

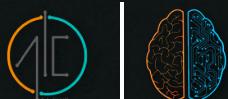


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THE TECH DAIGEST

May 2023



Can ChatGPT

Write an article
about itself?

What to do This Weekend?

Who's the King?

The Long Awaited
Debate

The Smart & Cute Chess Bot

Edition 2



“If knowledge is power, then curiosity is the muscle”

- Danielle LaPorte

A wise man once said, never stop learning, for great things happen to those who don't stop believing and trying. In today's rapidly evolving technological landscape, staying curious and constantly learning is more important than ever. AI Club's commitment to providing immersive events that expose individuals to new ideas and perspectives is a valuable contribution to creating a learning community that is informed and inspired.

By encouraging curiosity and providing access to resources and opportunities, AI Club is helping to develop the muscle of curiosity in its members. This muscle is essential in helping individuals to stay engaged and motivated in their pursuit of knowledge, which can lead to greater success and fulfilment in their lives. In a nutshell, AI Club's efforts to promote continuous learning and growth in AI and related domains are commendable and will undoubtedly have a positive impact on the lives of its members.

AI Club successfully helped thousands of VITians to learn and grow by providing them exposure to various AI and related domains through our immersive events. In the past year, AI Club conducted 15+ events, which includes *Spring Bootcamp*, which featured a podcast session by an VIT alumnus, *AI/Crypt* that renowned speakers such as Mr. Smith Gonsalves and Mr. Nitin Pandey encouraged our students to explore the world of cyber security and AI through their sessions, *AI Conclave*, AI Club's biggest annual event, *chAI pe Charcha*, *Kaggle Challenge* and *DSA Week*.

ABOUT 2022



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Mittens



A cute looking chess bot took over the internet by storm.

- by R. Aditiya

Chess has been around for centuries. Although it is a game that almost all of us have vague memories of playing as kids, it has never been as popular as other board games. It is evident when we think about it. For starters, chess is a strategy-based game that requires players to put in critical thinking to win, which is viewed as either too hard or a game for the prodigies. But recently, this has changed.

Chess has gained a lot of popularity in recent times. It started with the Netflix original series Queen's Gambit, which gained a lot of traction. A quick search on Google Trends would show you that ever since the release of this web series, the popularity of chess has been on a steady rise.

When we think of AI bots in games, we think of automated characters that are weak at the game, but in chess, bots are feared by everyone, even the best in the field.





This was demonstrated clearly in the 1997 chess match that was played between the then world champion and grandmaster Gary Kasparov and IBM's supercomputer Deep Blue. And to everyone's surprise, the computer had, for the first time, beaten the best chess player humans could offer.

Ever since this legendary matchup, AI chess bots have grown increasingly accurate, smart, and, to be honest, scary. Magnus Carlsen, the current world champion and widely regarded as the best chess player to have ever existed, has an ELO rating of around 2800, while the best AI chess bot has an estimated ELO rating of around 3500, beating its human counterpart by the largest of margins.

Amongst all the hype of ever improving chess bots, emerged a chess bot with a cute looking avatar of a kitten with an ELO rating of 1, released by the chess.com website, named mittens. The only twist is, this bot has beaten almost everyone, from the most popular chess content creator on the internet, GothamChess, all the way up to world renowned chess grandmasters like Hikaru Nakamura, and has taken over the internet by storm. Many people have tried playing against the single digit ELO bot in hopes of beating it, only to get beaten by it.

