

A Publication of the Prices and Consumer Affairs Division

CONSUMER IMPACT

Vol. 14 No. 1 April 2024



Placard
Competition
Page 7



Student
Forum
Page 9

Fair and Responsible AI For Consumers: Antigua and Barbuda's Path to Empowerment Pg 10

WORLD CONSUMER RIGHTS DAY 2024



Ambassador Clarence Pilgrim, Permanent Secretary in the Ministry of Trade with members of staff of the Prices and Consumer Affairs Division following the division's awareness march on World Consumer Rights Day, 15th March 2024.

The Brewing Battle: AI's Use in Cybercrime Pg 11

CONSUMER IMPACT

CONTENT

- 3 Minister's Message**
- 4 Permanent Secretary's Message**
- 5 What is Artificial intelligence?**
- 7 AGS and CKHS win big in the Placard Competition**
- 9 Imhoff Captures Attention Of Young Consumers At Student Forum**
- 10 Fair and Responsible AI For Consumers: Antigua and Barbuda's Path to Empowerment**
- 11 The Brewing Battle: AI's Use in Cybercrime**
- 13 Awareness March**
- 15 The Healthiest Way To Sit**
- 16 5 Foods Linked To Better Brainpower**
- 17 Puzzles and Games**

PRICES AND CONSUMER AFFAIRS DIVISION

Ministry of Trade

Cecil George-John Building

Redcliffe Street and Corn Alley, St. John's, Antigua.

Tel: (268) 462-4347 or (268) 462-0834 Fax: (268) 562-7556

Email: consumeraffairs@ab.gov.ag

Minister's Message

This year, we celebrate World Consumer Rights Day under the theme 'Fair and Responsible AI For Consumers'. Artificial Intelligence or AI as it is commonly known, is still an emerging technology but already it has made significant impacts on our lives and livelihoods.

From chatbots assisting us via websites, and voice assistants helping us with our shopping lists to algorithms making pricing decisions for us, AI has become a part of daily life for most consumers.

In the area of business, we see the potential of AI to target consumers based on user preferences. Businesses here in Antigua and Barbuda could benefit tremendously from this aspect of AI. In the area of agriculture, AI can assist farmers to greatly improve their production and this could assist in achieving the national ambition of food security. This offers an opportunity for farmers to increase their current offerings and for new farmers to enter the industry. In the area of healthcare, much good can be done through the development of medicines for the treatment of diseases.

And just as AI has the potential to do much good, we have also seen and know it has the potential to cause much harm. From concerns about how AI is built requiring massive amounts of data, and how AI works and interacts with users (biases, inaccuracies) to how AI is applied in the real world (in areas of misuse, scams and fraud) to causing harm to consumers. On a global scale, concerns about AI-enabled cyberattacks and AI-formulated bio-weapons referred to as "existential threats of AI" are also concerns for the Government of Antigua and Barbuda. I assure you of our commitment to keep consumers safe as they interact with this new development of AI systems.

On this World Consumer Rights Day, we have opportunities for learning and development for all consumers. And while it may be hard to separate the facts from the myths, we encourage you to know the facts. As leaders in the Ministry of Trade, we encourage leaders, trade unions, and employers' federations, to join with us in creating a platform of safety and protection for our consumers here in Antigua and Barbuda. Happy World Consumer Rights Day, and let us follow becoming more intuned and more knowledgeable of this newly formed and newly developed platform - AI, Artificial Intelligence.



Hon. E. P. Chet Greene
Minister of Foreign Affairs,
Agriculture, Trade and
Barbuda Affairs

Permanent Secretary's Message

As we celebrate World Consumer Rights Day under the theme 'Fair and Responsible AI For Consumers' we recognize that we are living at a time where not a single day goes by without us utilizing Artificial Intelligence. Commonly known as AI, this branch of computer science is shaping our world and shaping the future.

Breakthroughs in AI have transformed many aspects of our daily lives in the way we communicate, work, gather information and much more. This advancement in technology also has serious implications for consumer safety and fairness. Discriminatory practices, privacy violations, misinformation and how AI-driven platforms can spread false information and perpetuate biases are all serious concerns. Many companies today rely on AI. Thus, manufacturers and operators of AI systems and businesses utilising AI systems must be responsible for their use of it.

To quote Microsoft, responsible AI means "developing, assessing, and deploying AI systems in a safe, trustworthy, and ethical way". The Ministry of Trade believes that as consumers interact with AI systems, their interactions should be fair, transparent and beneficial to consumers. AI has become a significant part of our lives. From voice assistants that respond to our commands to recommendation algorithms that suggest what we should read, watch, or buy. AI is all around us. It is driving innovation in business, transportation, healthcare, finance and numerous other fields.

However, the use of AI comes with great responsibility. As we celebrate World Consumer Rights Day, we acknowledge the significant advancements in AI, but we must also wrestle with ethical questions. How do we ensure AI systems are fair and unbiased? How do we protect consumer data? These are two of the many complex issues that we must consider.

The Ministry hopes that as the Prices and Consumer of Affairs Division holds its various activities, information will be shared to champion fairness and demand accountability paving the way for an AI future which enables smart and empowered consumers. Even at the Caricom level, the incoming chairman, the president of Guyana, has indicated that there is a need for AI legislation within the region. AI has incredible potential to improve our lives and livelihoods, but it also challenges us to think critically about how to use it responsibly.

