

BVCC General Meeting

February 12, 2024

"Artificial Intelligence"

Presenter, Joel Ewing, President BVCC

Artificial Intelligence

- **These meeting presentation slides will be added to the BVCC website (<https://bvcomputerclub.org>) (under Information ► Presentations)**

Artificial Intelligence

- **What is Intelligence**
- **What is AI?**
- **Why is AI in the news so much recently?**
- **Useful things AI can do**
- **How AI can be misused**
- **Examples of free AI tools on the Internet**
 - **ChatGPT, Gemini (was BardAI), BingAI**
 - **Limitations of current tools**
- **The future and AI**

What is Intelligence

- **Humans regard our species as the prime example of intelligent life on Earth**
 - **A combination of complex language skills, speech & writing, allowing the transfer and accumulation of collective knowledge that greatly exceeds what one individual could learn in a lifetime and building on the knowledge of prior generations; ability to construct complex tools to overcome our physical limitations; an ability to not just ask "what" but ask "why"; an innate desire to understand the origin and purpose of life.**

What is Intelligence

- **Over the last century we have learned from close study of other animal species:**
 - **That other animals have complex communication methods; complex social relationships, including individual "names", recognition of individuals and close family members; complex knowledge of their environment that is passed from generation to generation; ability to learn; some ability to construct tools.**
 - **Many species even have physical capabilities that greatly exceed the corresponding capability of humans.**

What is Intelligence

- **Ways in which humans seem unique**
 - **A complex written language – knowledge is not limited to what an individual can directly experience or learn from other individuals encountered during a lifetime.**
 - **Complex tool creation that requires cooperation of many individuals and a complex system of commerce coordinated by means and motivations other than the mere survival. Non-humans seem limited to simple tools that can be made by one individual from objects found in his local environment.**
 - **While some animals have physical skills humans lack, humans can use their ability to create complex tools to enhance their physical capabilities.**
 - **Conflicts within other species tend to be directly related to survival: conflicts over food, territory, and status; human conflicts add to that list disagreements over ideas – a possible disadvantage of more creative thought. Theological differences don't appear to be a *casus belli* for other species.**