Impact of AI in the Medical Sector

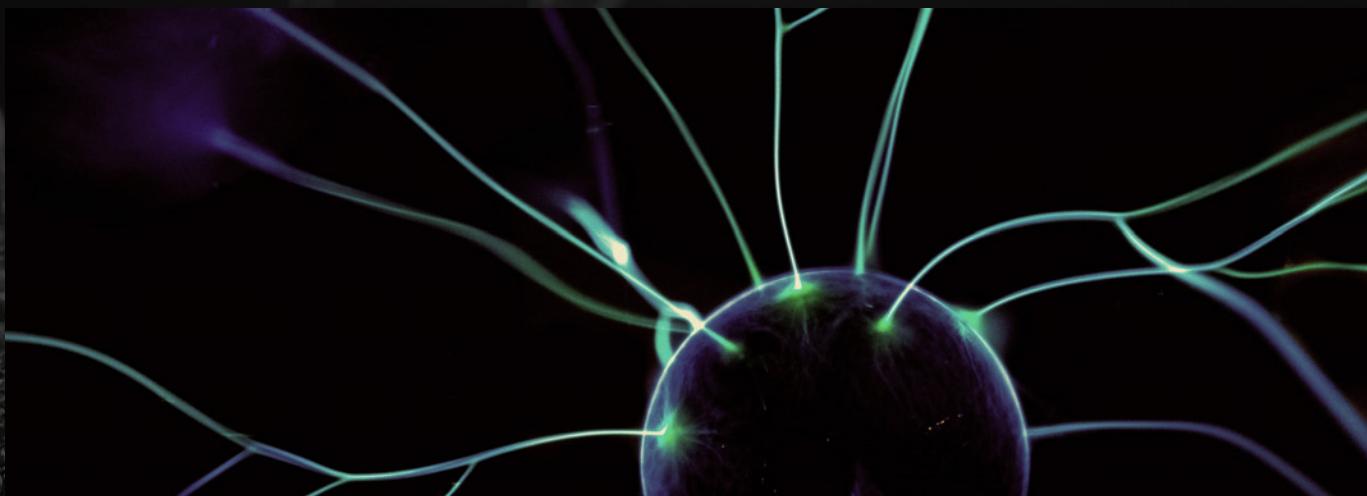
- by Yamuna Chelluri

According to the World Health Organization, the West African Ebola virus disease epidemic resulted in at least 11,310 deaths. Ebola virus infections were reported across 6 West African countries, in 3 European countries and in the United States, underscoring the potential for a global pandemic.

Ebola Virus Disease is a rare but severe illness in humans. It primarily affected Sub-Saharan Africa. The illness is transmitted from wild animals and spreads in the human population via contact. very common symptoms such as fever, fatigue, headache, sore throat, etc. make it difficult to diagnose the illness at an earlier stage. Once diagnosed, the treatment only gets tougher. Potential treatment of EVD involves blood products, immune therapies, and drug therapies. The virus has a non-segmented, single-stranded RNA (protein) which has seven genes. Each of these genes encodes for one protein. However, Atomwise, in collaboration with the University of Toronto and IBM, has rapidly developed a treatment for EVD.

Atomwise partnered with the University of Toronto and IBM to develop a cure for Ebola virus infections. Atomwise provided the core artificial intelligence technology to perform the drug research. Researchers from the University of Toronto contributed biological insights about the Ebola virus, and recommended targeting Ebola virus glycoprotein 2, which is important for viral entry and fusion. IBM supplied the supercomputer, a 64,000-CPU Blue Gene/Q.





The University of Toronto provided research on the protein structure of the virus which helped develop the treatment. The virus is generally 80 nm in diameter, 970 nm long. It has a virally encoded glycoprotein projecting from the lipid bilayer surface. The glycoprotein is the sole resident of the virus surface and is responsible for entering new host cells.

Atomwise defined a region to detect potential small molecule inhibitors. The helices were then deleted. This left them with the central core. This compound was then screened for compounds that have high affinity to it. The analysis was done and ranked based on the binding affinity of the molecules and the glycoprotein. Atomwise predicted a certain number of compounds would bind to the glycoprotein and prevent the entry of the virus into the host cells. The analysis results by the University of Toronto were as per the prediction. The AI used is Atomwise's very own AtomNet. The technology is the first drug discovery algorithm that employs neural networks. The network excels at understanding complex concepts as a combination of minute bits of information. The network excels at understanding complex concepts as a combination of minute bits of

information. AtomNet was designed to identify proteins and ligands and their specialized chemical structures. Its application of local convolutional filters to structural target data efficiently predicts new active molecules. This innovative AI is novel in two regards. The first one being, AtomNet is the first deep convolutional neural network for molecular binding affinity prediction. The second regard is that it is the first deep learning agent that employs structural information about the target model to make efficient predictions.

