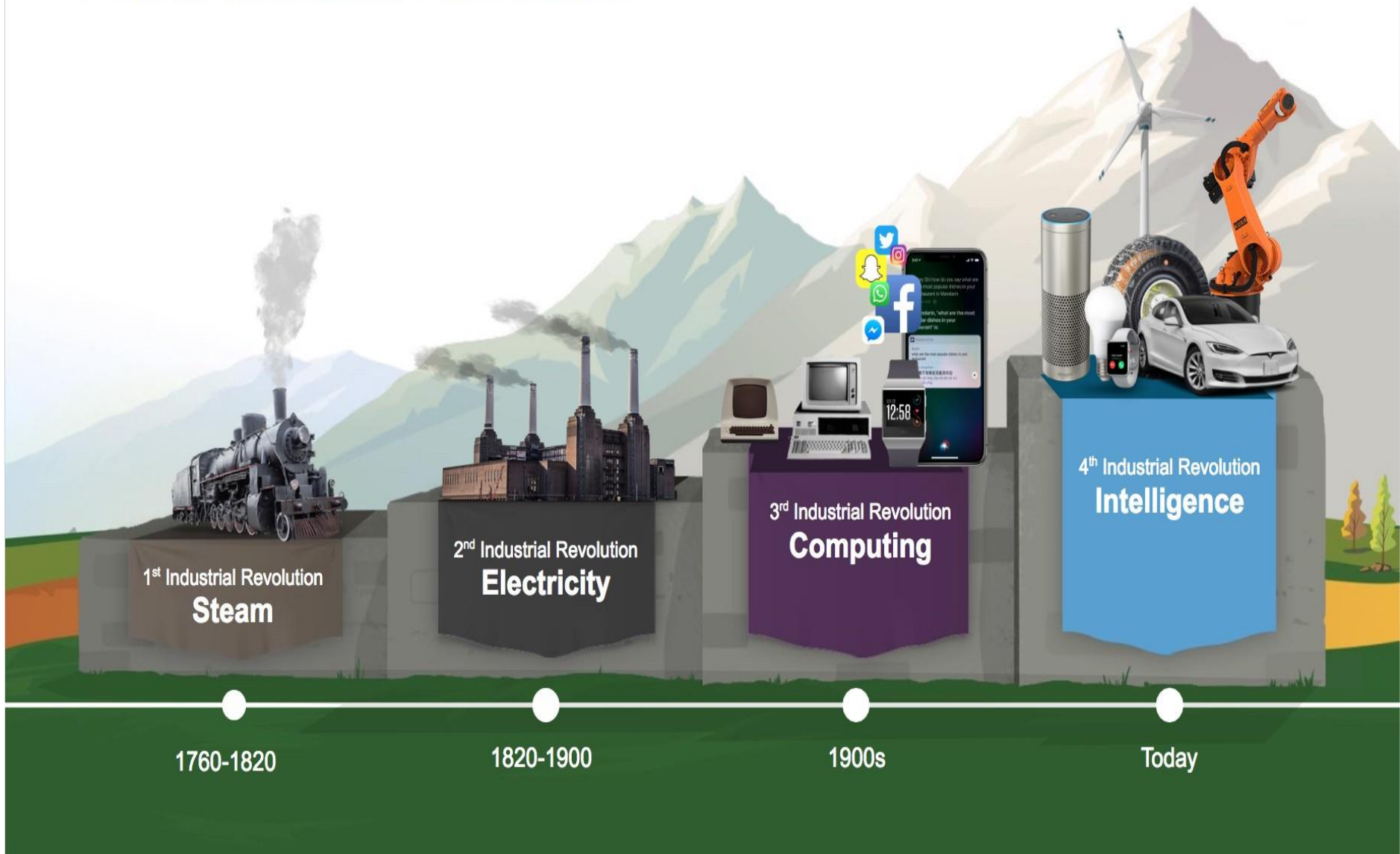


Fourth Industrial Revolution



AI Overview

- Human Intelligence
- Artificial Intelligence
- Predictive & Descriptive AI Tasks (Structured data)
- Predictive & Descriptive AI Tasks (Multimodal data)
- Generative AI Tasks
- Applied AI Curriculum

Human Intelligence

Perception

SENSES



HEARING



VISION



SMELL



TASTE



TOUCH

Language Intelligence



Logical Reasoning

Can you Solve this?

If

$$1=2$$

$$3=18$$

$$5=50$$

$$4=32$$

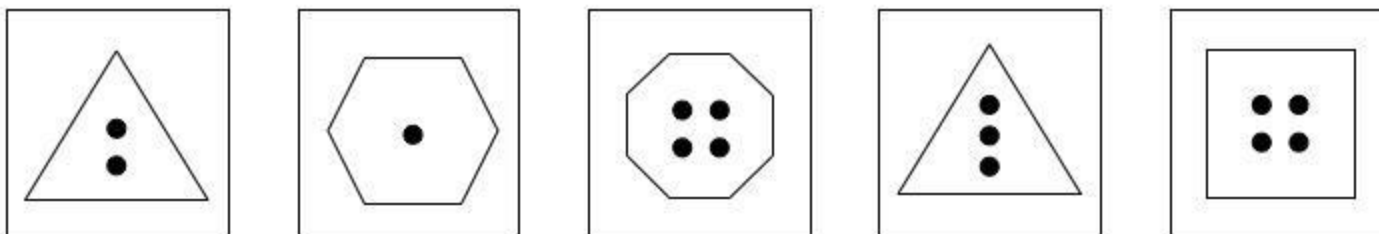
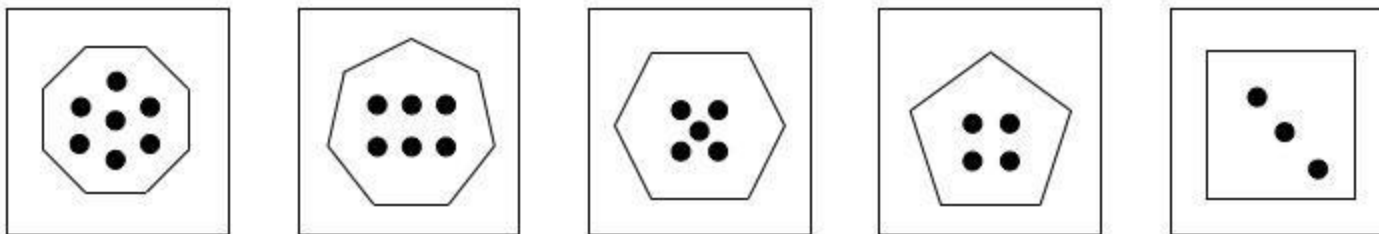
then