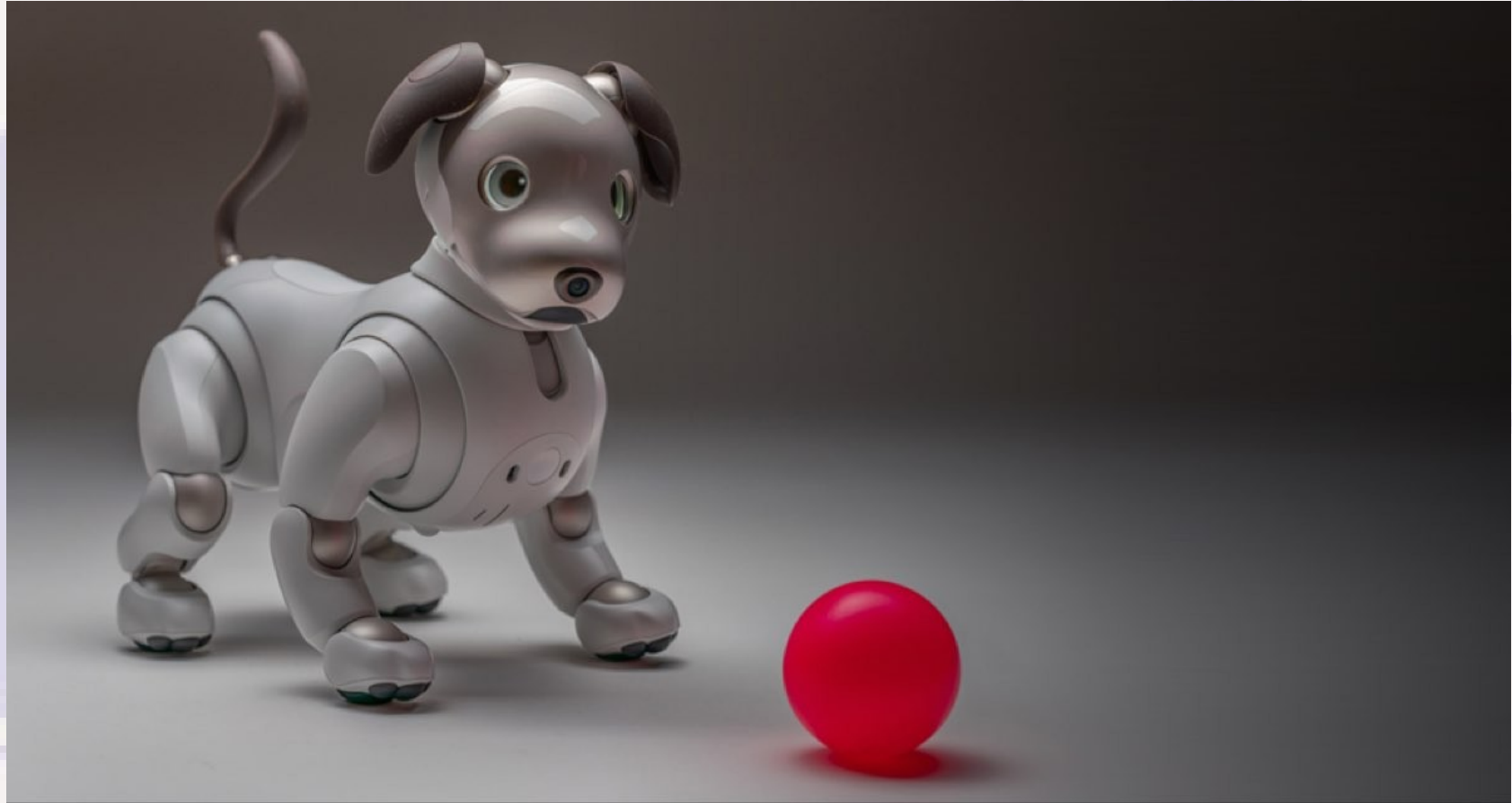
What is Artificial Intelligence

- **AI is "intelligent" behavior by machines or software (rather than by humans or other animals), as exhibited by abilities including some combination of:**
 - **Complex interaction with the environment: learning, modification of and adaptation to the environment**
 - **Communication skills – verbal and/or textual; transfer of knowledge**
 - **Ability to create ideas and things and apply past knowledge to the solution of new problems**
 - **Ability to co-ordinate and form complex social groups**
 - **Independent and autonomous action**
 - **Self-awareness(?)**

What is Artificial Intelligence

- **AI has usually been judged against human behavior, although for entertainment and companionship some complex AI pets have been created as well.**
 - **The most difficult skills for AI to master involve image processing, sound processing, and communicating using natural language in a way that mimics human understanding.**
 - **Electronic AI pets are held to a lesser standard**
 - **AI robot pets currently range from \$100 to almost \$3,000 (Sony Aibo Companion Robot)**

Sony Aibo



What is Artificial Intelligence

- **Early AI research 1950 -1980 concentrated on rule based approaches trying to mimic reasoning**
 - **Some successes when area of function was limited (specific games, well-defined processes)**
- **Correct interpretation of natural language and the environment often required a large base of knowledge about the world that humans subconsciously used based on their life experience.**
- **Researchers realized they needed some way to represent a large body of general knowledge that could be "taught" to a machine.**

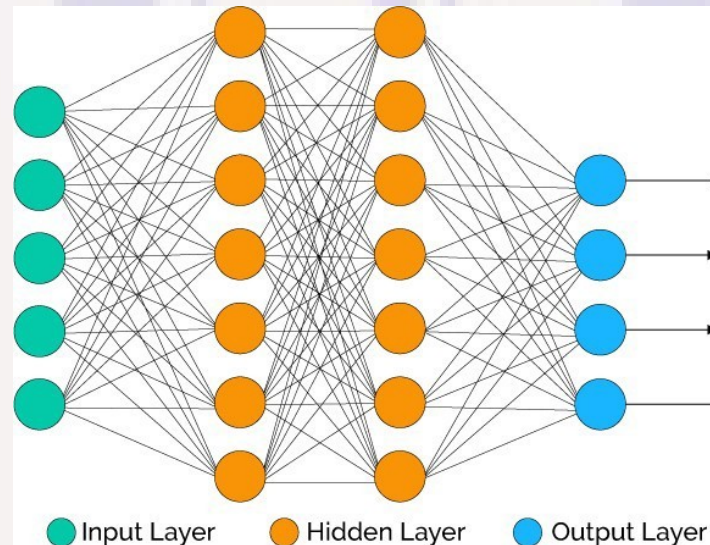
Why is AI in the news so much recently?

- At least 3 articles in NWA Democratic Gazette last week
- Even one AI-related article in last week's Weekly Vista
- Mentions on national new
- A long discussion on AI on KUAF
- Received a professional publication last Friday with a series of scientific articles on AI plus a humorous fictional tale of a future encounter between alien AI's and humans



Why is AI in the news so much recently?

- **A confluence of factors over the last decade**
 - **Progress with neural net processors, making their use more practical**
 - **Reductions in hardware costs**
 - **Massive array processing used to "teach" correct responses**



A small neural net with 5 inputs, 5 outputs, 14 hidden nodes, and 112 path weights that must be adjusted for optimum performance.

Why is AI in the news so much recently?

- **A confluence of factors over the last decade**
 - **Massive digital libraries are now available**
 - **Can be used to as a source of basic facts for an AI system**
 - **Can be parsed by a combination of rules and neural net techniques to determine related topics, some relationships between words, and statistical relationships between words and topics.**
 - **Provides a source of relevant sentences and paragraphs that may be quoted, or possibly modified to create some similar content**

Why is AI in the news so much recently?

- **Other factors ...**
 - Detailed digital research of the movements of real animals and people have made it easier to mimic realistic movements by robots, including the replication of facial movements
 - Research in pattern recognition in digital images and sound have improved machine recognition of certain classes of objects and human speech – this now also includes the ability to alter images and sound to mimic other patterns.
 - Improved techniques for extracting and storing useful information and relationships from large volumes of natural language text
 - Hardware power and costs have improved to make useful AI profitable

Why is AI in the news so much recently?