AtomNet evaluated 7,000 existent medications for their affinity to the protein in the Ebola virus. It also highlighted 17 small molecules in the drug that could block the action of the Ebola virus. WHO's verdict on the efficacy of the neural network stands for the artificially intelligent system. AtomNet is now being deployed in places with maximum outbreaks such as Democratic Republic of the Congo, Ethiopia, South Africa, and many others in Sub-Saharan Africa. The results have been encouraging, and Atomwise is willing to expand the boundaries of health and welfare.

Sketch2Code

- by Rithuraj Nambair

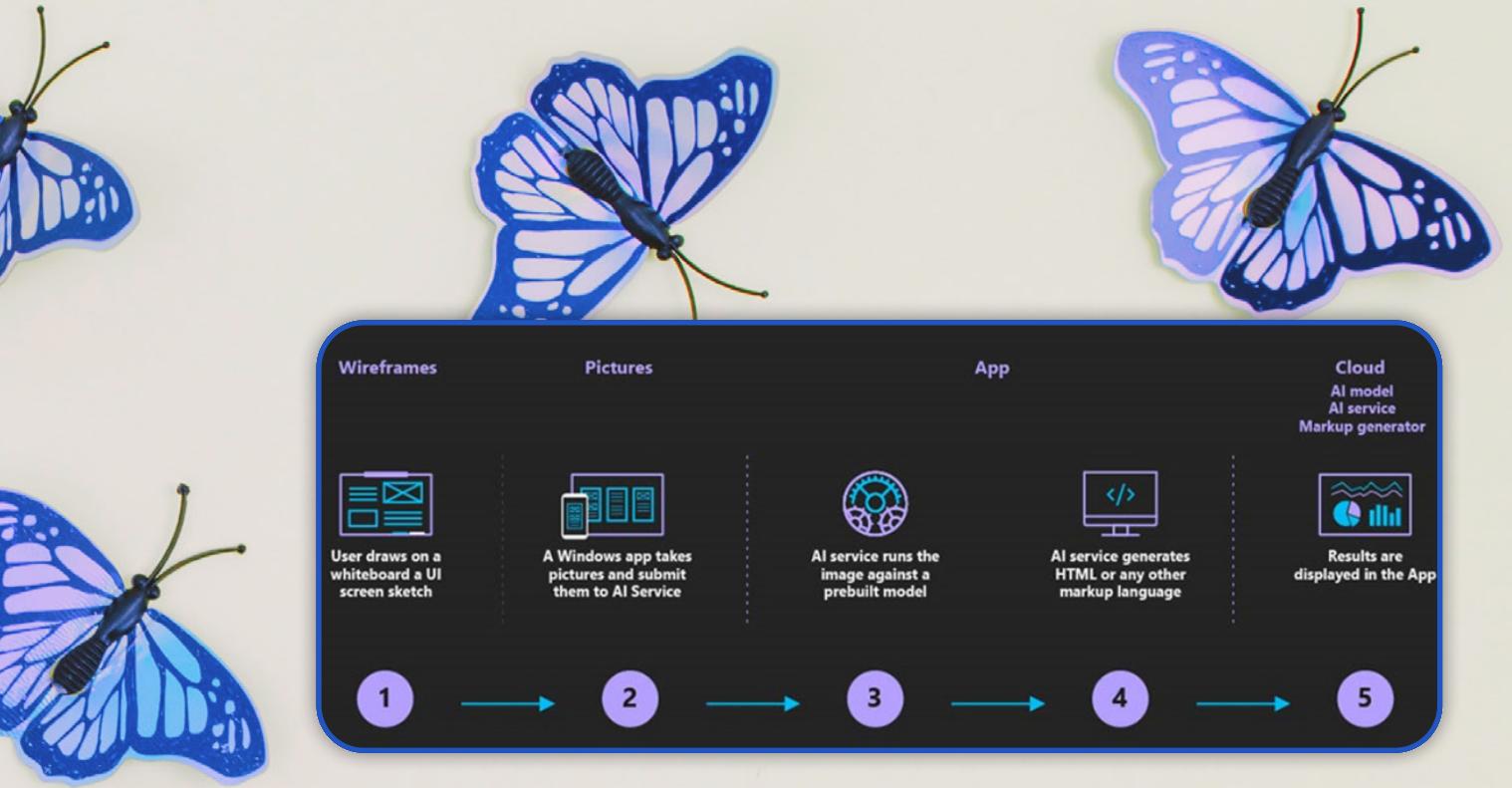
A UI designer's job is to create an attractive user interface wherein the user can interact very smoothly. Various parameters need to be taken into consideration, like the ease of access of every element, no unnecessary elements are visible, etc. After the UI designer has completed the design he sends the works to a developer. He then gets the design to life, by optimizing the CSS, adding some attractive JavaScript for animations, and also adding all the elements and linking all the various pages, all these steps take a lot of time.