I hope that the planned activities will be a tremendous success and that there will be quality participation. I urge us all to benefit greatly from the activities and to take the knowledge imparted forward so that we can have a better future.



Ambassador Clarence Pilgrim
Permanent Secretary
Ministry of Trade

What is Artificial Intelligence?



Artificial intelligence is “a technical and scientific field devoted to the engineered system that generates outputs such as content, forecasts, recommendations or decisions for a given set of human-defined objectives” [ISO/IEC 22989:2022]. While this definition of artificial intelligence is accurate from the technical perspective, how does it translate for the average person?

In truth, AI is just a practical tool, not a panacea. It's only as good as the algorithms and machine learning techniques that guide its actions. AI can get really good at performing a specific task, but it takes tonnes of data and repetition. It simply learns to analyse large amounts of data, recognize patterns, and make predictions or decisions based on that data, continuously improving its performance over time.

The machine learning has become so “competent” as to generate everything from software code to images, articles, videos and music. This is the next level of AI, the so-called generative AI, which differs from traditional AI in its capabilities and application. While traditional AI systems are primarily used to analyse data and make predictions, generative AI goes a step further by creating new data similar to its training data.

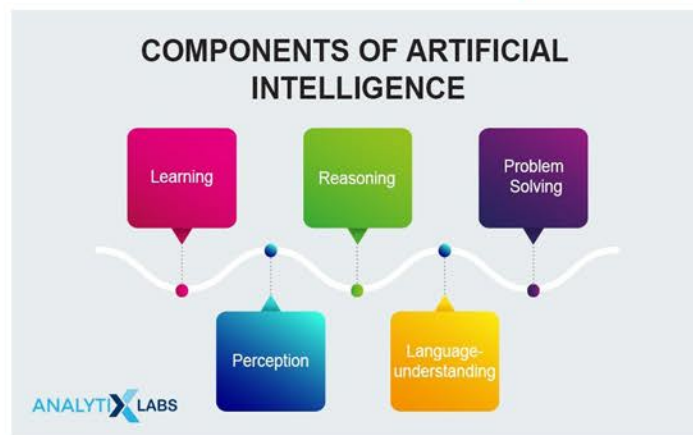
How does AI work?

In essence, AI analyses data to extract patterns and make predictions. It does this by combining large datasets with intelligent AI algorithms or sets of rules that allow the software to learn from patterns in the data. The way the system accomplishes this is through a neural network – an array of interconnected nodes that relay information between various layers to find connections and derive meaning from data.

To grasp how this works, we must unpack the following concepts:

Learning: AI's machine learning feature enables machines to learn from data, identify patterns and make decisions without explicit programming. Going one step further, advancements in deep learning empower AI software to understand more complex patterns using millions of data points.

Reasoning: The ability to reason is crucial to AI because it allows computers to mimic the human brain.



AI can make inferences based on commands it is given, or other available information, to form hypotheses or develop strategies for addressing a problem.

Problem solving: AI's problem-solving capability is based on the manipulation of data through trial-and-error techniques. It involves using algorithms to explore various possible paths to find the most optimal solution to complex problems.

Processing language: AI uses natural language processing – or NLP – to analyse human language data in a way that is meaningful to computers. What is NLP? It refers to the ability of computers to understand, interpret and generate human language, using text analysis, sentiment analysis and machine translation.

Perception: AI scans the environment through sense captors such as temperature sensors and cameras. Known as **computer vision**, this field of AI enables machines to interpret and understand visual data and is used in image recognition, facial recognition and object detection.

Strong AI vs weak AI

Artificial Intelligence (AI) encompasses a diverse spectrum of capabilities, which can be broadly classified into two categories: weak AI and strong AI.

Weak AI, often referred to as narrow AI, embodies systems meticulously crafted to excel at specific tasks within well-defined parameters. These

systems operate within a confined scope of expertise and lack the capacity for general intelligence. Think of them as specialists trained to perform particular functions efficiently.

Here are some **examples of narrow AI** applications, characterized by their specialized algorithms designed for specific tasks:

Meta's (formerly Facebook) Newsfeed: Utilizes narrow AI through algorithms that analyze your past interactions and similarities with other users to personalize content, showing how AI is tailored for the specific task of content curation based on user interests.

Amazon's Suggested Purchases: Employs task-specific AI to recommend products by analyzing your browsing and purchase history, alongside data from similar users, demonstrating AI's ability to make predictions within the confined context of shopping preferences.

Apple's Siri: A voice-activated virtual assistant powered by narrow AI, Siri uses natural language processing to understand and respond to specific spoken requests, illustrating AI's application in performing dedicated tasks such as setting reminders or sending messages.