- **All these improvements make it possible for AI**
 - To do a better job on some tedious tasks that used to require a human
 - To aid humans in performing some other tasks
 - To create "new" works, text and visual, good enough that some humans have been tempted to claim them as their own creation
 - To mimic human behavior well enough to deceive humans in the right context

Useful Things AI Can Do

- **Convert the spoken word to text**
 - **Smart phones can do this with good (but not 100%) accuracy**
 - **Important messages or notes still need proofreading**
 - **Uses context of surrounding words to improve results**
 - **Can make TV and phone accessible to the deaf**
- **Convert text to the spoken word**
 - **For more natural interaction with humans or as aid to visually impaired**

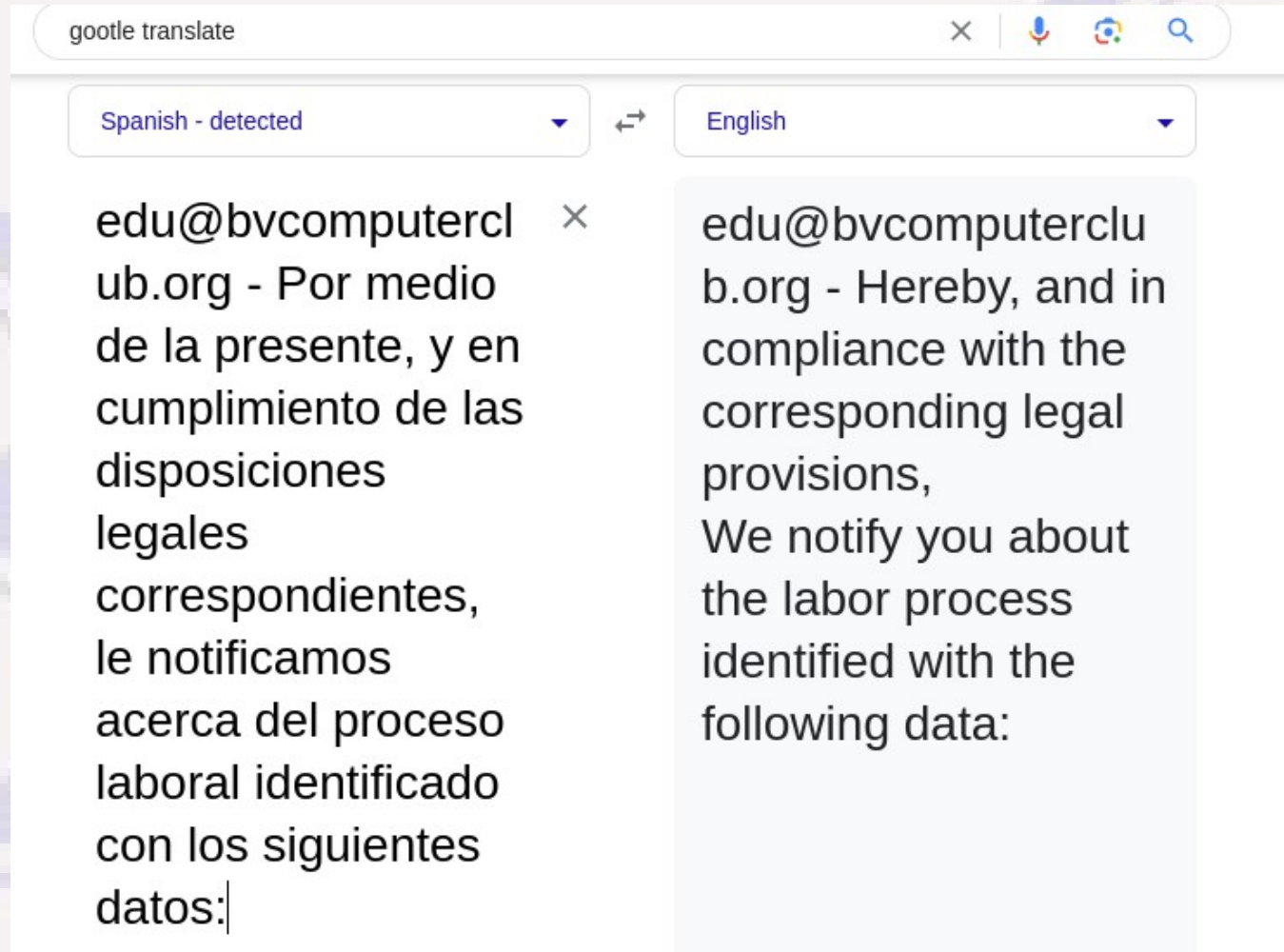
Useful Things AI Can Do

- **Make devices that**
- **respond to spoken commands**
 - **Simpler to implement (and more accurate) when only specific words and phrases need to be understood and those are limited in number – doesn't need to understand natural language structure**
 - **TV remote controls**
 - **Hands-free car controls ("set wipers off")**

Useful Things AI Can Do

- **Translate from one natural language to another (Google Translate)**
 - I use several times per week to satisfy curiosity about foreign language spam
 - Good enough to understand, but not perfect English – not sure whether that is a problem with the translation, or whether spammers in foreign languages are as semi-literate in that language as they are in English
 - Requires understanding words in context of sentence and topic, grammar, common idiomatic usages in both languages