The everyday life of a website developer is quite straightforward: create a UI design for the website, finalize the color palette and the design, later convert this wireframe into working HTML, integrate the styles files and then build the backend. This all sounds too easy, but it requires a lot of hard work and dedication. To design a functioning and appealing user interface, developers should strive to sketch out their ideas on a whiteboard - a whiteboard is to a UI developer what a white canvas is to a painter. The development team works to provide consumers with the most practical, appealing, and simple user interface possible. When the developers have finished drawing many concepts and have finally found their winner on the whiteboard, the final version is photographed and manually converted into a functional HTML wireframe that can be seen in a web browser. Regardless of how enjoyable this technique seems, it necessitates a significant amount of labor and, of course, delays in the design process.

Microsoft wasn't happy with this extra labor and time being wasted, which acted as a necessity and powered the need for a framework that would directly convert this sketch of the UI designer into technically-sound HTML code. This application was the fresh beam of light at the end of the tunnel for all web developers. This has opened doors for people in non-technical domains to create various attractive websites.

The workflow of this framework is simple, firstly, the program detects the designs and the patterns that are fed to the program, then the detected elements are passed through a Hand-Written Text-Detection algorithm, and thus the texts are extracted. Then all these raw materials are put together and the underlying structure is determined using a different algorithm. Now, using this structure, a valid HTML is generated. This is a brief on how Sketch2Code delivers simple yet elegant websites just using a rough sketch of how you want things to be!





The architecture of this application consists of various elements like:

> Custom Computer Vision Model for HTML Element Detection

A model has been trained to detect all the basic HTML elements like buttons, images, textareas, etc.

> Microsoft Computer Vision Text-Detection Service

This model identifies the text written in the sketch provided, this might include the default text of textboxes, button text, etc

> Azure Blob Storage

All the necessary data is stored here, the metadata for the HTML to be created, the original image, the prediction result, etc.

> Azure Function

Serves as the backend entry point for the generating process, coordinating it by interfacing with all services.

> Azure Website

Acts as the User-Interface for the user to upload the sketch image.

This software can open doors to enhanced no-code website development process using computer vision technologies, the code for this program can be found at:

<https://github.com/microsoft/ailab/tree/master/Sketch2Code>

and the to try this software you can visit:

<https://sketch2code.azurewebsites.net/>

WHO'S THE KING ?

The Burger or Vada Pav Debate

- by Rahul Mandviya

Alright, let's do this. Let me ask you a question! Who's the real food king – Great German Burger or Amchi Mumbai ka Vada Pav? Which team do you back team burger or team Vada Pav? Do you find yourself caught up in a never-ending debate over whether Burgers or Vada Pav reign supreme? The struggle is real, but what if I tell you that there's a powerful tool that can help settle this debate once and for all? I guess few data scientists amongst you have the answer in your head. That's right, your dearest friend statistics is here to save the day and rest the case!

Before we begin, let's establish our hypothesis. Not familiar with what a hypothesis is? Simply put, it's an educated assumption about the relationship between variables. Hypotheses come in two forms: Null and Alternate. The Null hypothesis is based on past evidence, while the Alternate hypothesis is the opposite of the Null hypothesis. Still didn't get it??? Come on let's understand this through our age-old debate of whether a Burger or Vada Pav

reigns supreme as the ultimate food king. Our Null hypothesis would be that Vada Pav is the food king, while our Alternate hypothesis would be that the Burger is the food king. The stage is set, and the battle for the ultimate food crown begins. Who will come out on top? Only our dearest friend will tell. Now that we have established our hypothesis, we need to gather data to help us test it. To do this, we will need a sample group of individuals. Let's say we gather a group of 30 people.

We will have them try both Burgers and Vada Pav and have them rate each dish on a scale of 1-10, with 10 being the best and 1 being the worst. The ratings will be based on various features such as taste, quality, price, and ingredients.