$$6=?$$



**Share if you
could solve it!**

Analytical Reasoning



A

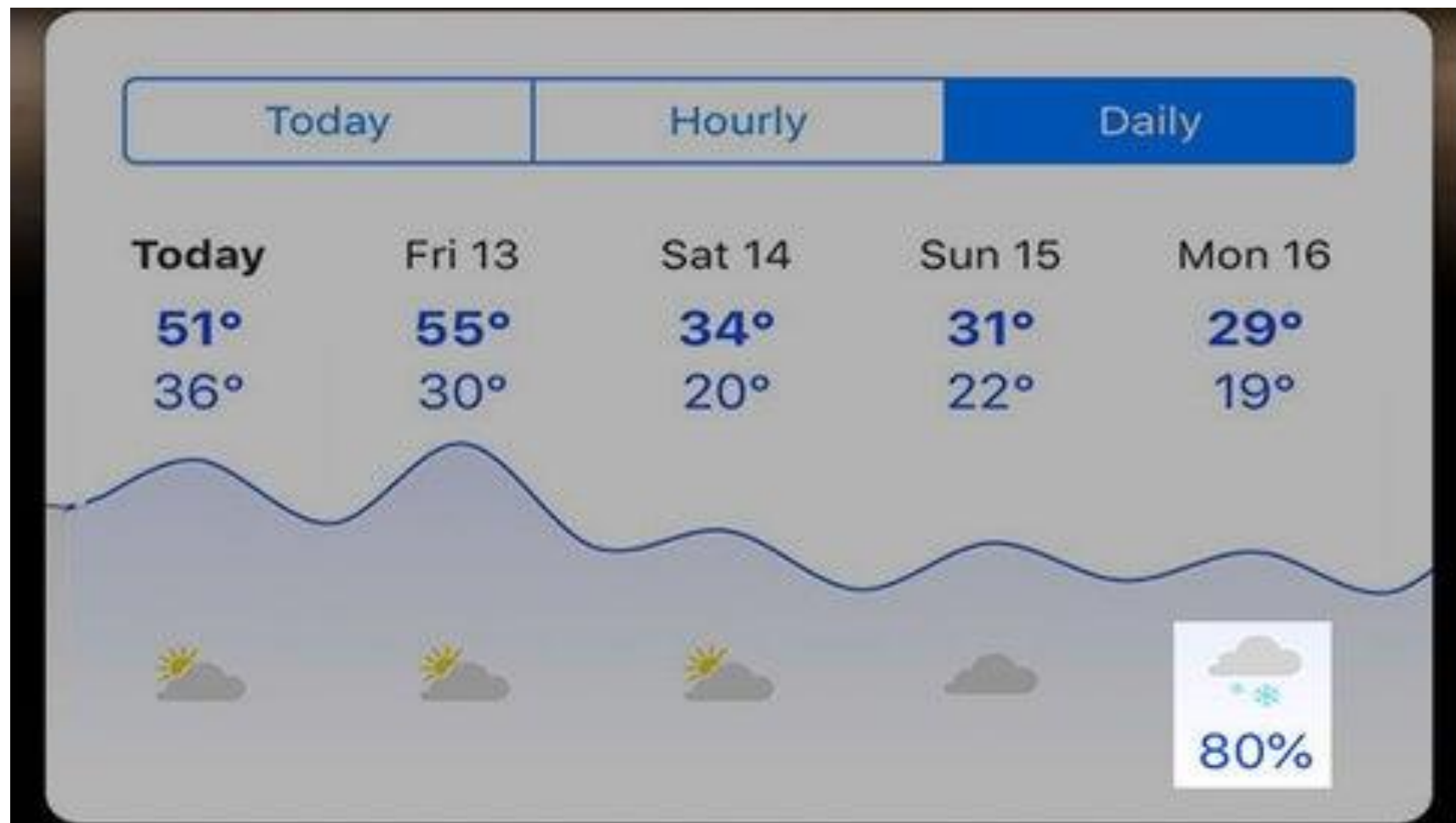
B

C

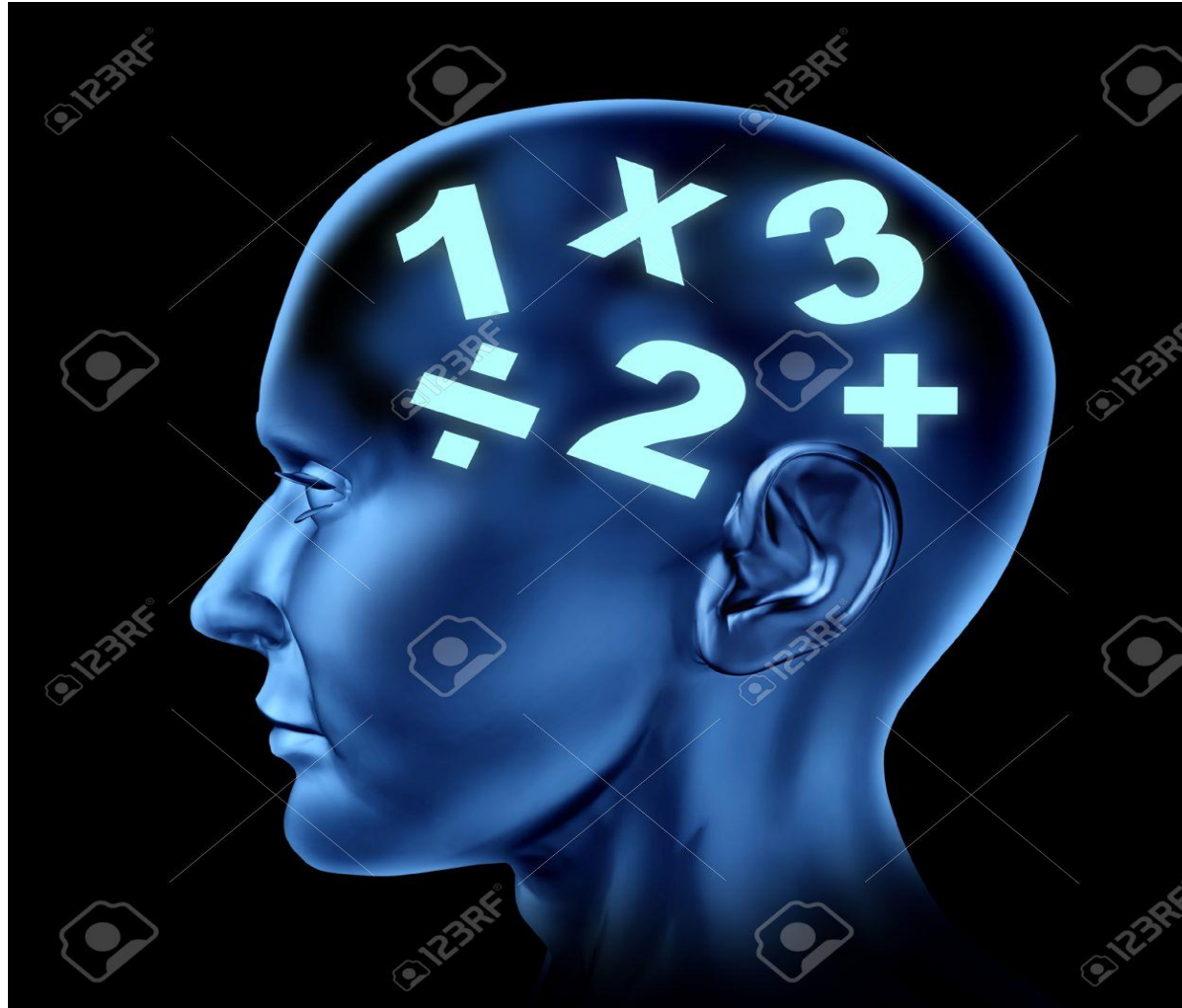
D

E

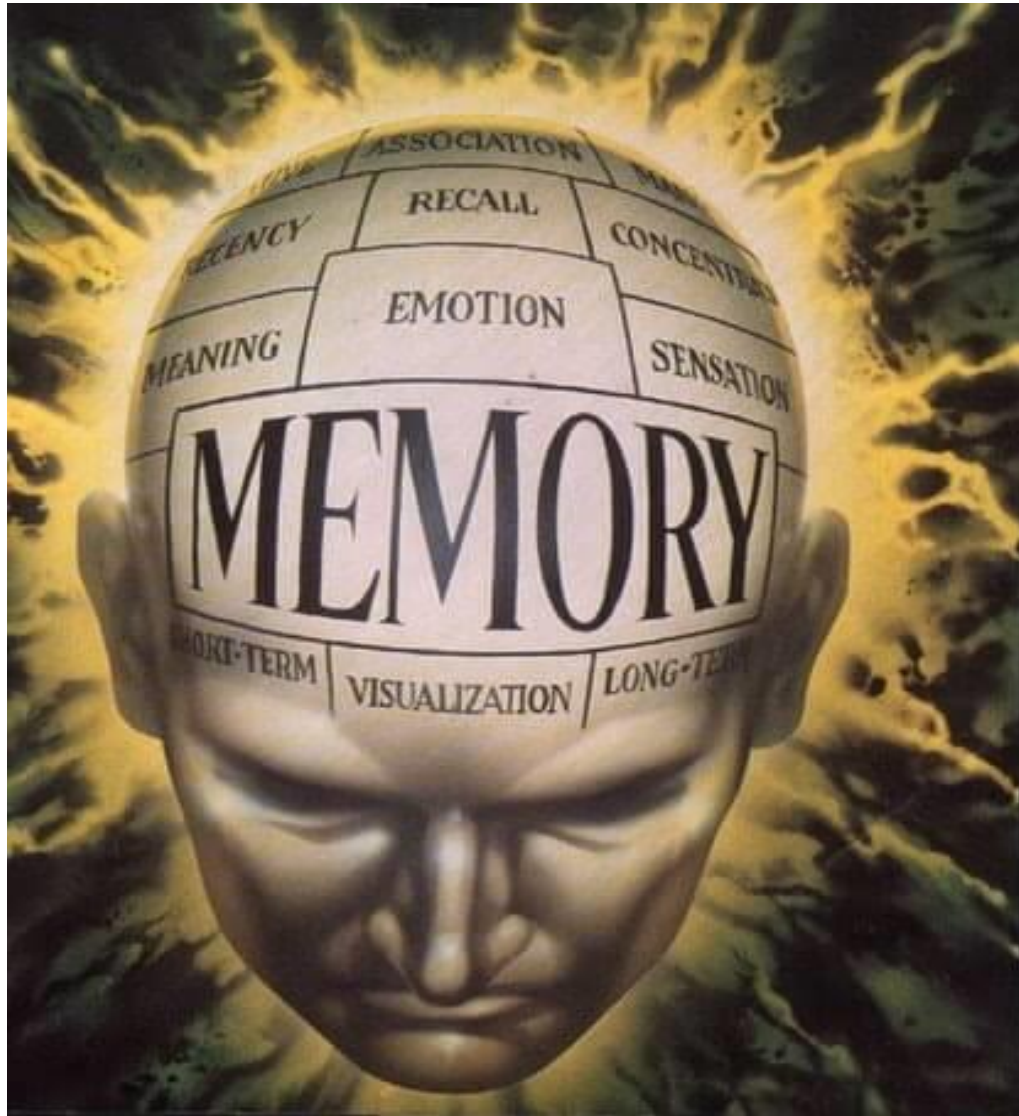
Probabilistic Reasoning



Calculations/Math



Memory



Imagination

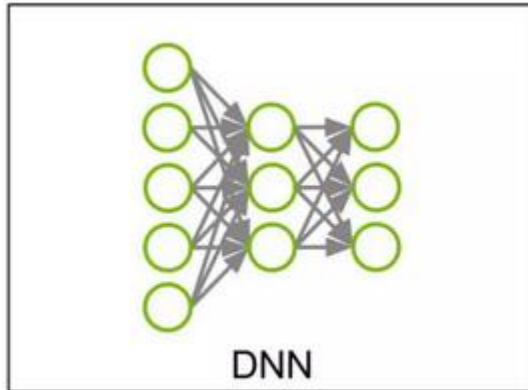


Executive Functions



Artificial Intelligence

Fuel for AI Success



- DATA(which has inherent value)