Spanish Phishing



The image shows a screenshot of the Google Translate interface. At the top, the search bar contains "gootle translate" (a misspelling of Google Translate). Below the search bar, the source language is set to "Spanish - detected" and the target language is "English". The input text on the left is a Spanish phishing email snippet, and the output on the right is its English translation.

gootle translate

Spanish - detected ↔ English

edu@bvcomputercl ub.org - Por medio de la presente, y en cumplimiento de las disposiciones legales correspondientes, le notificamos acerca del proceso laboral identificado con los siguientes datos:

edu@bvcomputerclu b.org - Hereby, and in compliance with the corresponding legal provisions, We notify you about the labor process identified with the following data:

Chinese Spam/Phish

Chinese - detected ↔ English

2023年综合补贴领取申报通知 ×

尊敬的同事们：根据国家财政部、税务局、市场监督管理总局总...

2023 Nián zònghé bǔtiē língqǔ shēnbào tōngzhī

zūnjìng de tóngshìmen: Gēnjù guójiā cáizhèng bù, shuìwù jú, shìchǎng jiāndū guǎnlǐ zǒng...

2023 Comprehensive Subsidy Receipt Application Notice

Dear colleagues:
According to the Ministry of Finance, Taxation Bureau, and General Administration of Market Supervision...

Russian Translation To and Back Today

The screenshot shows a Google Translate interface with two panels. The top panel shows English text being translated to Russian. The bottom panel shows the Russian translation being translated back to English. The Russian translation is phonetic and nonsensical, illustrating the failure of early machine translation.

English - detected	↔	Russian
the spirit is willing, but the flesh is weak	×	дух желает, но плоть слаба dukh zhelayet, no plot' slaba
Russian - detected	↔	English
дух желает, но плоть слаба	×	the spirit is willing, but the flesh is weak

- In the 1950's US intelligence agencies experimented with machine translation between Russian and English but quickly realized the task was impossible at that time (then the machines English translation of the Russian translation of the above was "The vodka is ready but the meat is rotten").

Useful Things AI Can Do

- **Answer queries and questions submitted using natural language**
 - Can respond with sentences or an article of specified length
 - Can respond in requested formats, including specific types of poetry
 - Can respond in the style of some specific writer
 - AI knows associations and probable associations – but does not "understand" as we know it – can return results that look plausible but may not be factual
 - Double check before trusting when accuracy is required

Useful Things AI Can Do

- **Identifying an image by matching its content with the content of other images when it shows a distinctive building or a distinctive location or a distinctive face**
 - **Uses significant and unique features to estimate likely matches**
 - **Will match images with a different view of the same subject.**
 - **Compares image features with features of images cataloged from Internet sites. If at least one of those sites where it finds a potential match has a correct identification of the contents of the image, then you can identify your image subject.**

Useful Things AI Can Do

- **Create new image, video, and audio files by combining elements of existing files**
 - **Not completely seamless, but pretty good – can produce video and audio that resembles recording of an actual event**
 - **Can create real time video and audio in cases with lower resolution (such as Zoom video of meeting participants)**
 - **Images can be requested "in the style" of known artists; audio quality can be modified to mimic real people if the quality doesn't have to be perfect.**

Useful Things AI Can Do

- **Routine business interactions can be automated and yet personalized.**
- **In the medical field AI can do:**
 - **Diagnosis and Imaging**
 - **Drug Discovery and Development**
 - **Gathering medical history**
 - **Monitoring patients**
 - **Assisting with robotic surgery**

How AI Can be Misused

- **Bots on social media have been used to create and spread mis-information while posing as people**
- **AI deepfake voice imitation has been used**
 - **For extortion – faked voices of grandkids to get grandparents to pay ransom or money to help out grandkids**
 - **For political fraud – Texas firms behind robo calls to NH voters imitating Biden's voice with advice to not vote in 2024 primary**

How AI Can be Misused

- **Deepfake videos that appear to show actual people doing and saying things they didn't actually do and say**
 - **Potential for faked videos for on-line political attacks**
 - **Elaborate phishing attacks are now possible – A Hong Kong employee of a large company was recently tricked into making a series of transfers to move \$26 million to scammers, who tricked him into attending a video call in which AI and publicly available video and audio on YouTube were used to fake video and speech of co-workers and the CFO, who instructed him to transfer the funds. There were even additional follow up one-on-one AI-generated deepfake video calls.**

How AI Can be Misused

- **Deepfake videos and images can be used as a threat**
 - **Can appear to show pornographic or illegal behavior that never happened**
 - **Posting on social media could be highly damaging even if it could later be disproved**

How AI Can be Misused

- **Possible violation of intellectual property rights**
 - **Creating images using parts of existing art or creating new articles based on extracted sentences may violate "fair use" of copyrighted materials.**
 - **Creating "in the style of" a specific real artist or real author can be questionable even in cases where not strictly illegal**
 - **NY Times has sued OpenAI (ChatGPT) and Microsoft (Gemini) for using millions of its articles in creating their AI tools.**