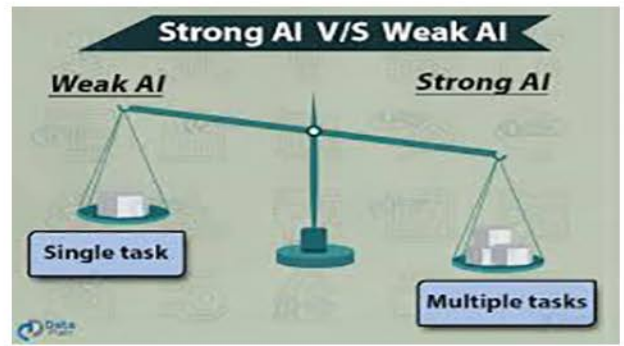
Recommendation Systems (e.g., Netflix): These systems leverage narrow AI to suggest movies or shows by comparing your viewing history with patterns from millions of users, showcasing AI's role in providing personalized entertainment recommendations.

Chatbots for Customer Service: Powered by narrow AI, chatbots handle specific customer inquiries through pre-defined patterns and data-driven responses, reflecting how AI can be specialized to improve customer service efficiency.

Virtual Personal Assistants (e.g., Amazon Alexa, Apple Siri): These assistants use narrow AI for a range of specific tasks like setting alarms, answering questions, and controlling smart home devices, based on voice commands and natural language understanding.

Each of these applications demonstrates the strength of narrow AI in executing well-defined tasks by analyzing large datasets and following specialized algorithms, without possessing the broader, adaptable intelligence akin to human cognition.

In contrast, the concept of strong AI, also known as general AI, aspires to develop systems capable of tackling a wide array of tasks with a level of proficiency that satisfies human standards. Unlike their narrow AI counterparts, strong AI systems aim to



possess a form of general intelligence, allowing them to adapt, learn, and apply knowledge across various domains. Essentially, the goal is to create artificial entities endowed with cognitive abilities akin to those of humans, capable of engaging in intellectual endeavors spanning diverse fields.

And since you asked, here are some **examples of strong AI**:

Human-Level Chess Programs: Programs like Deep Blue and AlphaZero can play chess at a grandmaster level, analyzing complex positions and making strategic decisions.

Natural Language Understanding and Generation: Systems like OpenAI's GPT-4 can understand and generate human-like text, write essays, poems, and even engage in conversations.

Self-Driving Cars: Autonomous vehicles use strong AI to perceive their environment, make real-time decisions, and navigate safely without human intervention.

Robotics with General Capabilities: Robots equipped with strong AI can perform tasks beyond repetitive actions. For example, Boston Dynamics' Spot robot can navigate complex environments, open doors, and carry objects.

Creativity and Art: Some AI models can compose music, create visual art, and write original stories or poems. For instance, AIVA generates classical music compositions.

Turing Test Passers: These AI systems can convincingly simulate human conversation. Passing the Turing test involves indistinguishable interactions between an AI and a human evaluator.

While researchers and developers continuously strive to push the boundaries of AI capabilities, achieving true general intelligence comparable to human cognition poses immense challenges and remains an elusive goal on the horizon.

Having said that, seeing the significant advancements in AI technology and machine learning, the question is not if but when. What do you think? Will we be surrounded by strong AI in our daily lives in 5, 10 or 20 years?



Three students of the Antigua Grammer School took the top spots in the Over-14 category. Left to right: Malik Watkins - 1st place, T-Jahrie Lockhart - 2nd place, and D'Neil Benjamin - 3rd place.

AGS and CKHS win top prizes in Placard Competition

The Prices and Consumer Affairs Division announced the winners of its annual World Consumer Rights Day School's Placard Competition during its awards ceremony on Tuesday 12th March, at the Villa Polly Clinic. The event was opened to works of drawing, painting, collage or a combination of drawing, painting and/or collage saw artworks depicting this year's theme, "Fair and Responsible AI For Consumers".

The grand prize in the over-14 category was awarded to Malik Watkins of the Antigua Grammar School. His schoolmates, T-Jahrie Lockhart and D'Neil Benjamin captured the second and third places respectively.

In the under-14 category, students from the Christ the King High School walked away with all the top prizes. Paris Turner's artwork won first place, Bretania Christopher second place and Sanaa Simon captured the third place spot.

The winning prize in the 8-12 category went to Malachi John of the Christian Union Junior Academy. Anree St. Louis of New Bethel SDA Academy won the second place prize.

The top prize in the 5-7 category went to Adriel Kheang of the St. Lutheran School. Sekani Gregory Fearon of St. John's Catholic Primary was awarded the second-place prize while Anez St. Louis of the New Bethel SDA Academy took the third place spot.

The competition was organized to highlight the theme among young consumers to make them aware of the benefits and challenges of AI.



Under-14 category, Paris Turner - 1st place (above), and Bretania Christopher- 2nd place (below).





Winners in the 5-7 category: Adriel Kheang - 1st place, Sekani Gregory Fearon - 2nd place, and Anez St. Louis - 3rd place.

According to Lockhart, "AI Assists us by customizing our needs and meeting our needs daily. I wanted to show the connectivity of AI and humans and how AI can help us be better at what we do. We already use a cell phone daily. The cell phone is a part of us now. So, AI will be an integral part of us as we carry out our daily tasks. It makes life easier for students and even persons with disabilities".