- ML & Deep Learning Algorithms
- Computing Hardware Innovations

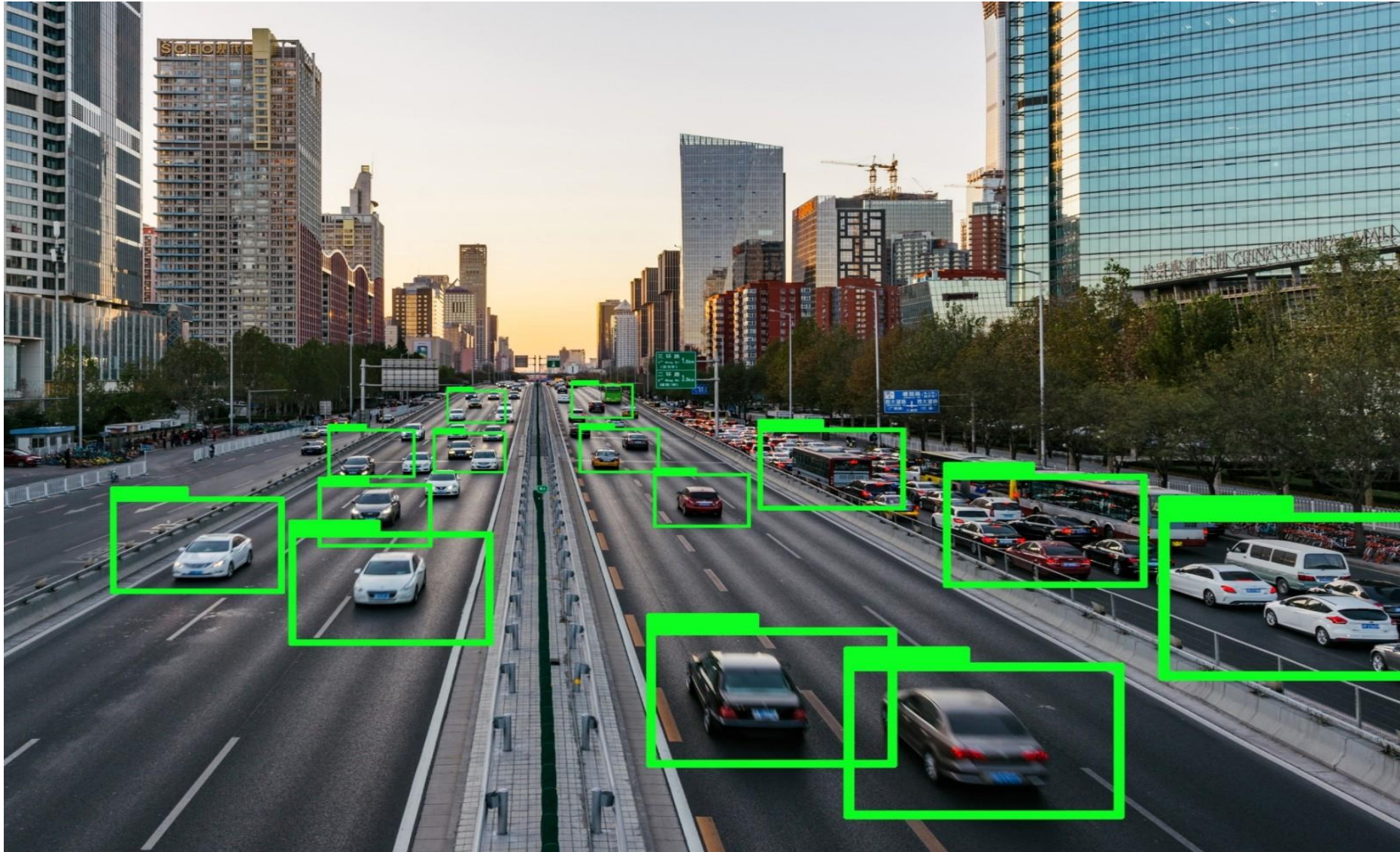
Human generated Data

- Online purchases, clicks, feedbacks, ratings, searches
- Text chats, voice calls, video calls, emails

Human generated Data

- Status updates
- Likes/Dislikes
- Images uploaded
- Videos uploaded
- Blogs/Articles/Posts
- Answers to questions

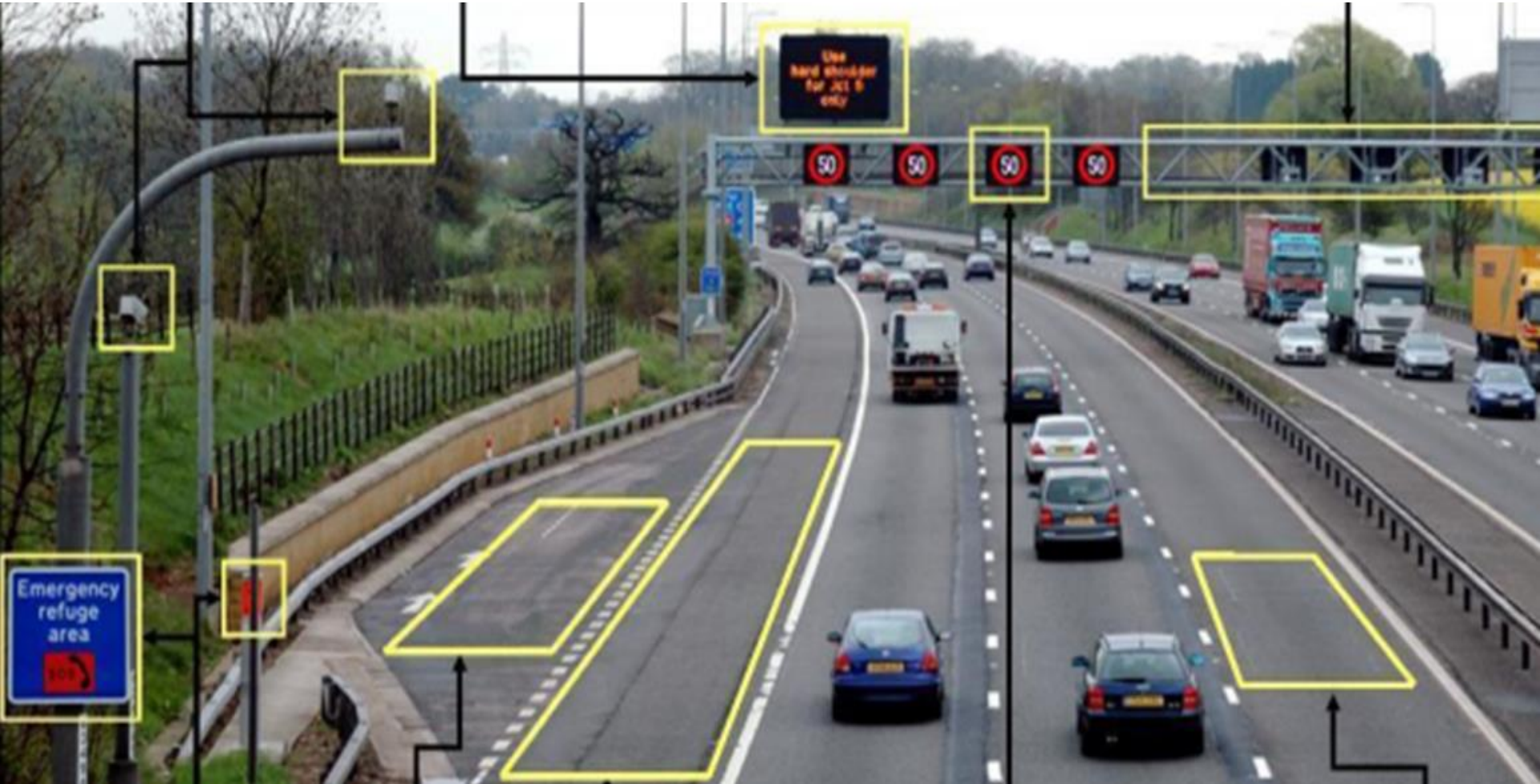
Machine Generated Data(Drones)