This collected data will be super valuable for us to make conclusions about which dish gains supremacy as the ultimate food king. Now, it's time to analyze our data like savvy agents from spy movies. We will employ statistical analysis to determine which dish gets the highest ratings overall as well as in each feature. Some may argue that, hey Rahul you are being unfair by comparing sasta(cheap) Vada Pav with the expensive burgers, as the

research of the features in data, which is a crucial step often overlooked by beginners. Based on the understanding of features we will allot certain weights for each feature in our dataset. Think of these weights as priorities. For instance, we will give less importance to the "price" feature in the final rating, as it is obvious that a Vada Pav will be cheaper than a burger. By doing this, we are eliminating any biases in our data, ensuring that we get a fair and accurate result.

So, I guess you all might be excited to know what does the data say? So, let's assume that there is a significant difference between overall ratings for Burgers and Vada Pav, then the one with a higher overall rating would reign the supremacy to become the ultimate food king. But if the difference is negligible or none then we will say both are equally delicious in their own way. So, this is how with the help of statistics, we can finally put this debate to rest. So, next time you find yourself in a heated debate over anything just wake up the young data scientist hidden inside you and use your trusty tool, statistics to settle the score and become the hero. So, remember the next time when you get stuck into some debate your dearest friend is there to escort you.



latter may receive better ratings in the "price" feature. But there's a twist. We will not solely decide based on the ratings we got. Instead, we will delve deeper into the underlying features that have been considered in our research. We will go in-depth into each feature that has been rated and understand its importance in this research. This is known as domain

An Article by

ChatGPT

Have you ever chatted with a robot that made you laugh out loud? No, we're not talking about the robots from "The Jetsons" – we're talking about ChatGPT, the AI-powered chatbot that's taking the internet by storm.

ChatGPT, developed by OpenAI, is a language model that's been trained on a vast amount of text data, making it capable of having conversations that are eerily similar to those of a human. But what sets ChatGPT apart is its sense of humor.

When chatting with ChatGPT, don't be surprised if it cracks a joke or two. It's not just programmed to provide straight answers – it's been trained to add a touch of humor to its responses, making the conversation more interesting and engaging.

For example, when asked "What's the meaning of life?", ChatGPT might respond with a quip such as "42, according to Douglas Adams" – a nod to the popular science fiction novel "The Hitchhiker's Guide to the Galaxy".

ChatGPT's humor is not only limited to pop culture references. It can also come up with its own jokes and puns, making it a chatbot that's as entertaining as it is informative.



But humor is not the only thing that makes ChatGPT special. It's also incredibly versatile and can be used for a wide range of purposes. Whether you're a business looking to improve customer service, or an individual looking for quick answers to your questions, ChatGPT is up to the task.

In the business world, ChatGPT can be integrated into websites and messaging platforms, allowing companies to provide instant support to their customers. It can handle a wide range of inquiries, from product information to technical support, and can even be programmed to provide personalized recommendations and promotions. This not only improves customer satisfaction but also reduces the workload of customer service teams, allowing them to focus on more complex issues.

For individuals, ChatGPT is a great resource for getting quick answers to all of your questions. Whether you're looking for information on a particular topic or just need a quick joke to brighten your day, ChatGPT is always available to help.

It can provide information on anything from weather forecasts to the latest news, and even help you find the best local restaurants and shops.

In conclusion, ChatGPT is a chatbot like no other. With its unique combination of humor, versatility, and intelligence, it's sure to provide you with a conversation that's both entertaining and informative. So, why not try ChatGPT today and see for yourself?