How AI Can be Misused

- **Facial recognition combined with wide use of digital surveillance can be used by authoritarian regimes to track movement of dissidents and suppress opponents**
 - **The occasional false identification not a problem – authoritarian regimes not that concerned about imprisoning or killing a few innocent people**

How AI Can be Misused

- **Potential abuse by students to avoid doing their own work or research**
 - **Besides impacting what the student learns, potential to get caught**
 - **AI written material tends to have subtle errors if not verified and edited**
 - **Teachers have access to the same AI tools and can compare a students work with results from popular AI tools.**

Examples of free AI tools on the Internet

- **Will look at some free AI tools on the Internet**
 - ChatGPT, Gemini (Bard AI), Bing AI
 - There are other AI based apps (like image processing), some of which may also be free
- **There are also an increasing number of non-free subscription AI tools available**
 - Many of these are directed toward specific business processes (and priced so only a business could afford them)
 - Hard to cost-justify for personal use & experimentation

Examples of free AI tools on the Internet

- **ChatGPT - Chat Generative Pre-trained Transformer**
 - From OpenAI, <https://chat.openai.com/> , signup currently free, launched Nov 30, 2022
 - Tried several different kinds of queries on topics where I felt qualified to judge the response quality

ChatGPT

Q: How can one contact the Bella Vista Computer Club

A: To contact the Bella Vista Computer Club, you can try the following methods:

1. Website: Check if the club has a website. Many organizations have online platforms with contact information. Search for "Bella Vista Computer Club" online.

2. Social Media: Look for the club on social media platforms such as Facebook, Twitter, or LinkedIn. Often, clubs maintain profiles where you can send messages or find contact details.

3. Local Community Centers: If the club is associated with a community center or a physical location, visit or call the center to inquire about contact information for the computer club.

4. Local Directories: Check local directories or community listings. You might find contact details for the Bella Vista Computer Club in these directories.

5. Word of Mouth: Ask around in your local community. Someone may know a member or have information on how to contact the club.

If you're unable to find direct contact information, consider reaching out to relevant community organizations or centers that may have information about the Bella Vista Computer Club.

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Fairly generic response (not BVCC-specific), but valid

ChatGPT

Q: Advantages and disadvantages of an EV

A: Electric Vehicles (EVs) come with various advantages and disadvantages. Here are some key points:

Advantages of Electric Vehicles (EVs):

- Environmentally Friendly:** EVs produce zero tailpipe emissions, reducing air pollution and greenhouse gas emissions. This makes them environmentally friendly and contributes to a cleaner atmosphere.
- Lower Operating Costs:** EVs generally have lower operating costs compared to traditional internal combustion engine vehicles. Electricity is often cheaper than gasoline, and maintenance costs can be lower due to fewer moving parts.
- Reduced Dependence on Fossil Fuels:** EVs reduce dependence on traditional fossil fuels, promoting energy diversity and potentially reducing reliance on oil imports.
- Quiet Operation:** Electric vehicles are quieter than traditional vehicles, contributing to reduced noise pollution in urban environments.
- Incentives:** Many governments offer incentives for purchasing EVs, such as tax credits, rebates, and access to carpool lanes, encouraging their adoption.
- Advanced Technology:** EVs often incorporate cutting-edge technology, including regenerative braking, energy-efficient features, and connectivity options.

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Demonstrates ChatGPT associates Q with Electric Vehicles.

Having recently purchased an EV, this looks like a reasonable listing of the major advantages and disadvantages one should consider.

ChatGPT

Q: Advantages and disadvantages of an EV

A: (cont)

Disadvantages of Electric Vehicles (EVs):

Limited Range: The range of EVs on a single charge is improving but can still be a concern for some users, especially on long journeys. Range anxiety is the fear of running out of battery power before reaching a charging station.

Charging Infrastructure: The charging infrastructure for EVs is not as widespread as traditional gas stations. While it's improving, charging stations may be less accessible in some areas.

Charging Time: Charging an EV takes longer than filling up a gas tank. While fast-charging options exist, the charging time is still longer compared to traditional refueling.

Upfront Cost: The initial purchase price of EVs can be higher than that of traditional vehicles. However, this cost difference is decreasing as technology advances and economies of scale are achieved.

Battery Degradation: Over time, the performance of batteries in EVs can degrade, leading to reduced range and efficiency. Battery replacement costs can be significant.

Limited Model Variety: While the variety of EV models is increasing, it may still be more limited compared to traditional vehicles, particularly in certain segments like trucks and SUVs.

The decision to choose an EV depends on individual preferences, driving patterns, and the availability of charging infrastructure in the region. Advances in technology and infrastructure are continually addressing some of the disadvantages associated with EVs.

ChatGPT

Q:What is the answer to the ultimate question?

A: The ultimate question, according to Douglas Adams' science fiction series "The Hitchhiker's Guide to the Galaxy," is "What is the meaning of life, the universe, and everything?" The answer provided in the series is simply the number 42. However, the absurdity of this answer is part of the humor in the story, and it is emphasized that the nature of the actual question is unknown.