His fellow student, Benjamin, sees AI as "entrusted with carrying out all the responsibilities consumers have on a day-to-day basis. These responsibilities are shopping, communicating with persons and businesses, learning, etc.". He believes humans must interact with AI to make these tasks happen. He noted that as the world develops persons are developing apps which carry out our daily functions and make it easier for humans to get things done. "I believe that having access to AI is fair to all humans, no matter if you are a businessman or a student. It is fair that every person should benefit from the advancement in technology. It is now important that the AI we use is responsible and able to carry out our needs without destroying or harming us as humans".

The Division extends congratulations to the winners and gratitude to the judges: Shanese Archibald, Kadesh Bailey and Ricaldo Haywood. Sponsors of the event were Alke Plus Publishing, Digicel, Akhimo's, Beautyrama, Automotive Art, Cool & Smooth, Harpers, Happy Kids, Paperclips, Super Power, Little B & J, ABI Insurance, Town house and Island Provision.



Above: In the Under-14 category, Sanaa Simon captured the 3rd place spot.



Left: In the 8-12 category, Malachi John took 1st place, and Anree St. Louis won the 2nd place prize.





Imhoff Captures Attention Of Young Consumers At Student Forum

Artificial Intelligence (AI) is rapidly transforming our world, revolutionizing industries, and enhancing our daily lives. From virtual assistants to recommendation systems, AI's capabilities seem boundless. However, with great power comes great responsibility. It is imperative that we use AI in a fair and responsible manner to avoid perpetuating biases and safeguarding privacy.

AI systems have the potential to perpetuate biases and discrimination, often due to flaws in the data they are trained on. Biased facial recognition systems and discriminatory hiring algorithms are just a couple of examples of AI gone wrong. These issues not only affect individuals but also have broader societal implications.

To address these challenges, ethical principles must guide the development and use of AI. Transparency, fairness, and accountability are key pillars in ensuring AI systems are used responsibly. Transparency ensures that AI decisions are explainable, fairness demands that AI does not discriminate against any group, and accountability holds creators and users of AI responsible for its consequences.

As students, you have the power to shape the future of AI. Educate yourselves about AI and its impacts, question algorithms that produce biased outcomes, and advocate for policies that promote ethical AI development and usage. By engaging in critical discussions and advocating for responsible AI practices, you can make a difference in ensuring AI benefits society as a whole.

The future of AI holds great promise, with opportunities to address complex challenges such as climate change and healthcare disparities. However, it is crucial that we approach AI development with a sense of responsibility, ensuring that it aligns with ethical principles and serves the common good.

Let us embark on this journey towards a fair and responsible use of AI, empowered by knowledge, critical thinking, and a commitment to ethical principles. Together, we can navigate the world of AI and harness its potential for positive change.



Martin Imhoff was the featured presenter at the Student Forum on Tuesday 12 March at the Villa Polly Clinic.



Fair and Responsible AI for Consumers: Antigua and Barbuda's Path to Empowerment

In the vibrant landscapes of Antigua and Barbuda, we approach the crossroad of Artificial Intelligence (AI) and innovation. As we stand considering our way forward, it's imperative that we not only welcome AI but also prepare ourselves proactively for the significant changes it brings to our society. Fair and responsible AI for consumers, is not merely about adaptation; it's **about** thriving in a world where innovation is the currency of progress.

To make it simpler, AI with its unparalleled ability, can streamline administrative tasks and technical processes, enhance decision-making, and guarantees unprecedented efficiency and accuracy. In short, AI has the potential to revolutionize our lives. But, with great power comes great responsibility. This very promise also poses a serious challenge: the transformation of our workforce. With automation potentially diminishing the need for human intervention in certain roles, the traditional landscape of employment may undergo a significant disturbance. However, as with everything in life, change brings the opportunity to evolve and to excel.

As residents of Antigua and Barbuda, we must recognize that competition will intensify. The competition is much more than the continuously expanding, even more educated workforce we see develop before our eyes. It now involves an AI-driven future. Those who learn to harness the power of AI to enhance their productivity and creativity will undoubtedly gain a competitive edge. Therefore, it becomes incumbent upon us to embrace upskilling and reskilling initiatives both within schools and the workplace. We must equip ourselves with the tools and knowledge necessary to navigate this dynamic landscape adeptly.

Furthermore, just as I hound to my peers, I am appealing to the general public to develop a culture of life-long learning and adaptability, as it will be paramount to our existence. Citizens should cultivate versatility, be open to learning new skills, exploring different fields, and adapt to changing demands. A versatile workforce is better equipped to navigate the evolving landscape, and better able to adapt to unforeseen changes. The ability to adapt swiftly in response to



Lyle T. Jackson, BSc, AS.

evolving needs and technologies will serve as our shield against obsolescence. Let us not be daunted by the prospect of change; instead, let us embrace it as the catalyst for growth and innovation.

Moreover, as we advance onward into this AI-driven future, we must remain vigilant in upholding principles of fairness and responsibility. Transparency and accountability must be the foundation of the development and deployment of AI systems to ensure they serve the best interests of consumers and society at large. By fostering an ecosystem of ethical AI practices, we can mitigate potential risks and safeguard against unintended consequences. Responsible AI requires transparency. Consumers should seek to understand how AI systems work. Make it your business to know, especially when it affects your lives. Likewise, developers and policymakers play a crucial role. They must design laws and AI systems that are fair, unbiased, and respectful of privacy, and we must be a part of the process every step of the way.