THE IMITATION GAMES



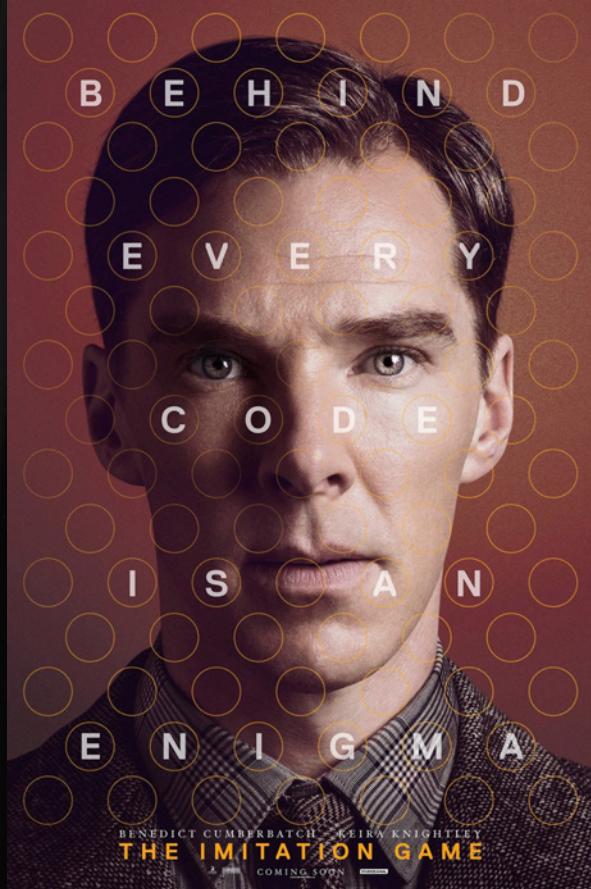
by - Ravi Raj Sinha

In this edition's what to do this weekend suggestions, let's watch a movie revolving around artificial intelligence, scientific fiction, machines, etc. Pop your popcorns, put on your sweatpants and get ready to be amazed by this incredible plot. *drum roll* "The Imitation Game".

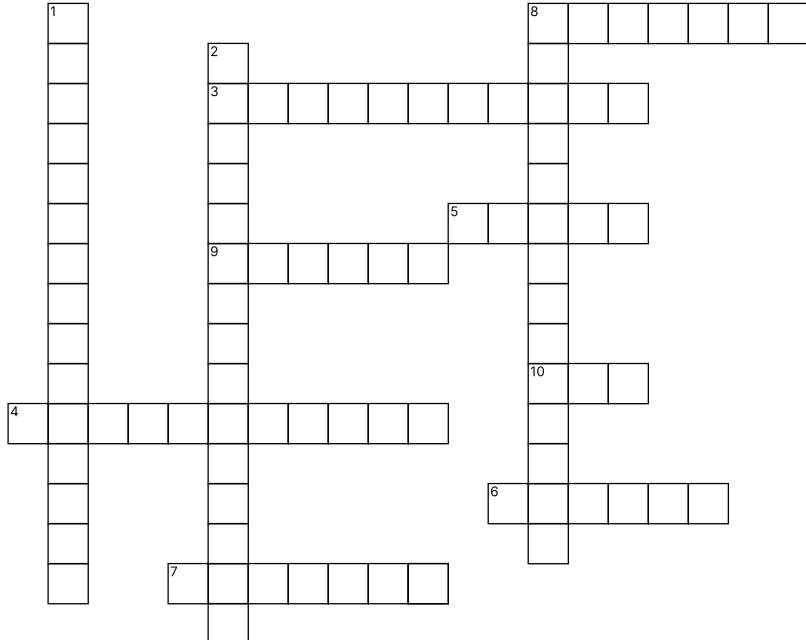
The Imitation Game is a biography of Alan Turing, played by Benedict Cumberbatch (yes, Doctor Strange), based on the book Alan Turing: The Enigma by Andrew Hodges. Alan Turing was a great mathematician and is also considered the father of Artificial Intelligence. I bet you remember the famous Turing Test.

The movie pictures World War 2 in 1939. At that time, the Germans used one of the greatest encryption devices, the Enigma machine, to send coded messages. Britain puts together a cryptography team to decipher these messages manually and win the war but fails terribly. Later this team is led by Turing who designs a machine for the sole

purpose. This machine eventually goes on to create the modern computer. The movie depicts the journey of Alan Turing in an extraordinary way. Britain puts together a cryptography team to decipher these messages manually and win the war but fails terribly. Later this team is led by Turing who designs a machine for the sole purpose. This machine eventually goes on to create the modern computer. The movie depicts the journey of Alan Turing in an extraordinary way. Well, for us humans, Alan Turing's vision was the first step where humanity accelerated its evolution process. What'd you think?