Machine Generated Data(Self driving cars)



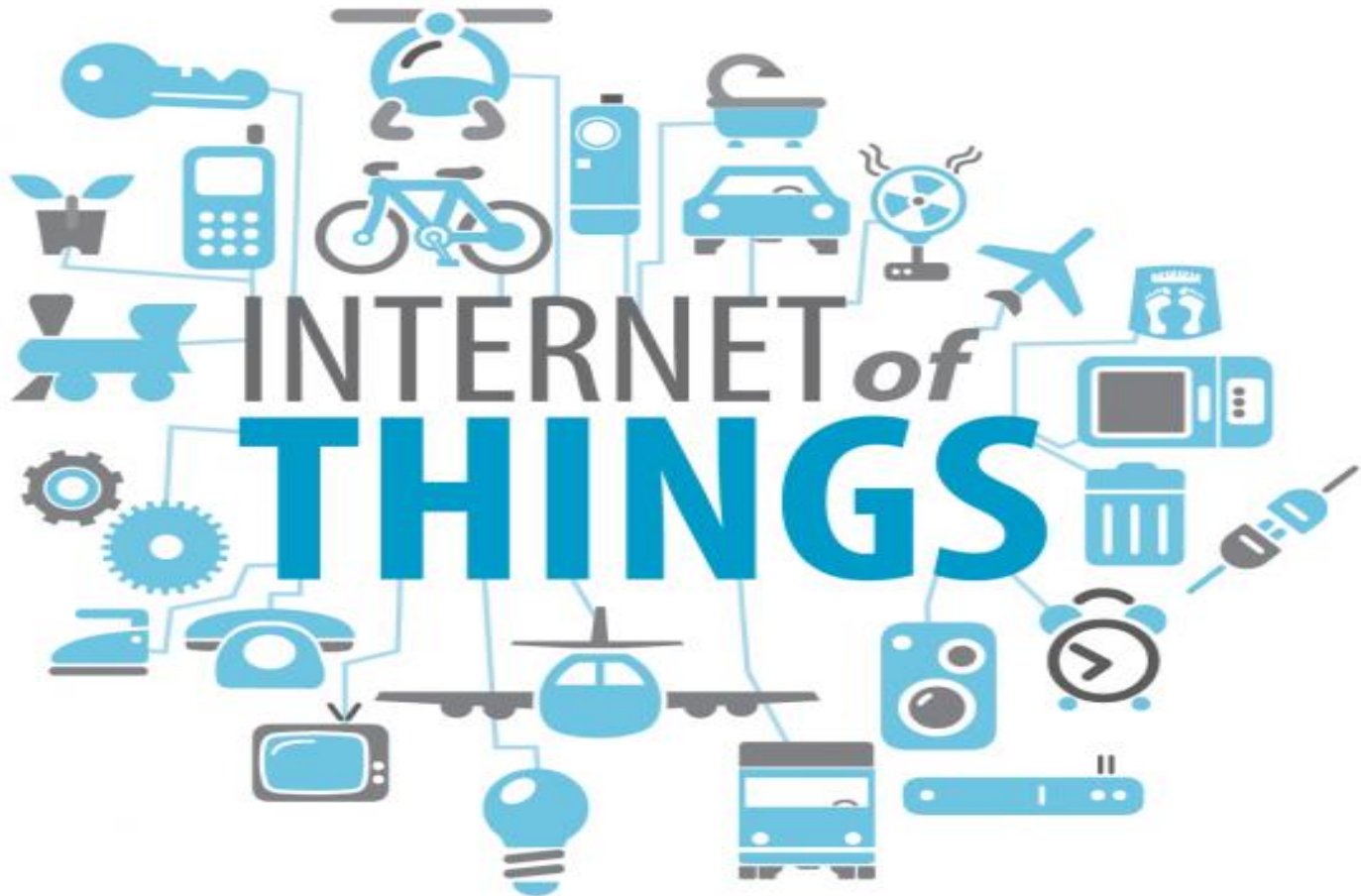
Machine Generated Data(CC Cameras)



Machine Generated Data(Log Data)

```
9/1/99, 10:46:11, 1578, 509, 5397, 200, 0, GET, /cfdocs/akonline/paintbrush.JPG, -,
9/1/99, 10:46:49, 37703, 577, 24402, 200, 0, GET, /cfdocs/akonline/email_book.cfm,
tfirstname=francis&tlastname=smitt&tid=270&PASSWORD=teachme&USERNAME=francis,
9/1/99, 10:49:11, 181500, 579, 114331, 200, 0, GET, /cfdocs/akonline/update_table.cfm,
tfirstname=francis&tlastname=smitt&tid=270&PASSWORD=teachme&USERNAME=francis,
9/1/99, 10:52:04, 354641, 662, 163301, 200, 64, GET, /cfdocs/AKONLINE/assess/PAT11B.pdf,
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9/1/99, 10:52:31, 20921, 609, 163301, 200, 0, GET, /cfdocs/AKONLINE/assess/PAT11B.pdf,
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9/1/99, 10:55:30, 178985, 658, 4314, 200, 0, GET, /cfdocs/akonline/adobe_get.cfm,
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9/1/99, 10:55:58, 8437, 583, 39430, 200, 0, GET, /cfdocs/akonline/image.JPG, -,
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9/1/99, 11:33:17, 171359, 437, 172695, 200, 0, GET, /cfdocs/AKONLINE/assess/TBT11B.pdf,
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9/1/99, 11:41:16, 812, 775, 438, 200, 0, POST, /cfdocs/akonline/exampleTable.cfm,
tfirstname=francis&tlastname=smitt&tid=270&PASSWORD=teachme&USERNAME=francis
```


Machine Generated Data(IoT Devices)

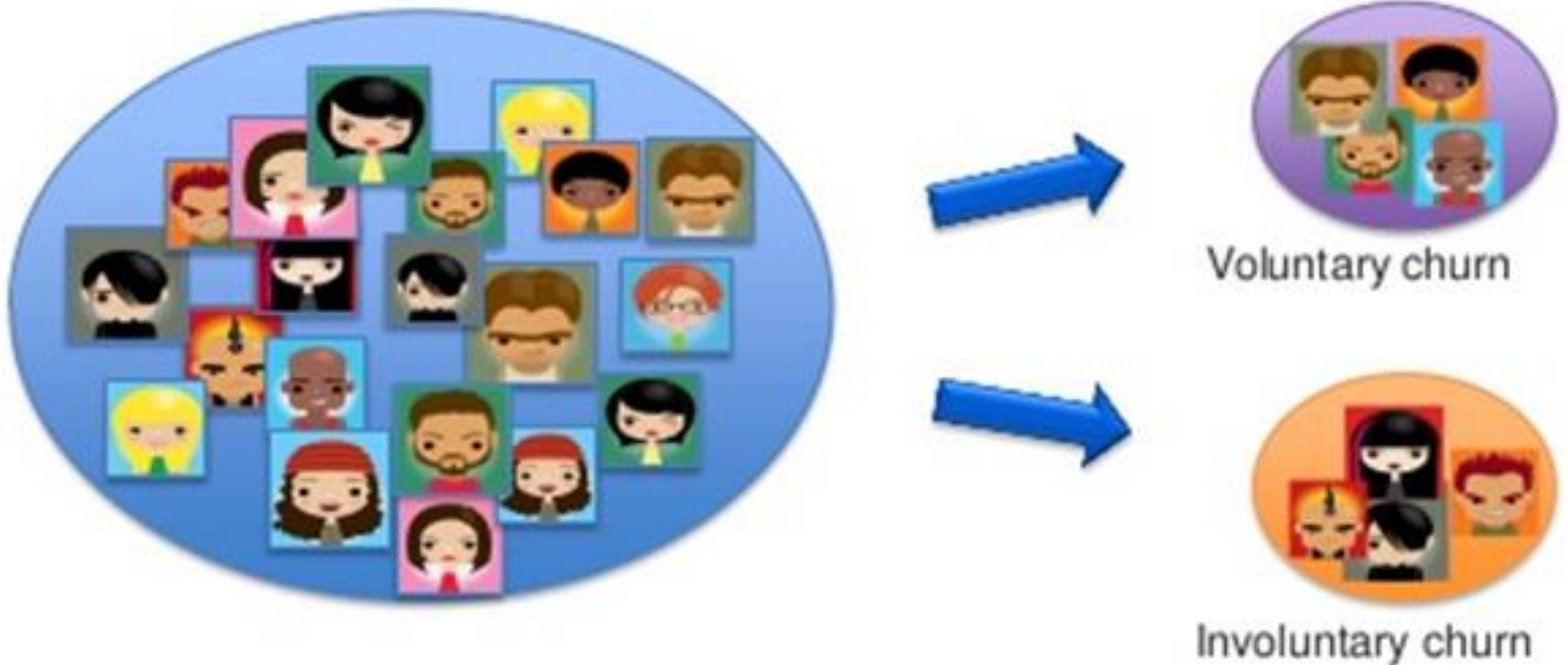


More than 65 billion devices were connected to the Internet by 2010, and this number will go up to 230 billion by 2020