In closing, the advent of AI heralds a new era of possibility for Antigua and Barbuda - one where innovation thrives and boundaries are transcended. By embracing AI and proactively preparing ourselves for the changes it brings, we can position our nation as a beacon of progress and prosperity in this rapidly evolving world. Let us seize this opportunity with open arms and unwavering determination, for the future belongs to those who dare to embrace change. As such, Antiguan and Barbudans, let us therefore embrace AI while safeguarding our values. Together, we can create a future where AI serves us all, fairly and responsibly.

The Brewing Battle: AI's Use in Cybercrime

For the last number of years, we've heard incessant talk about AI, how it will improve our lives, and how it will end them. The talk is usually on the extremes, but reality is more likely a mixture of good and bad like it's always been. Our job, if we think it through, is to learn how to adapt to the changes that AI will bring our way.



AI - The Hacker's Boogeyman

AI's use in cybercrime is a hot new topic which should cause concern if you aren't following what can be done to counter cyber attacks. Microsoft sees a lot of AI powered threats on the horizon where hackers use AI to improve cyber attacks.

One big concern is that AI will make it easier for low-skilled criminals to conduct cyber attacks. We've already seen this type of evolution with ransomware being provided as a service where people can purchase access to a ransomware platform, much like getting a Netflix account, and then use that platform to conduct ransomware attacks. The criminal doesn't need good technical skills; they just need the will, a few bucks, and fewer morals.

The UK's National Cyber Security Center (NCSC) agrees with this view and sees a broad landscape of threats that will "almost certainly increase the volume and heighten the impact of cyber attacks over the next two years, [but] the impact of the cyber attacks will be uneven." But don't get too upset. The NCSC also see that AI-enabled crime fighting will improve as well!

AI and the Good Guys

AI's application to fighting cybercrime is likely to be substantial. Let's look at Aura, an online identity theft and security solution. According to Forbes, Aura has applied AI to "understand the greatest risk of each person. This allows Aura to personalize the safety of each user and implement predictive and proactive safety measures." Nice tool especially if you are **concerned about identity theft**.

If you look more broadly at how AI can take the fight against cyber attacks, there are a myriad of ways it is turbocharging the crime fight. For example, AI-powered automation is making vulnerability scanning (aka "finding weaknesses in networks, devices and software



Adam Dennis
Founder | AntiguaRecon

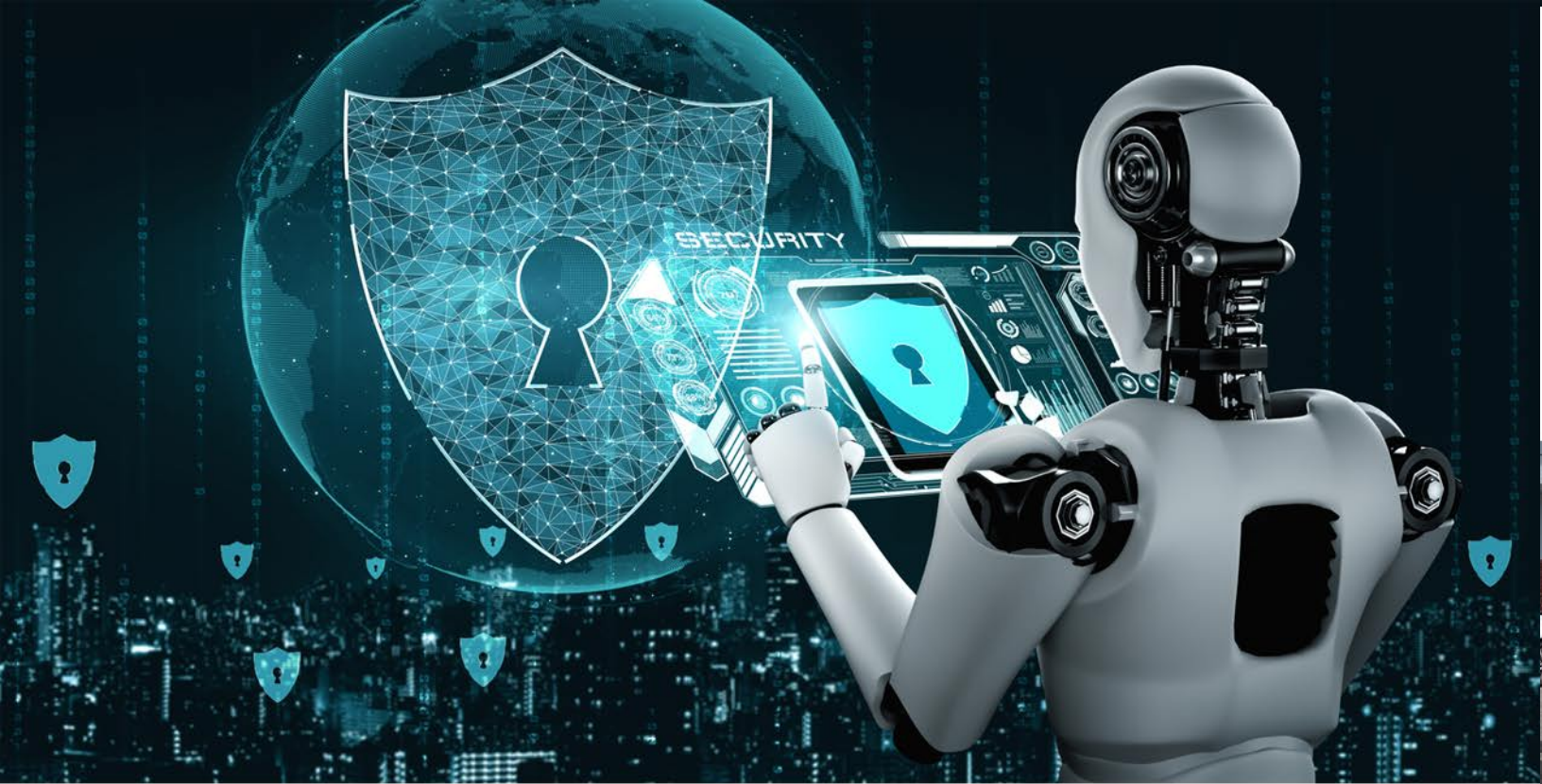
that can be exploited by hackers") and patch management faster and more versatile. Before AI, vulnerability and patch management were done with a mixture of limited automation tools and manual actions. Now, AI-enhanced tools can scan systems and networks for vulnerabilities all the time and then alert relevant specialists when issues are identified. They can recommend how to fix the problems too.

