Artificial Intelligence, Cybersecurity, and You

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Presented to The Salon January 29, 2025

A version of these slides is available at lancehoffmancyber.com/presentations

- 1. Introduction to Al
- 2. Al's Impacts on Various Segments of the Economy
- 3. Human Agency in a World of Al Abundance
- 4. Cybersecurity
- 5. Questions and Answers

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What is Artificial Intelligence?

"Artificial intelligence is the design of artifacts that exhibit intelligent behavior, often mimicking cognitive functions like problem-solving and learning, with implications for societal well-being."

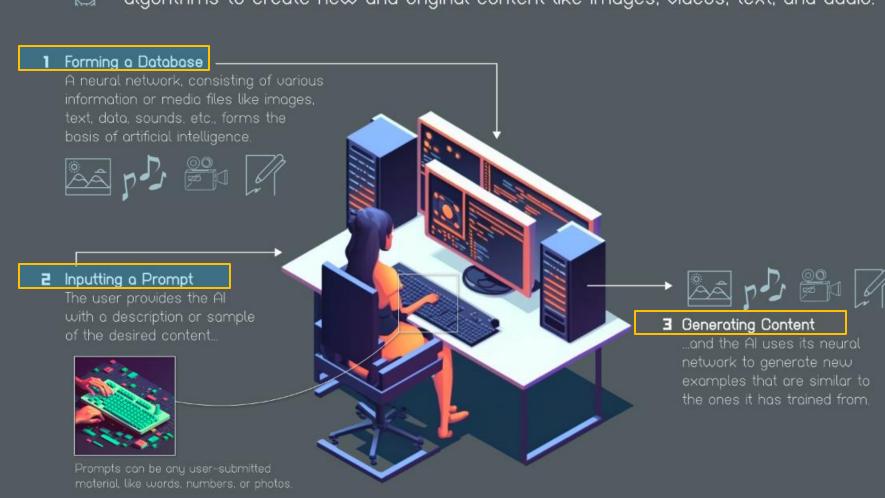
Recommendation on the Ethics of Artificial Intelligence. (2021)
United Nations Educational, Scientific and Cultural Organization (UNESCO)

- Generative AI output reads, sounds, or looks like a person did it.
- Artificial General Intelligence (AGI) reasons like a person.
- Sentient AI thinks it's a person.

How Al Works



Generative AI is a type of artificial intelligence (AI) that uses machine learning algorithms to create new and original content like images, videos, text, and audio.



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What if anybody can become an artist in ten minutes?

ACTUAL TRANSCRIPT OF CONVERSATION BETWEEN USER AND ChatGPT

Create two downloadable images of Lady Justicew

Here is the first image of Lady Justice. Let me know if you would like adjustments or the second one created in a different style or setting.

Yes, create the second one in more modern dress

Here is the second image of Lady Justice in modern attire. Let me know if there's anything else you'd like to explore or adjust!

Alter that image to have her fighting several rats with her sword.

Here is the modified image of Lady Justice fighting off several rats with her sword. Let me know if you'd like further adjustments or enhancements!

Now use the same picture, keeping the rats there, but put Lady Justice back in her original dress

Here is the updated image of Lady Justice in her traditional robe, battling the rats. Let me know if you'd like further tweaks or have more ideas!

That's good, but the original scales of justice are missing. Put them back in the picture as well.

Here's the updated image with the traditional scales of justice added back. Let me know if there's anything else you'd like to refine!

Let's put the head of my friend on Lady Justice. Use the same image but substitute the head of the person in the attached photo for the one in the image.

I currently cannot directly modify images to replace or edit faces. However, I can guide you through using software tools like Photoshop or GIMP to achieve this. Let me know if you'd like detailed instructions!











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Generative AI Example 2

Al Won Colorado State Fair's Fine Art Contest, 2022

TECHNOLOGY

He used AI to win a fine-arts competition. Was it cheating?

One judge said the striking piece evoked Renaissance art. But some critics compared it to 'entering a marathon and driving a Lamborghini to the finish line.'





Prof. Lance J. Hoffman lancehoffmancyber.com

What if anybody can become a poet in ten minutes?

PROMPT:

write a poem about rats slowly taking over a courthouse

ChatGPT:

Generative AI Example 3: The Rat's Ascent

Beneath the hallowed halls they crept, Through cracks where justice once had slept. With tiny claws and quiet gait, The rats amassed to seal their fate.

At first, a shadow crossed the floor, A scurry near the courtroom door. One sniffed the air, its whiskers twitched, The order here was soon to switch.