In reality, the meaning of life is a philosophical and existential question that has been debated by thinkers, theologians, and individuals throughout history. Different people, cultures, and belief systems offer diverse perspectives on the purpose and meaning of life. It's a subjective and often deeply personal inquiry with no universally agreed-upon answer.

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Reveals that ChatGPT can respond meaningfully to questions about fictional literature.

ChatGPT

Q: Why are the Harkonnen and Atreides families in Dune enemies?

A: In Frank Herbert's science fiction novel "Dune," the Harkonnen and Atreides families are bitter enemies due to a complex combination of political, economic, and personal factors. The conflict between House Harkonnen and House Atreides is central to the plot of "Dune." Here are some key reasons for their enmity:

1. Historical Rivalry: The Harkonnen and Atreides families have a long history of rivalry and competition for power within the fictional universe of "Dune." **This rivalry is rooted in political and economic struggles for dominance on the desert planet Arrakis**, the only known source of the spice melange, a substance essential for space travel and valuable across the universe.

2. Political Ambitions: **The two houses vie for control over Arrakis** and the spice trade. The Atreides family is granted control of Arrakis by the Padishah Emperor Shaddam IV, replacing House Harkonnen. This decision is influenced by various political considerations, leading to resentment and a desire for revenge on the part of House Harkonnen.

Response contains several inaccuracies.

Even just based on the first "Dune" book it is clear that the Harkonnen/Atreides feud was multi-generational and preceded anything involving the planet Arrakis.

Also House Atreides had some historical claims to ownership of Arrakis, which was controlled by the Harkonnens at the beginning of "Dune", this was not the origin of their feud.

ChatGPT

A: (cont)

3. Economic Interests: The spice melange is a highly sought-after resource, and control over Arrakis gives a house significant economic power. House Harkonnen's loss of Arrakis to House Atreides threatens their economic interests and increases the intensity of the conflict.

4. Personal Vendettas: Individual members of both houses harbor personal grudges and vendettas against one another. Baron Vladimir Harkonnen, the head of House Harkonnen, holds a particular disdain for House Atreides, and this personal animosity fuels the conflict.

5. Betrayal and Deception: The political landscape in "Dune" is characterized by intrigue, betrayal, and complex power dynamics. Characters within both houses engage in machinations and deceit, further fueling the enmity between the Harkonnens and the Atreides.

The intricate web of political, economic, and personal factors creates a tense and hostile relationship between House Harkonnen and House Atreides, setting the stage for the events that unfold in the novel. The conflict between these two powerful houses is a central element in the epic narrative of "Dune."

ChatGPT

Q: Do the prequel novels to Dune clarify the origins of this animosity?

A: The prequel novels to Frank Herbert's "Dune" series, co-written by Herbert's son Brian Herbert and Kevin J. Anderson, provide additional context and backstory to the universe of "Dune," including insights into the origins of the animosity between House Harkonnen and House Atreides. The prequel novels explore the history of the various noble houses, the political landscape, and the events leading up to the original "Dune" novel. Here are **some key points(misses most important one)** related to the origins of the animosity:

1. **Corrino-Harkonnen Alliance:** The prequel novels depict a historical alliance between House Harkonnen and House Corrino. This alliance involves political and strategic cooperation, and the Harkonnens serve the Corrinos in various capacities.

2. **Shifting Alliances:** The political landscape is characterized by shifting alliances and power struggles. At different points in history, House Harkonnen and House Atreides may find themselves aligned with different powers or against each other based on political considerations.

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The main event that initiated the feud has been omitted. The event that began the feud was an action committed by an Harkonnen ancestor, Abulard Harkonnen, during a battle, when he was the Executive Officer of the fleet and Vorian Atreides was the Commander of the fleet. That act put the victory of the Army of Humanity at risk and resulted in Abulard's exile.

ChatGPT

A: (cont)

3. House Atreides' Rise: The prequels detail House Atreides' rise to prominence, which involves strategic alliances and political maneuvering. The rise of House Atreides creates tensions and rivalries with other houses, including House Harkonnen.

4. Resource Competition: The struggle for control over valuable resources, particularly the spice melange on Arrakis, plays a significant role. Houses compete for control over Arrakis, leading to conflicts and shifting allegiances.

5. Personal Ambitions: Individual characters within the houses have personal ambitions, vendettas, and conflicts that contribute to the overall animosity. Personal relationships, betrayals, and rivalries shape the dynamics between House Harkonnen and House Atreides.

While the prequel novels provide additional details and context, it's important to note that they were written by different authors and may not be considered canon by all fans of the original "Dune" series. Some readers appreciate the expansion of the universe and background information, while others prefer to focus solely on Frank Herbert's original works.

ChatGPT

Q:Why is Harkonnen charged with cowardice in battle in the Dune prequels?

A: As of my last knowledge update in January 2022, I don't have specific information about the details of House Harkonnen being charged with cowardice in battle in the Dune prequel novels. The Dune prequels, co-written by Brian Herbert and Kevin J. Anderson, cover a wide range of events and characters in the Dune universe, and specific plot details may not be universally known.