All this means is that as the criminals develop their AI-enhanced tools to fight, the good guys will be doing the same on their end. Yes, it will be a bit of an AI arms race, but what are you going to do? The good will always fight back against the bad.

Things We Can Do...

What we can do in our own lives to blunt the impact of AI power crime is very similar to what we should do now to reduce the risk of a hacker compromising our systems, software and devices:

1. Always use an anti-virus tool to protect your online activity for every device you own. If you have Windows, Windows Security will do. Otherwise, here is a list of options to consider.



2. Use a VPN (Virtual Private Network) to make yourself more anonymous online and harder for attackers to intercept your activity.

3. Use a password vault/manager to manage your passwords and create long (think 20 or more characters) passwords that are hard to crack. And, no, Chrome doesn't count as a safe password manager.

4. Check an online breach scanner to see if your email has been exposed in a data breach, and if it has, change the password for the relevant account immediately. HavelBeenPwned.com is a useful tool for this research and identity protection solutions such as Auro are smart too.

5. Engage multi-factor authentication on critical accounts such as email and banking accounts.

6. Set all your OS and other key software to auto update so you never miss a patch... and always back-up critical files and infrastructure.

7. Use a malicious website extension on your browser to warn you about malicious websites. Most antivirus software has one to use so make sure you put it to work. Websites can also be used to plant malicious software on your computer.

I know, that's a lot of information, but I'll leave you with three parting pieces of advice that are important:

1. Don't trust any messages that you receive with links and files to download. ALWAYS validate them to make sure that they are legitimate, mouse over the links to make sure they go where they are supposed to, and if the links are at all questionable, DON'T select them.

2. After you validate, ALWAYS scan documents with your antivirus solution no matter who they are from.

3. If it is too good to be true, don't trust it.

4. No, you didn't win money whether it's from a Nigerian prince or Microsoft.

5. Create a safe word with key people in your life. This word can be anything, but should be created lest you ever get a panic call in the middle of the night from that person asking for money, or some similar request. AI can mimic people's voices very easily and there will be a rise in these types of phishing attacks. This simple act is a simple solution to thwart that type of manipulative AI-powered attack.

What's the moral of the story here? The good guys won't be helpless in the fight against AI's use in cyber-crime, and you won't be either. Practical thinking, some use of smart tools, and due diligence will pay off!

AWARENESS MARCH

15 MARCH, 2024





The Healthiest Way To Sit

How many hours do you spend at the computer every day? Eight? Ten? Twelve? Taking a seat should be synonymous with taking a load off, but that much sitting leaves us with stiff necks, sore backs and carpal tunnel. We've come to take the aches and pains of office work as just part of the job. Well, it's time to take them out of the job (Youbeauty).

Sitting Pretty

The right desk set-up can take the pain out of your workday. (The physical pain, anyway.)

Phone

Holding the phone between your shoulder and your ear overworks the muscles on one side and leads to muscular imbalance. Rock a headset when you talk and type.

Arms

Your arms should bend at about 90 degrees, allowing the muscles around the elbows and forearms to relax. Adjust your seat height to accommodate.

Seat

Scoot all of the way into the seat and use the back of the chair to help you sit up straight, so you can give your back muscles a break.

Legs

You want your knees at right angles or out in front of you. If you can't reach, rest your tootsies on a foot stool.