Through archives stacked and files deep, The rats did roam where secrets sleep. The judge's gavel lay unwielded, To nibbling teeth, no law was shielded.

The jury box, once firm and proud, Now teemed with whispers, soft yet loud. They gnawed at benches, chewed the seal, Where once was wood, now gaps reveal.



A clerk who stayed late heard the squeaks, A sound that haunted her for weeks. The noble crest, so bold, embossed, Now frayed by teeth, its meaning lost.

The scales of justice tipped askew, As rats did what they're born to do. Through chambers, cracks, and legal tomes, They claimed the courthouse as their home.

No protest came, no human stayed, The courthouse fell, its laws decayed. For where the mighty pillars stood, Now ruled a realm of tooth and wood.

And so, beneath the moonlit dome, The rats declared the courthouse home. A silent reign, no gavel cracked— The laws of men erased, redacted.

Who Will Al Impact?

Al Impacts Writers (and frames the discussion)

PROMPT: "Write a five minute speech on Al and art."

ChatGPT:

As artificial intelligence becomes more and more advanced, we are starting to see it incorporated into art. All can be used to create paintings, sculptures, and other works of art. Some people believe that All art is not really art, but others believe that it is art in its own right. They give several reasons.

First, AI art is often very different from traditional art. It can be more abstract or experimental, and it can explore new ways of creating art.

Second, AI art is often made using algorithms, which means that it is not really controlled by humans. This gives it a unique look and feel that is not found in traditional art.

Finally, AI art can be created very quickly and easily, which makes it a very versatile medium. Many believe that AI art is an important part of the art world, and that it will continue to grow and evolve in the years to come.

The Printing Press Changed How We Communicate Information

"In the 15th century, an innovation enabled people to share knowledge more quickly and widely. Civilization never looked back."

-- Dave Roos, History Channel

https://www.history.com/news/printing-press-renaissance



- 1. A global news network was launched.
- 2. The Renaissance kicked into high gear.
- 3. Martin Luther became the first best-selling author.
- 4. Printing powered the scientific revolution.
- 5. Fringe voices got a platform.
- 6. Public opinion led to popular revolutions.
- 7. Machines "stole jobs" from workers (e.g. scribes, illustrators)

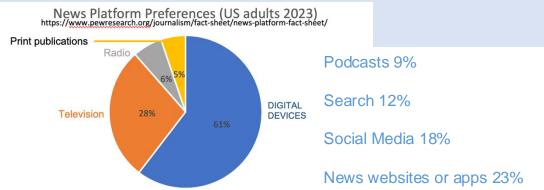
"Everyone a Publisher" raises issues of "dissent" and "attribution".

What are the modern parallels?

The Printing Press Changed How We Communicate Information

Internet





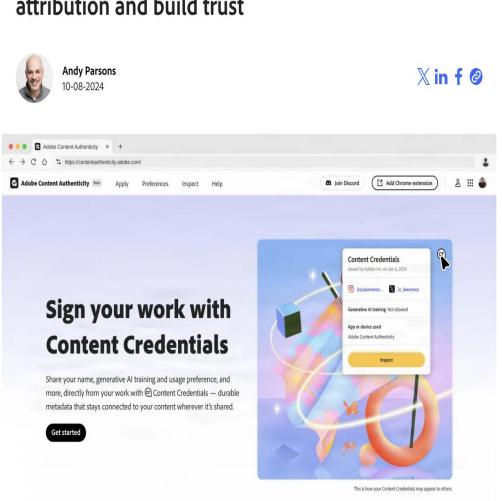
Plenty of opportunity for (amplification of) disinformation, mistakes, "hallucinations", bugs)

- 1. A global news network was launched.
- 2. The Renaissance kicked into high gear.
- Martin Luther became the first bestselling author.
- Printing powered the scientific revolution.
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- A global publication network was launched.
- A Renaissance of new "publishers" kicked into high gear.
- 3. Influencers became in high demand by organizations, politicians, etc.
- 4. Mobile phones and easy access powered the internet revolution.
- 5. Fringe voices got a platform.
- 6. Public opinion led to popular unrest.
- 7. Machines "stole jobs" from workers.

Creators will soon be able to digitally sign their work.

Introducing Adobe Content Authenticity: A free web app to help creators protect their work, gain attribution and build trust





Over 3,700 companies supporting this initiative, including publishers, platforms and hardware makers.

If generative AI is programmed to compensate internet users for the use of their data, the basic dynamics of the economy will change and diffuse power.