Predictive & Descriptive AI Tasks (Structured Data)

Churn Prediction

- Detect which customers are likely to abandon




Predict House Prices



Personalized Recommendations

[Movies You Would Love](#) [Critic Recommendations](#) [Flickstree Daily Recommendations](#) [Custom Search](#)

Recommendations for you, by you. Based on your Movie Profile



Scandal


Rating: ★★★★★

Critics: ★★★★★

Release Date: 5 Apr 2012

Genre: Drama, Thriller

[Read More](#)



Elementary


Rating: ★★★★★

Critics: ★★★★★

Release Date: 27 Sep 2012

Genre: Crime, Drama, Mystery

[Read More](#)



Temple Grandin


Rating: ★★★★★

Critics: ★★★★★

Release Date: 6 Feb 2010

Genre: Biography, Drama

[Read More](#)



Wreck


Rating: ★★★★★

Critics: Not Available

Release Date: 16 Oct 2013

Genre: Action, Drama, Thriller

[Read More](#)



Spartacus: Blood And Sand

Rating: ★★★★★

Critics: ★★★★★

Release Date: 22 Jan 2010

Genre: Action, Adventure, Biography

[Read More](#)

☒ ☒ ☒ ☒

Association Analysis



Roll over image to zoom in

32 GB

64 GB

128 GB

In Stock.

Ships from and sold by **Amazon.com**.

Want it TODAY, July 28? Order within **56 mins** and choose **Same-Day Delivery** at checkout. [Details](#)

3 used from **\$479.99**

Trade in your old phone for up to **\$400**!

[Learn More](#)

Trade in now



Share



Customers Who Bought This Item Also Bought

Page 1 of 15



Galaxy S6 Case, Spigen
[METALLIZED BUTTONS]
Neo Hybrid Series Case for
Samsung Galaxy S6

★★★★☆ 553

\$18.99 **Prime**



Spigen Galaxy S6 Case,
Spigen [AIR CUSHION]
Slim Armor Case [KICK-
STAND] for Samsung

★★★★☆ 206

\$16.77 **Prime**



Samsung Wireless
Charging Pad w/ 2A Wall
Charger - Retail Packaging
- Black Sapphire, Part #

★★★★☆ 569

\$29.45 **Prime**



Galaxy S6 Case, MoKo
[Heavy Duty] Full Body
Rugged Holster Cover
Case with Swivel Belt Clip -

★★★★☆ 87

\$6.99 **Prime**



OtterBox DEFENDER
SERIES for Samsung
Galaxy S6 - Frustration-
Free Packaging - Black

★★★★☆ 358

\$49.95 **Prime**



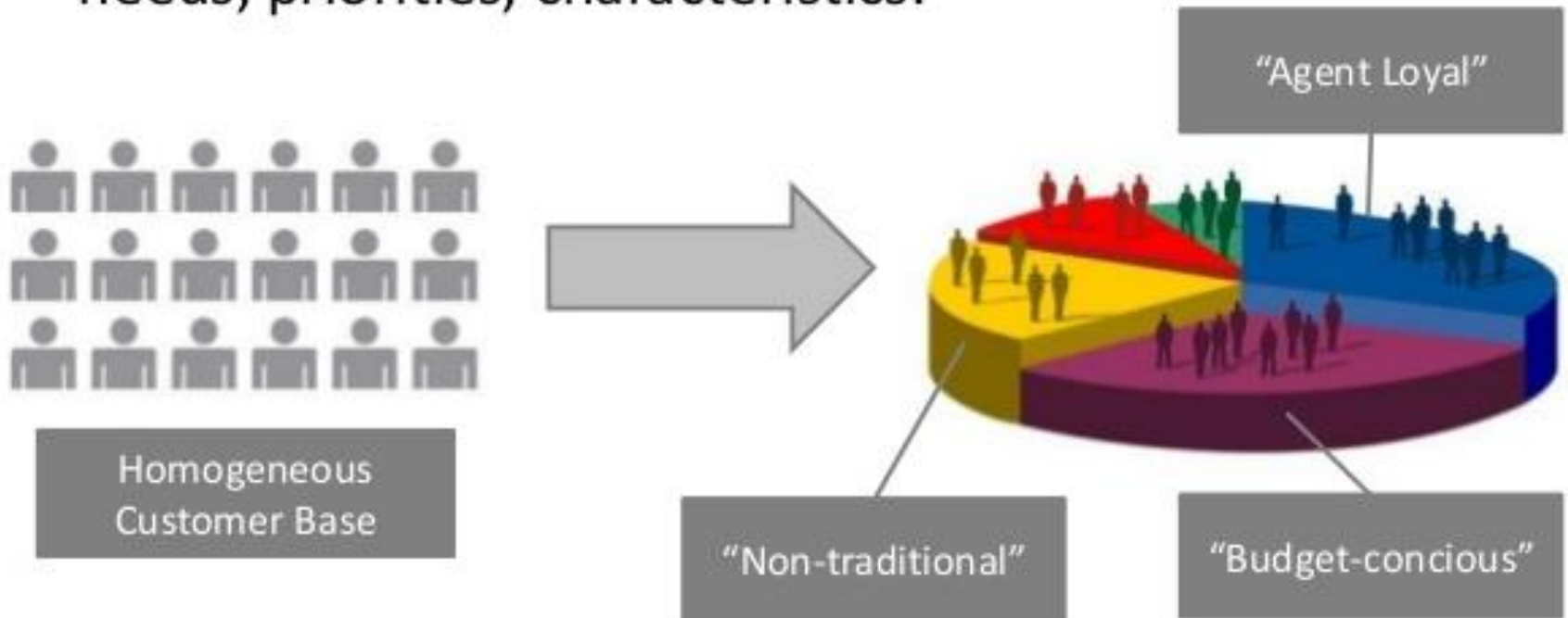
OtterBox COMMUTER
SERIES for Samsung
Galaxy S6 - Retail
Packaging - Black

★★★★☆ 271

\$25.33 **Prime**

Customer Segmentation

- Customer segmentation is the application of clustering techniques to customer data
- Identify cohorts of “similar” customers – common needs, priorities, characteristics.



Predictive & Descriptive AI Tasks (Multimodal Data)