Monitor

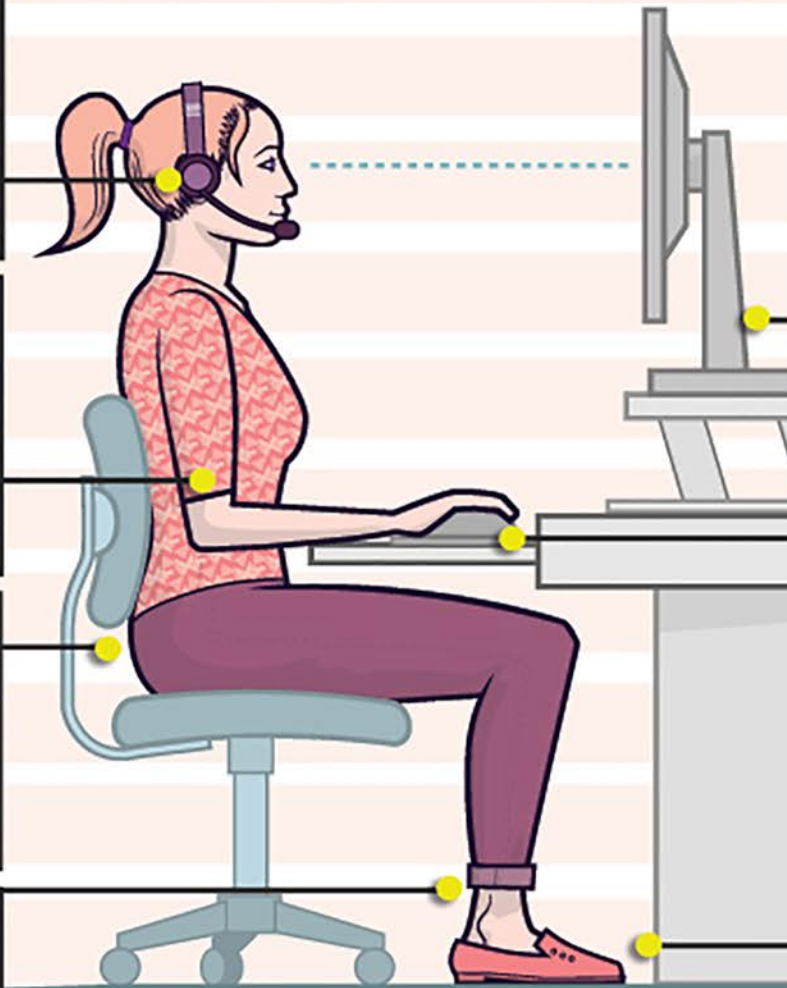
Prop your computer monitor on a stand or a stack of books to keep it at eye level. Looking down at the screen contracts and shortens the scalene muscles at the front of your neck.

Keyboard & Mouse

Push your keyboard and mouse away from you so you can rest your arms on the desk, instead of relying on your shoulders and neck to hold them up.

Feet

Place your feet flat on the floor. Avoid crossing your ankles and tucking them under the seat—it makes you arch your back and contract your hip flexors.



5 FOODS LINKED TO BETTER BRAINPOWER

GREEN VEGGIES



1. Leafy greens such as kale, spinach, collards, and broccoli are rich in brain-healthy nutrients like vitamin K, lutein, folate, and beta carotene. Research suggests these plant-based foods may help slow cognitive decline.

FATTY FISH



2. Fatty fish are abundant sources of omega-3 fatty acids, healthy unsaturated fats that have been linked to lower blood levels of beta-amyloid — the protein that forms damaging clumps in the brains of people with Alzheimer's disease.

BERRIES



3. Flavonoids, the natural plant pigments that give berries their brilliant hues, also help improve memory, research shows.

TEA + COFFEE



4. Coffee and tea might offer more than just a short-term concentration boost. In a recent study, participants with higher caffeine consumption scored better on tests of mental function.

WALNUTS



5. Nuts are excellent sources of protein and healthy fats, and walnuts in particular might also improve memory, according to a study.

Created by:



www.health.harvard.edu

Lemon Ginger Beet Juice

Ingredients

2 medium sized beets (depending on how wide the mouth of your juicer is, you may need to cut them in half or quarters)
2½ inches of fresh ginger (plus more to taste)
- 5 small apples I used honey crisp
1 lemon skin removed
3 medium fresh carrots

Instructions

Add all ingredients to a juicer.
Enjoy!

Loaded Broccoli Salad

Ingredients

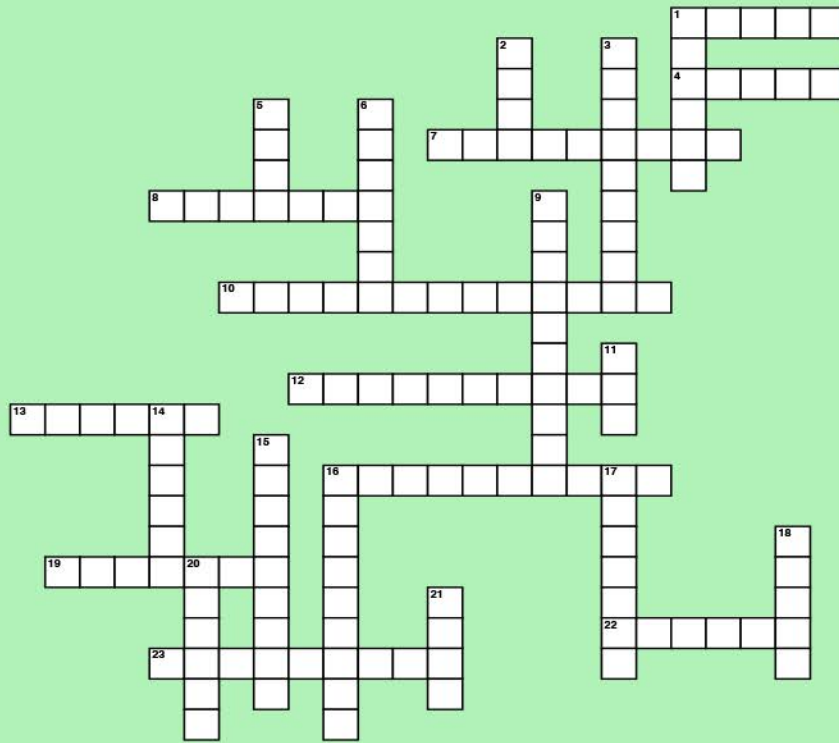
3 slices bacon
¼ cup sour cream
¼ cup mayonnaise
4 teaspoons rice vinegar or cider vinegar
¼ teaspoon ground pepper
4 cups chopped broccoli
½ cup sliced scallions
½ cup shredded extra-sharp Cheddar cheese