CROSS CODE



Clues

Down

- 1) Parameters which are given to machines by humans to aid them to learn.
- 4) This is used to assess the performance of a model in detail in case of Binary Classification.
- 8) Algorithms that try to understand an image by breaking down an image and studying different parts of the object

Across

- 3) Vectors which are perpendicular and also have unit length.
- 4) The product of eigen values of a matrix is equal to the of the matrix
- 5) It is the Language for modelling the machine learning models
- 6) A large dataset of written or spoken material that can be used to train a machine to perform linguistic tasks
- 7) It refers to data sets that are too large or complex to be dealt with by traditional data-processing application software
- 8) Computer program that simulates and processes human conversation (either written or spoken), allowing humans to interact with digital devices as if they were communicating with a real person
- 9) It is an electric current or electromagnetic field used to convey data from one place to another
- 10) International Business Machines

Solution - Down
 1) Hyperparameters
 2) Confusionmatrix
 3) Computer Vision

Solution - Across
 3) Othonormal
 4) Determinant
 5) Python

6) Corpus
 7) Big Data
 8) Chatbot

9) Signal
 10) IBM

TRIVIA

Q1

WHO IS KNOWN AS THE FATHER OF AI?

- A) ANDREW NG
- B) JOHN MCCARTHY
- C) BILL GATES
- D) ELON MUSK

WHICH WAS THE FIRST CHESS COMPUTER TO BEAT THE WORLD CHESS CHAMPION GARY KASPAROV IN THE YEAR 1997?

Q2

- A) ALPHA GO
- B) IBM WATSON
- C) DEEP BLUE
- D) DALL E

Q3

IN WHAT TYPE OF MACHINE LEARNING ARE THE TRAINING LABELS ALSO PROVIDED TO A MODEL WHILE TRAINING?

- A) SUPERVISED LEARNING
- B) REINFORCEMENT LEARNING
- C) UNSUPERVISED LEARNING
- D) NONE OF THE ABOVE

WHICH OF THE FOLLOWING IS A COMPONENT OF ARTIFICIAL INTELLIGENCE?

Q4

- A) LEARNING
- B) TRAINING
- C) DESIGNING
- D) PUZZLING

-Q5

WHICH OF THE FOLLOWING BOTS IS CONSIDERED AS THE FIRST ROBOT CITIZEN?

- A) SOPHIA
- B) SIRI
- C) ALEXA
- D) UYOMMITRA

SOLUTIONS

Q1 A) AUTOMATION.

EXPLANATION: AI AND AUTOMATION GO HAND IN HAND. AT AN INDUSTRIAL LEVEL, AI IS USED TO OPERATE LARGE, COMPLICATED OR TIME-SENSITIVE MACHINERY. IT IS ALSO USED AT BACKEND LEVEL IN CERTAIN SOFTWARE AND PLATFORMS TO AUTOMATE CERTAIN TASKS.

Q2 D) INTELLIGENT PROGRAMS. THE TERM AI OR ARTIFICIAL INTELLIGENCE GENERALLY REFERS TO A SOFTWARE WITH THE CAPABILITY OF MAKING RATIONAL DECISIONS BASED ON THE ENVIRONMENT IT IS PRESENT IN.

Q3 C) ALPHAFOLD. IS NOT A VIRTUAL ASSISTANT. IT IS AN AI DEVELOPED BY GOOGLE'S DEEPMIND THAT HAS THE CAPABILITY OF DETERMINING ACCURATE PROTEIN STRUCTURES. THIS REVOLUTIONARY AI HAS THE CAPABILITY OF REVOLUTIONIZING THE WORLD OF HEALTHCARE.

Q4 D) LEE SEODOL. THE ICONIC MATCH BETWEEN ALPHAGO AND LEE SEODOL WAS TRULY A MASTERPIECE. IT WILL BE REMEMBERED FOR AGES TO COME, AS IT MARKED THE BEGINNING OF A NEW GENERATION OF EXTREMELY POWERFUL AIs.

Q5 A) CAPTAIN AMERICA: THE FIRST AVENGER. DR. ARNIM ZOLA WAS A HYDRA SCIENTIST WHO STORED ALL HIS MEMORY IN A LARGE COMPUTER BEFORE DYING. THIS WAY, HE STAYED ALIVE, EVEN IN DEATH.

Brains & Bones

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