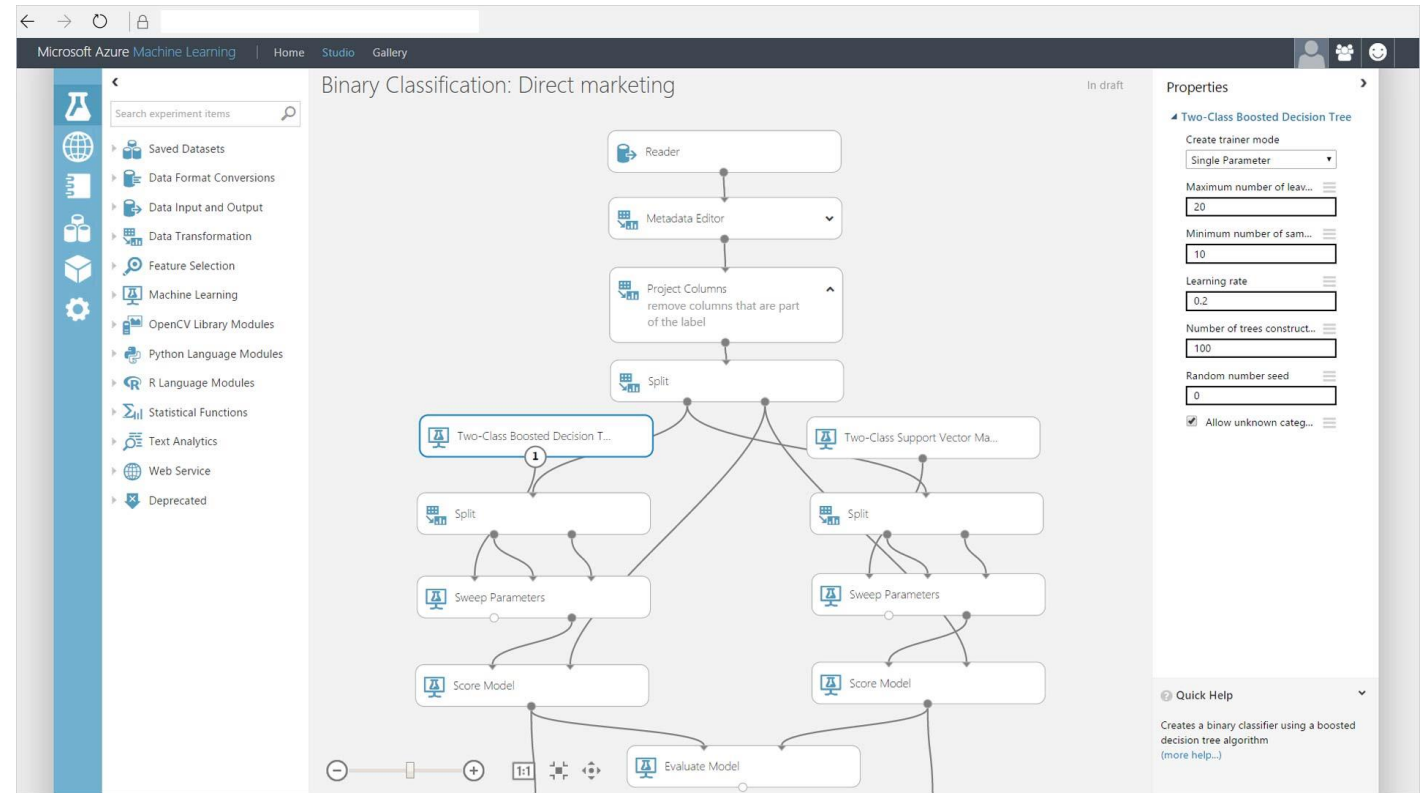
- Salt vrijednost

```
$ printf '%s' "Jason Bell" $(date +%sN) | md5sum  
40e46b48a873c30c80469dbbefaa5e16 -
```