Instructions

Cook bacon in a large skillet over medium heat until crisp, 5 to 7 minutes. Transfer to a paper-towel-lined plate. Reserve 1 tablespoon bacon fat. Chop the bacon when cool enough to handle.

Whisk sour cream, mayonnaise, vinegar, pepper and the reserved bacon fat together in a large bowl. Add broccoli, scallions, cheese and the chopped bacon. Stir to coat with the dressing.

Computer Principles



Across

- [1] Small little dots that make up the images on computer displays
 [4] Sores recently used info so that it can be used at a later date
 [7] Any letter, number, space that can typed on a computer
 [8] Online resource that is collaboratively developed and managed by a community
 [10] Refers to preventative methods used to protect info from being stole, attacked, or compromised
 [12] Facility composed of networked computers and storage organizations use to manipulate data
 [13] Numeric system that uses only 1s and 0s
 [16] Process of analyzing data in order to discover info
 [19] An archive where data can be stored
 [22] Digital images composed of rectangular pixels
 [23] Set of instructions designed to perform a specific task

Down

- [1] Small amount of data sent over a network
 [2] Computer info processed by a computer
 [3] Items that are denied access to a certain system or protocol
 [5] Unsolicited junk email
 [6] A collection of data on a person, event, or subject
 [9] Process of taking encrypted text and converting it back into text the computer can read
 [11] Address if a specific webpage or file
 [14] Generation of 2D and 3D images from a model
 [15] A small chip that resides within a computer and other electronic devices
 [16] A device that reads and/or writes data to a disk
 [17] Consists of multiple devices that communicate with another
 [18] Another word for question
 [20] Data represented in a physical way
 [21] Language used to make webpages

An AI-Generated Poem

In a world of machines and codes,
 Where AI systems rule the loads,
 Consumers play a vital role,
 In shaping the future's soul.

Their choices and preferences,
 Guide the market's trends and presence,
 As AI systems learn and adapt,
 To fulfill their every need and act.

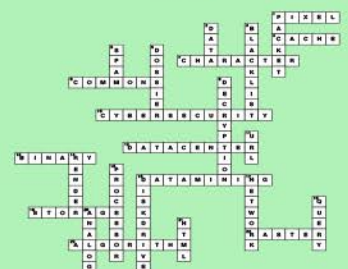
With data and insights in hand,
 AI systems understand the land,
 And tailor their products and services,
 To meet the consumer's demands with ease.

From personalized recommendations,
 To seamless user experiences,
 AI-driven innovations,
 Bring value and joy to the consumers' lives.

But as AI systems grow in might,
 Their power must be used with right,
 For consumers' trust and privacy,
 Must be protected with all might.

So let us ensure that AI systems,
 Serve the people, not the other way,
 And together we'll create a future,
 Where technology and humanity sway.

Solution



Name: _____

Date: _____



Robot Word Search



R I J X W I R E S V N I G J U M V L D K V N T
 Q N J S L W Y D D S P R O G R A M M T Q N D E
 I T S Q B G O O O N S H X G C G L H Z B I C
 E E B U S A C M I A C O S U F A F W Q C F Y H
 A L R T W C D S C F H R T R M C T H B Z O P N
 W L A L Z Y I L R L I O S T A A D S A G Y M O
 Z I O T M Y M N V O P U N D U E N E R A B C L
 N G W L E R O B O T S C E K V B G O T B O V O
 E E E Q G M O F S R U N W A M U N T I O S N G
 A N D R O I D C T M T L E D J A A G F D M O Y
 S C N F C W S P R M A C N S C M C C I Y B E O
 X E J L Z D M N D W E N E C C N K H C A I K R
 G N I K S A T I T L U M J L C T A Q I I V H G
 C L R L T I O W R T T Q O A E O V W A N Q G M
 V F R A S Y X T E T Z C I R C U I T L M E Q N
 U Y O Q V G J Z E X L V Q Z Y L D W N E M S U

Buttons Robots
 Multitasking
 Machine Remote
 Intelligence
 Program Circuit
 Technology
 Memory Wires
 Humanoid
 Sensors Code
 Electronics
 Android Gears
 Artificial
 Metal Chip