Object Recognition



mite

container ship

motor scooter

leopard

	mite
	black widow
	cockroach
	tick
	starfish

	container ship
	lifeboat
	amphibian
	fireboat
	drilling platform

	motor scooter
	go-kart
	moped
	bumper car
	golfcart

	leopard
	jaguar
	cheetah
	snow leopard
	Egyptian cat



grille

mushroom

cherry

Madagascar cat

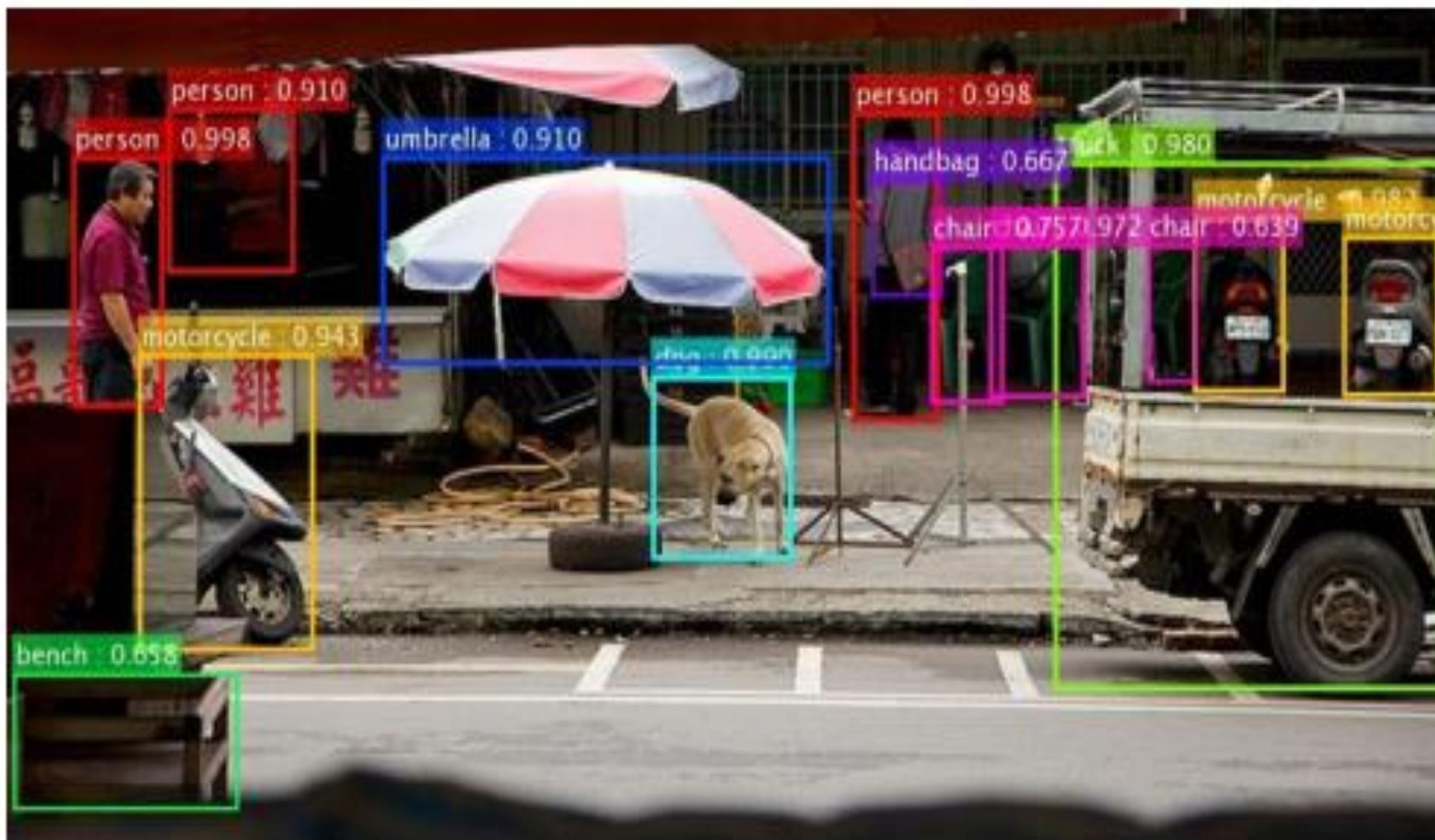
	convertible
	grille
	pickup
	beach wagon
	fire engine

	agaric
	mushroom
	jelly fungus
	gill fungus
	dead-man's-fingers

	dalmatian
	grape
	elderberry
	ffordshire bullterrier
	currant

	squirrel monkey
	spider monkey
	titi
	indri
	howler monkey

Object Detection



Semantic Segmentation

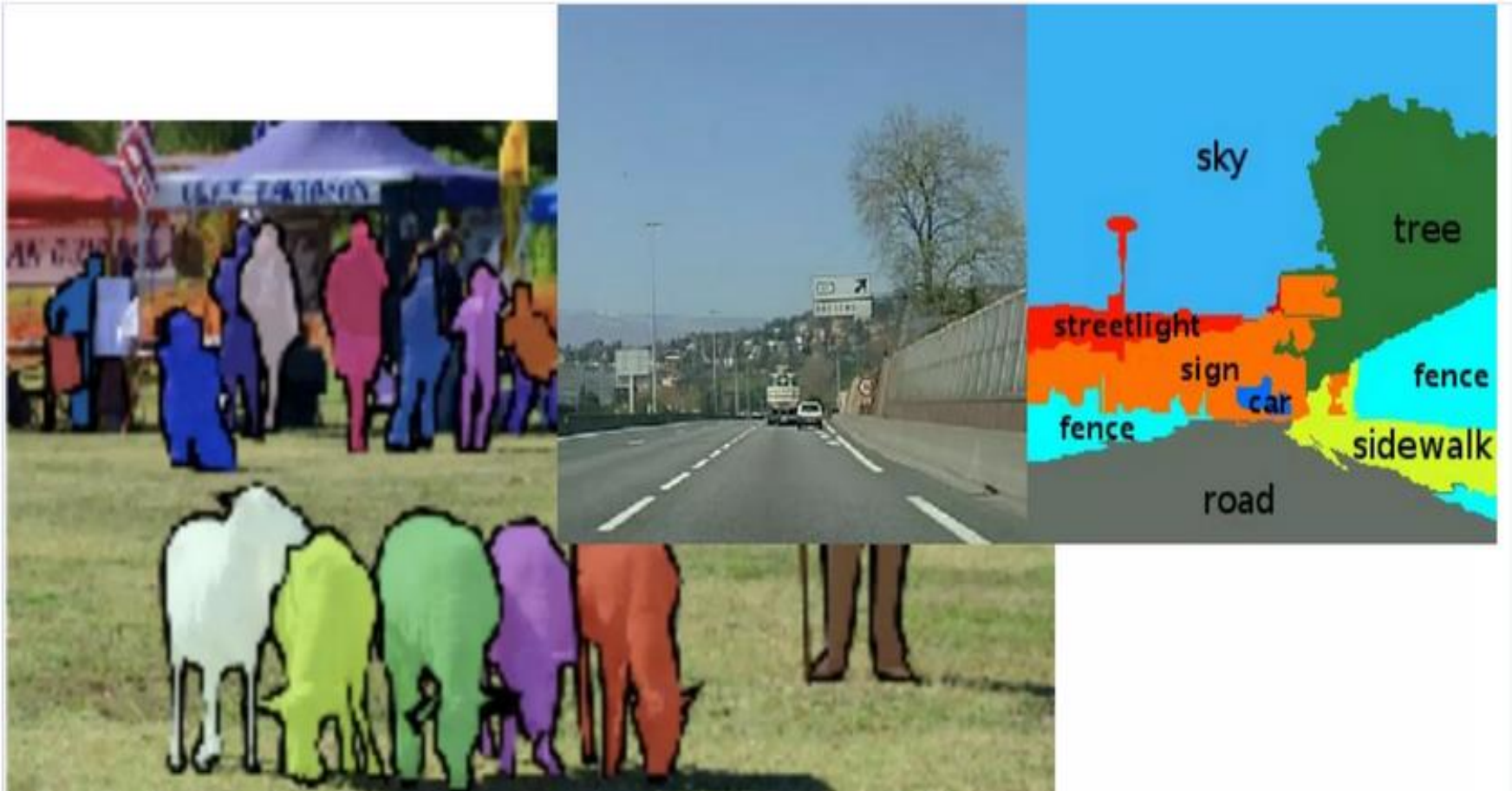


Image Completion



Text detection and retrieval



Generative AI Tasks (Multimodal Data)

Text to SQL Generation

Question Input:
in what place did phil mickelson finish with a total of 282 ?

Database Table: mytable

player	country	year (s)	won	total	to par	finish
Tiger Woods	United States	1999 , 2000		270	-18	1
Shaun Micheel	United States	2003		275	-13	2
Phil Mickelson	United States	2005		282	-6	T16
David Toms	United States	2001		282	-6	T16
Davis Love III	United States	1997		286	-2	T34
Rich Beem	United States	2002		291	+3	T49
Bob Tway	United States	1986		296	+8	T65