If there have been new books or developments in the Dune prequel series after my last update, I recommend checking the latest sources, such as the most recent books in the series or official statements from the authors, for the specific information about House Harkonnen and the charges of cowardice in battle. Keep in mind that the prequel novels may introduce new elements to the Dune universe, and the details may vary based on the narrative choices made by the authors.

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Claims an inability to answer, even giving a plausible human-like explanation of inability to answer; but response to the next question shows this response was not really accurate.

ChatGPT

Q: So you are not familiar with the Battle of Corrin?

A: I apologize for any confusion. Yes, I'm familiar with the Battle of Corrin. The Battle of Corrin is a significant event in the Dune universe and is prominently featured in the prequel novels written by Brian Herbert and Kevin J. Anderson, specifically in the "Legends of Dune" trilogy.

During the Battle of Corrin, the forces of House Corrino, House Harkonnen, and the Army of Humanity fought against the thinking machines, known as the Titans, led by Omnium. In the aftermath of this battle, the Harkonnen military leader Abulurd Harkonnen was accused of cowardice. Abulurd was the half-brother of Vladimir Harkonnen, and his actions during the battle led to charges of treason and cowardice.

The events surrounding the Battle of Corrin and the aftermath are part of the broader narrative in the prequel trilogy, exploring the conflicts and alliances that shaped the Dune universe thousands of years before the events of Frank Herbert's original "Dune" series.

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Numerous errors, see next slide for details.

ChatGPT

There are numerous errors in the response:

The description is inaccurate for the actual Battle. House Corrino didn't exist until AFTER the Battle of Corrin was won, when that name was assumed for political gain by Faykan Butler, who was only present at the Battle as a political observer.

The main characters in the battle were the leader of the Army of Humanity, Vorian Atreides (the father of House Atreides), and his Executive Officer, Abulard Harkonnen (the father of House Harkonnen).

The thinking machines led by Omnius were sophisticated robots, not the Titan cymeks or their dependent neo-cymeks, which had human minds. The last of the Titans and their cymeks had already been destroyed before the time of the Battle of Corrin.

Abulard and Vorian were friends before the battle. Abulard with bad judgment, but with the intent to save human hostages, almost lost the battle by disabling the fleet's weapons. Vorian regarded that act treason, but convicted Abulard for cowardice and exiled him as a more severe punishment. That was the origin of the vendetta between Atreides and Harkonnen families.

Gemini (Google)

- <https://gemini.google.com>
- Originally introduced as "Bard AI", Feb 2023; re-branded as "Gemini" in Feb 2024
- Can also access from Android and iPhone apps
- Access using a Google account – free
- Non-free version "Gemini Advanced" \$19.99/month
- Enter your query where it says "Enter a prompt here"

Gemini Example

Q: how is AI used today in the medical field

AI is transforming the medical field in exciting ways, impacting everything from patient care to drug discovery. Here are some key areas where AI is making a difference:

Diagnosis and Imaging:

- AI algorithms can analyze medical images like X-rays, MRIs, and CT scans with high accuracy, flagging potential abnormalities that might be missed by human radiologists. This can lead to earlier diagnoses and better treatment outcomes.
- AI-powered decision support systems help doctors analyze patient data and suggest potential diagnoses and treatment options. This can help doctors make more informed decisions and avoid errors.

Response seems to be valid and agrees with other sources.

Gemini Example (cont)

Drug Discovery and Development:

- AI can analyze vast datasets of chemical compounds and identify those with the potential to become new drugs. This can significantly accelerate the drug discovery process and lead to the development of more effective treatments.
- AI can also be used to personalize drug treatments for individual patients based on their unique genetic makeup and medical history. This could lead to more effective and targeted therapies.

Gemini Example (cont)

Other Applications:

- AI-powered chatbots can answer patient questions about their health, schedule appointments, and provide basic medical advice. This can free up doctors' time and improve patient access to care.
- AI can be used to analyze electronic health records to identify patients at risk of developing certain diseases. This can help with early intervention and prevention.
- Robotic surgery systems assisted by AI can perform complex procedures with greater precision and minimal invasive techniques. This can lead to faster recovery times and fewer complications for patients.

Gemini Example (cont)

It's important to note that AI is still in its early stages of development in the medical field. There are ethical considerations and challenges to overcome, such as ensuring data privacy and bias in algorithms. However, the potential benefits of AI are vast, and it is likely to play an increasingly important role in healthcare in the years to come.

Do you have any specific questions about how AI is being used in a particular area of medicine?

Gemini Image Creation

J create an image of a cat chef in front of a stove holding a recipe book

✦ Sure, here is an image of a cat chef in front of a stove holding a recipe book:




50

Note that repeating this query in a different session gave different images

Gemini Image Creation

J

in the style of monet 



Absolutely! here you go!



Gemini Query

Q:describe significant events in the life of Abulard Harkonnen from the Dune prequels

Unfortunately, your request is beyond my knowledge and capabilities. My knowledge base is focused on factual information and does not include fictional works like the Dune prequels. While I can access and process information from the real world through Google Search, I am not able to engage in discussions about fictional characters or events.

I apologize for any inconvenience this may cause. Is there anything else I can help you with? Perhaps you have a different question about the real world or factual topics?