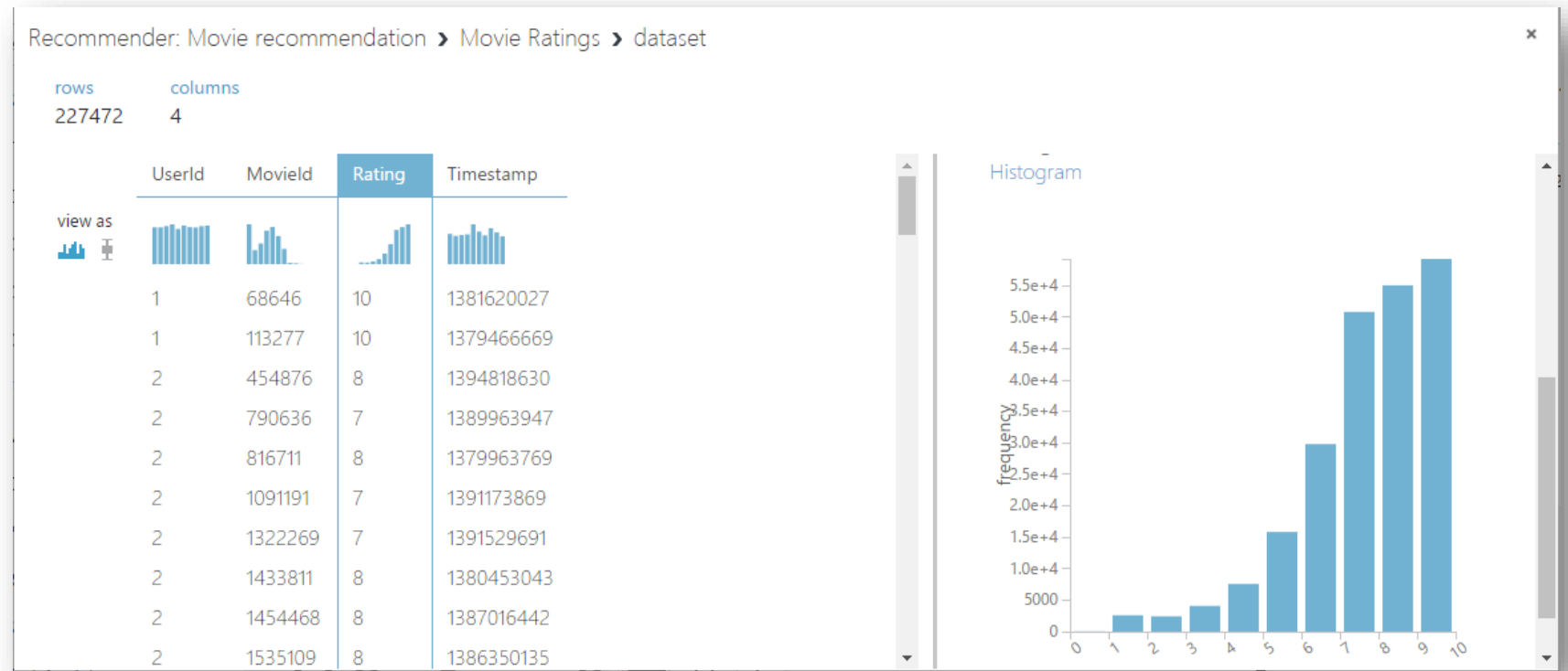
Azure ML Studio

- Drag and drop interface
- R ili Python
- Azure ML API
- Besplatna verzija



Primjer

- Movie recommendation
- Varijable:
 - UserId
 - MovieId
 - Rating
 - Timestamp



Cortana Intelligence Suite



Information Management

Data Factory

Data Catalog

Event Hub

Big Data Stores

Data Lake Store

SQL Data Warehouse

Machine Learning and Analytics

Azure Machine Learning

Data Lake Analytics

HDInsight (Hadoop/Spark)

Stream Analytics

Intelligence

Cognitive Services

Bot Framework

Cortana

Visualization and Dashboards

Power BI

Airbnb

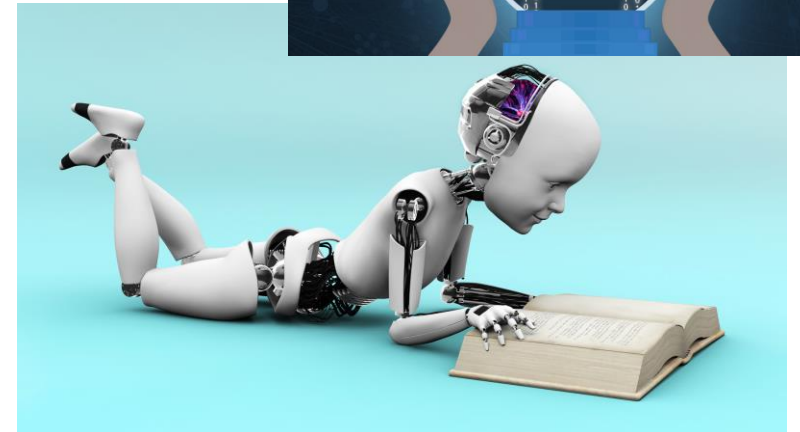
Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31 Apr	1	2	3	4
?						
5	6	7	8	9	10	11
Checkin Gap			Request		Checkout Gap	
\$199	\$199	\$199	?		\$209	?
12	13	14	15	16	17	18
				\$199	\$209	?
19	20	21	22	23	24	25
26	27	28	29	30 May	1	2
\$199	?					

- Emily
- IBM skin cancer
- Skype translator
- Facebook face recognition



Trendovi

- Cloud Host Intelligence – Intelligence on rent!
- Robotika u proizvodnji automobila
- Zdravstvo u rukama AI
- Chatbotovi – must u e-commerce-u
- Transformacija IT Operations, QA-a i DevOpsa
- Sudstvo (slučaj Erica Loomisa)



“

Artificial Intelligence is not a Man versus Machine saga. It's in fact, Man with Machine synergy.

”