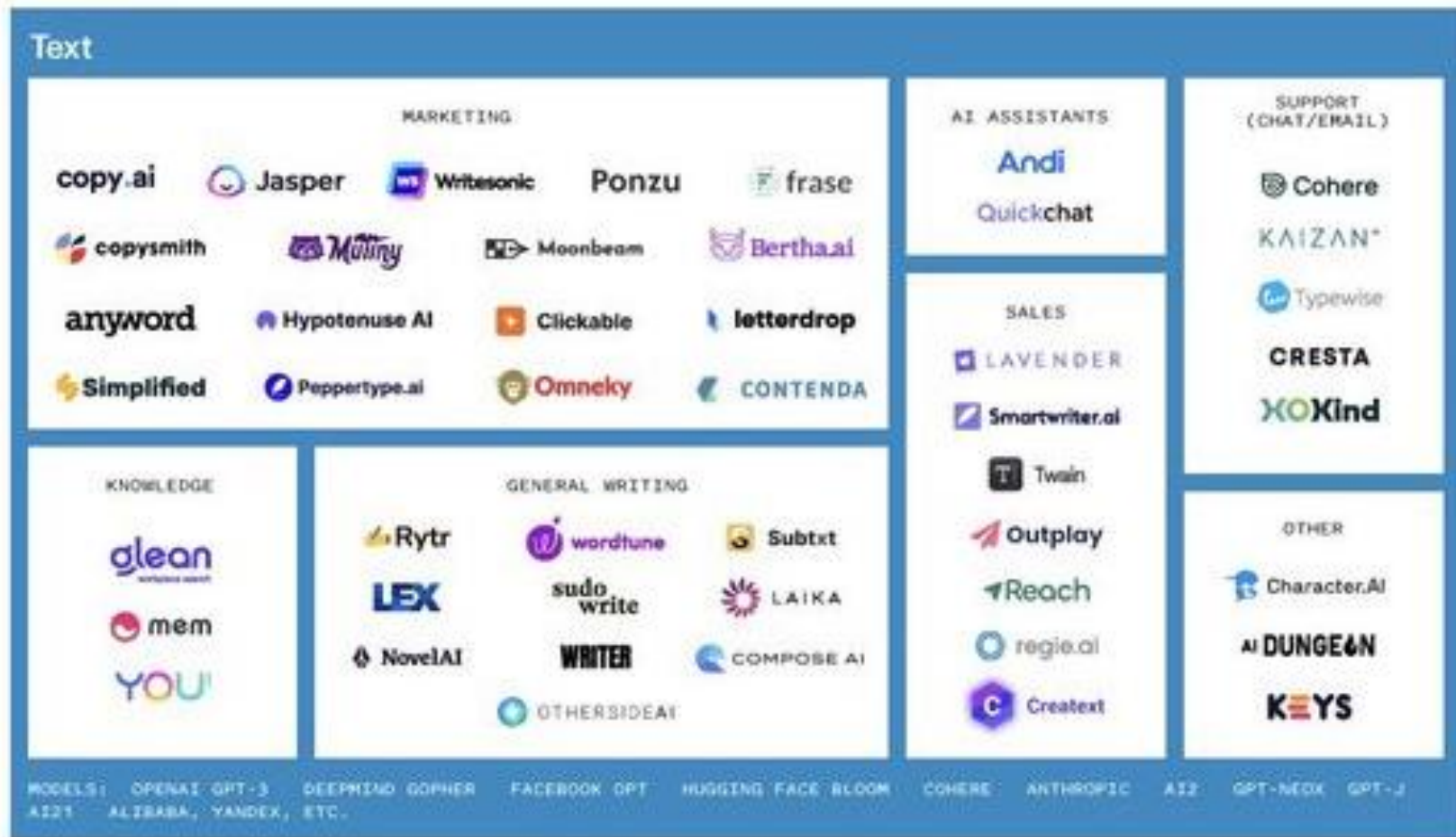
SQL Vocabulary:
SELECT WHERE FROM AND MAX MIN COUNT SUM AVG = > <

Seq2SQL Output:
SELECT finish FROM mytable WHERE total = 282 AND player = phil mickelson