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Looks like a plausible response, but response to a follow up question shows it is at best misleading, as Gemini's "factual" knowledge actually extends to fictional works when the fictional characters are discussed or described by real people.

Gemini Query

Q: What was the origin of the feud between Harkonnen and Atreides?

While you are correct that I cannot access and process information from fictional works directly, I can access and process information about them through real-world sources. In this case, I can help you understand the origin of the Harkonnen and Atreides feud in Dune, considering it's a well-established fictional work discussed and analyzed in real-world sources.

The origin of the Harkonnen and Atreides feud in Dune is a complex matter with multiple interpretations, but the central event centers around a battle called the Battle of Corrin.

Here's the key point:

- During the Battle of Corrin, which marked the final defeat of thinking machines, Abulurd Harkonnen, an ancestor of the infamous Baron Harkonnen, disobeyed an order given by Vorian Atreides, an ancestor of Duke Leto Atreides. Abulurd's reasoning for disobeying is debated. Some accounts claim he did it to save innocent lives, while others suggest he simply disagreed with the strategy.

Gemini Query (cont)

The consequences of Abulurd's actions:

- Vorian branded Abulurd a coward and banished him. This public shaming fueled resentment within the Harkonnen family towards the Atreides.
- Abulurd later died in exile, and the Harkonnens, seeking to preserve their honor, spread misinformation, blaming the Atreides for his death. This accusation, though untrue, became part of the narrative fueling the growing animosity between the two houses.

...

Gemini Query – Accuracy

- Interestingly, this is a different response, and a very accurate response compared to what I received from the identical query on BardAI a week earlier, which contained some obvious errors. Maybe more has changed than just the name of the AI service
- In fact the only inaccuracy I saw in the entire response is the phrase in the first sentence "you are correct that" which implies I agreed with Gemini's assertion it couldn't comment on fictional works. That I asked another question about a work of fiction actually showed I disagreed with Gemini's prior assertion. If that phrase had been omitted, the first sentence of Gemini's response would have been accurate.

Observations on AI Response Quality

- **Since these AI tools are independently developed, one can try the same query on multiple tools. Where they agree, there is a better likelihood of correctness. Uncorroborated statements may require other sources for verification.**
- **The very good response I received on one query to Gemini may indicate it happened to select paragraph(s) from an accurate article about the Dune series. Some of the responses from ChatGPT either came from an inaccurate article, or sentences created by ChatGPT were based on incorrect analysis of some of its source documents.**
- **This does not necessarily mean Gemini is more accurate than ChatGPT – the results may depend unpredictably on the precise way a question is worded or on the sequence of preceding questions.**

Bing AI and Microsoft Copilot With GPT-4

- **<https://www.bing.com> appears sufficient to reach MS Copilot, or <https://copilot.microsoft.com>**
- **Will do searches from a browser even without a sign-in. May possibly require using your MS login under Windows and Edge browser in some environments.**

Bing AI and Microsoft Copilot With GPT-4

- **Q: Show me a recipe with Campbells cream of bacon soup**
 - Returned recipes for
 - Bacon Mac and Cheese,
 - Creamy bacon Spaghetti Pie,
 - Quick Chicken Bacon Pasta,
 - and a video for another recipe

Bing AI and Microsoft Copilot With GPT-4

- **Q: What is the origin of the feud between Harkonnen and Atreides?**
- **The age-old feud between House Harkonnen and House Atreides has its roots in ancient history, specifically the Battle of Corrin, which occurred over 10,000 years before the events depicted in the original Dune novel. Here are the key points that led to their bitter rivalry:**
 - **Battle of Corrin:** During this pivotal battle, an Atreides had a Harkonnen relative banished for cowardice. The memory of this event lingered, fueling the feud. The Baron Harkonnen cannot forget that Leto Atreides is a cousin of royal blood, while the Harkonnen titles were merely financial gains from the CHOAM.
 - **Legacy and Blood:** The feud runs deep. The Harkonnens despise the Atreides, and vice versa. The knowledge that an Atreides had a Harkonnen banished gnaws at the Baron, while the Atreides harbor their own resentments.
 - **Dune: The Battle of Corrin:** For those interested in more detail, Frank Herbert's son co-wrote a novel titled Dune: The Battle of Corrin. This book delves into the events that ignited the feud, including the relationship between Vorian Atreides and Abulurd Harkonnen.

Limitations of AI

- **Responses are mainly based on statistical associations**
- **AI tools can give responses good enough to suggest human understanding, but current AI tools do not "understand" or have a concept of "truth" or "fairness".**
 - **Falsehoods widely repeated may win out over truth**
 - **Some statistical associations could be coincidence**
 - **Biased data used to program AI can cause AI to make biased judgments. Innate human biases prevents a consistent definition of fairness or agreement on how to make AI "fair"**

The Future of AI

- **The need for future laws and regulations**
 - to discourage inappropriate use in ways that harm others
 - to not allow dangerous autonomous AI usage
 - to determine liability for errors committed by an AI device
 - The FCC just made a regulation change Feb 8, 2024 to make it easier to prosecute those using deepfake robo calls.
- See [Bits & Bytes, Feb 2024](#), "Another Look At Artificial Intelligence" for additional discussion about potential future issues with AI.