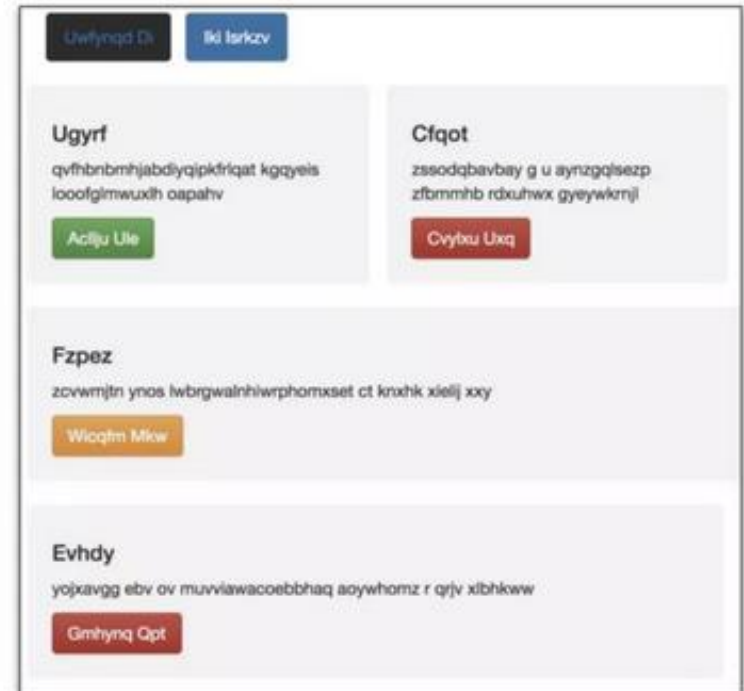
Execution Result:
t16

Reinforcement Learning Reward:
Correct +1

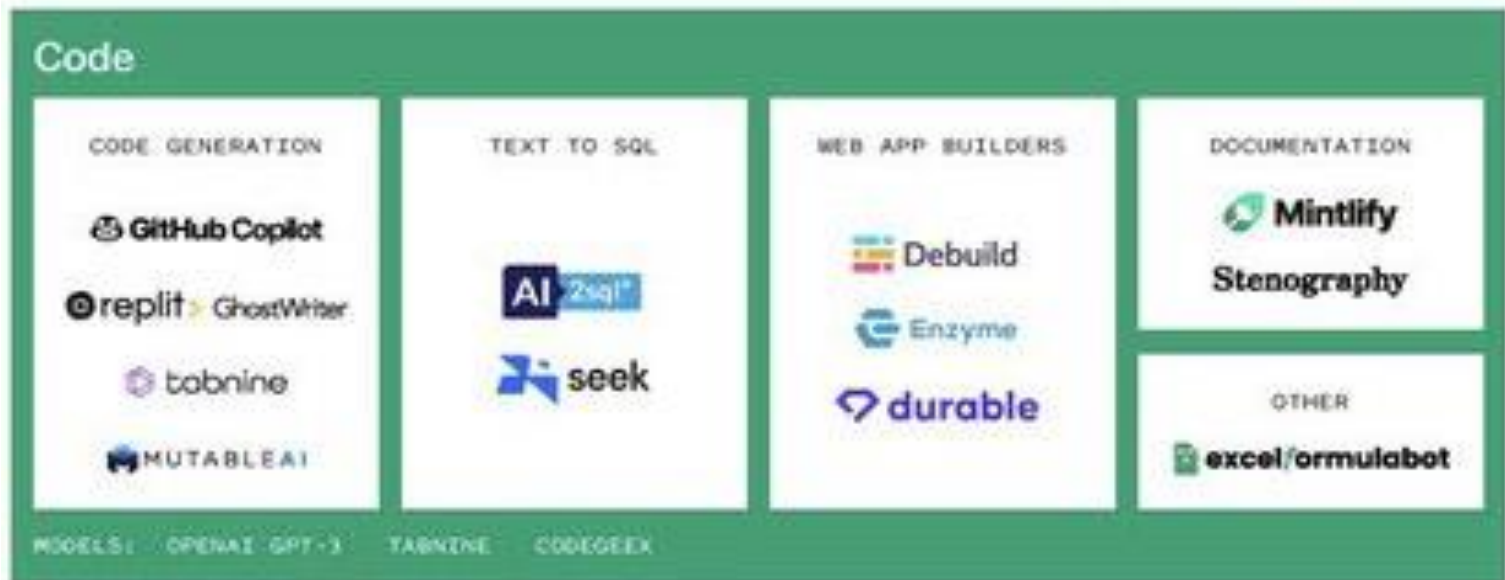
Text Generation



Sketch to html code



Code Generation



Video Generation



Image Translation

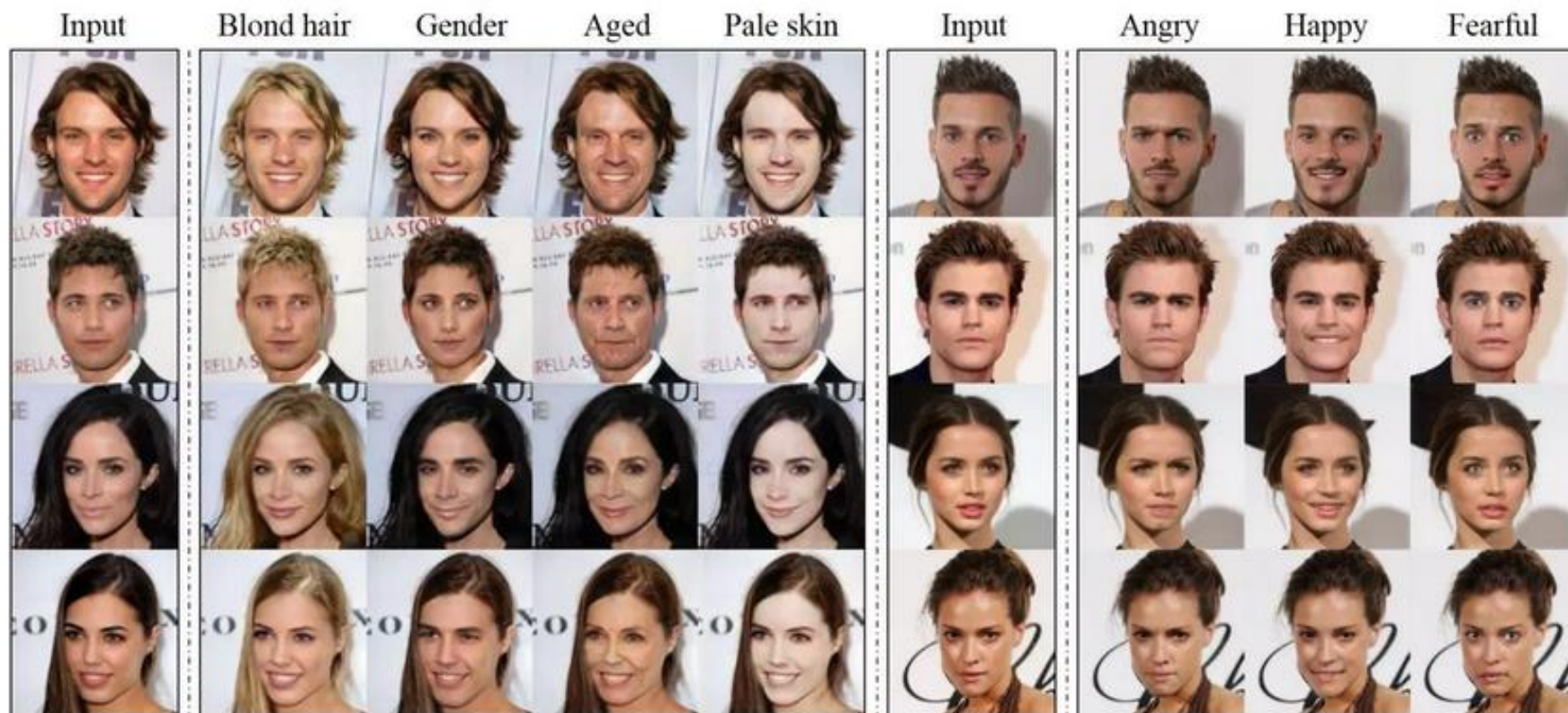


Image Caption Generation



A group of people shopping at an outdoor market.

There are many vegetables at the fruit stand.

Text-to-Image Generation

this bird is red with white and has a very short beak



this bird has a green crown black primaries and a white belly



Image & Video Generation

Image

IMAGE GENERATION

 
 
 
> ROSEBUD.AI 
Lexica
 Nyx « gallery
KREA 

CONSUMER/SOCIAL



MEDIA/ADVERTISING

SALT
THE
CULTURE
DAO

DESIGN

 
VIZCOM  **Aragon**
 
 **CALA**

MODELS: OPENAI DALL-E 2 STABLE DIFFUSION
CRAIYON

Video

EDITING/GENERATION

 
 **Opus**

PERSONALIZED VIDEOS

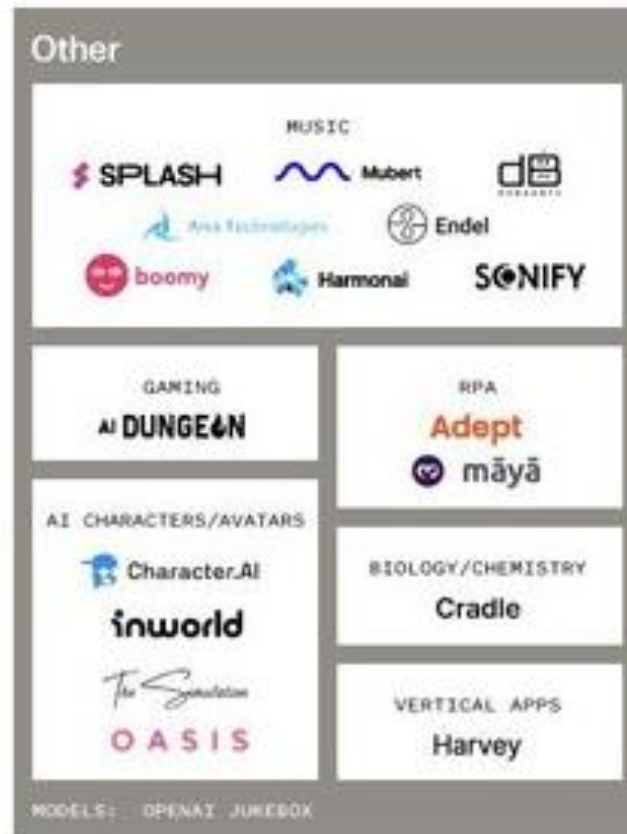
 
Hour One.
 


MODELS: MICROSOFT A-CLIP
META MAKE-A-VIDEO

Speech & 3D Generation



Music, Avatar Generation



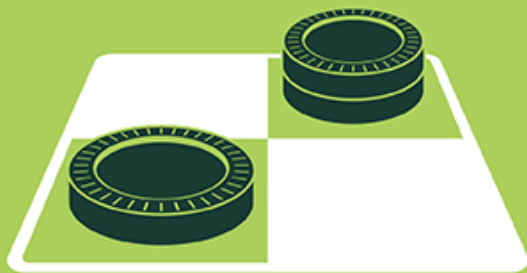
Applied AI Curriculum

Applied AI/DataScience/ML Curriculum

- Python for AI/Datascience
- Applied AI – I
(Predictive & Descriptive Analytics for Structured Data)
- Applied AI – II
(Scalable Predictive & Descriptive Analytics for Structured Data)
- Applied AI – III
(Generative AI for Multimodal Data)
- Applied AI – IV
(Descriptive & Predictive AI for Multimodal Data)
- Applied MATH for Machine Learning

ARTIFICIAL INTELLIGENCE

Early artificial intelligence stirs excitement.



MACHINE LEARNING

Machine learning begins to flourish.



DEEP LEARNING

Deep learning breakthroughs drive AI boom.



1950's

1960's

1970's

1980's

1990's

2000's

2010's

Since an early flush of optimism in the 1950s, smaller subsets of artificial intelligence – first machine learning, then deep learning, a subset of machine learning – have created ever larger disruptions.

HealthCare & Biology

- Cancer cell detection
- Diabetic grading
- Drug discovery
- Recommending food, exercise

Travel & Hospitality Domain

- Demand Prediction
- Recommendations for place
- Recommendations of hotels
- Dynamic ticket pricing

Real estate Domain

- Discovering relevant properties for the one you are searching for
- Fluctuations of Land prices in future
- Estimating fluctuations in rental value

Autonomous Machines

- Pedestrian detection
- Lane detection
- Traffic light detection
- Detection of Traffic violators

Security & Defence

- Face Detection
- Video surveillance
- Satellite Image
Analysis

Advertising Domain

- Image Search
- Image Captioning
- Image Recognition
- Speech to text
- Language Translation
- Language Understanding
- Conversational bots
- Question & Answering Systems

E-commerce Domain

- Offline Video Captioning
- Video Recommendations
- Video Search
- Video Recognition
- Video Grouping
- Realtime Video subtitle generation

Healthcare Domain

- Image Search
- Image Captioning
- Image Recognition
- Speech to text
- Language Translation
- Language Understanding
- Conversational bots
- Question & Answering Systems

Finance Domain

- Offline Video Captioning
- Video Recommendations
- Video Search
- Video Recognition
- Video Grouping
- Realtime Video subtitle generation

Logistics Domain

- Image Search
- Image Captioning
- Image Recognition
- Speech to text
- Language Translation
- Language Understanding
- Conversational bots
- Question & Answering Systems

CustomerCare Domain

- Offline Video Captioning
- Video Recommendations
- Video Search
- Video Recognition
- Video Grouping
- Realtime Video subtitle generation

Travel & hospitality

- Prediction for load
- Recommendations for places
- Recommendations of hotels
- Dynamic ticket pricing

Communication

- Language comprehension
- Text summarization
- Language Translation

E-commerce markets

- Recommendations
- Frequently bought together
- Similar Customers Viewed items

Entertainment/Media

- Video captioning
- Video search
- Video translation

Tech support Industry

- Customer queries

Insurance Industry

- Which policy is best for a customer?

Autonomous cars

- Pedestrian detection
- Lane detection
- Traffic light detection

Security & Defence

- Face Detection
- Video surveillance