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Al impacts politics



Image from "Al-generated" video with a fictitious images showing a dystopian, chaotic America under a Biden second term. (Axios)

Legislation has been introduced in Congress to require AI disclaimer On social media, where "anything goes", AI also facilitates deepfake video creation.

Deepfakes



https://www.youtube.com/watch?v=cQ54GDm1eL0&ab_channel=BuzzFeedVideo

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Al Impacts Medicine

UC SAN DIEGO TODAY

RESEARCH

PEOPLE

CAMPUS & COMMUNITY

ARTS & CULTURE

VOICES

Study Finds ChatGPT Outperforms Physicians in High-Quality, Empathetic Answers to Patient Questions

While AI won't replace your doctor, the JAMA Internal Medicine paper suggests physicians working together with technologies like ChatGPT may revolutionize medicine

OPINION
GUEST ESSAY

I'm a Doctor. ChatGPT's Bedside Manner Is Better Than Mine.

Oct. 5, 2024, 7:01 a.m. ET

The New York Times

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Al impacts education And how students use it

- Should students be allowed to use AI to write first drafts of essays?
- What does it mean to test knowledge?
- Will other delivery and testing mechanisms be more used?
- Online reading assignments
- More interactive homework assignments
- Projects
- Oral exams
- In-class in-person exams

And how educational institutions use it

PE	RCENTAGE OF HUMANS SCORING HIGHER THAN ChatGPT
Verbal GRE	1%
LSAT	12%
Reading and Writing SA	7%
Math SAT	11%
Uniform Bar Exam	10%

And how educational institutions use it

Who Will Al Impact?

Share of Industry Employment Exposed to Automation by AI in US

Excerpt from Goldman Sachs Economic Research (Briggs/Kodnani, March 26, 2023)



Office/Admin Support 46%



Legal **44%**



Computer and Math 29%



Farming, Fishing, Forestry 28% Construction and Extraction 6%





Cleaning/Maintenance 1%

Advantages of Al "workers"

- Don't ask for raises
- Don't need vacations, sick time
- Don't require retirement benefits (but must upgrade systems)
- Don't raise ethical concerns
- Don't question management decisions
- Don't agitate for a union or go on strike

Disadvantages – Labor Displacement

Technological innovation and labor displacement is not new. And many workers go to new jobs created by the innovations.

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Regulation Comes Slowly – Some Examples

1440: Gutenberg invents printing press

1559: Index of Prohibited Books

1966

1662: Licensing Act of England 1695

1848: Women's Suffrage movement starts

1865: Slavery abolished 1885: Seatbelts patented

1886: Berne Convention on copyright

1920: Women get right to vote

HUMANS LIVING TODAY

1964: Civil Rights Act

1968: Seatbelts required

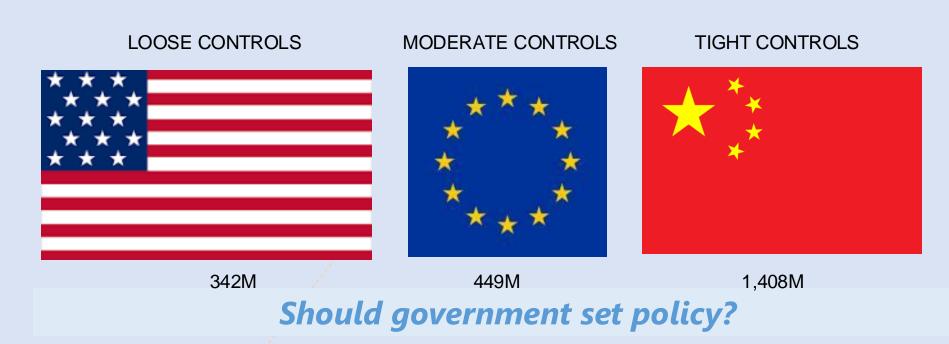
1969: First internet connection 1990: First web browser

2022: ChatGPT goes public

2024: E. U. Al law

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Rival Empires























1,800M 2,400M 14M

3,050M

245M

2.066M

10M

57M

1,366M

1,800M 1,460M

Should individual apps or platforms set policy?

Rival Geopolitical and Economic Empires



Whoever becomes the leader in this sphere will become the ruler of the world."

(Russia President Vladimir Putin, 2017)



"We should step up international governance and cooperation on artificial intelligence (AI) to make sure that AI is for good and for all, not a game of the rich countries and the wealthy."

(Chinese President Xi Jinping, 2024)



We must make sure AI is safe and trustworthy and good for all humankind.... America — not China — must lead the world on the development of AI."

(U.S. President Joe Biden, 2025)

Should individual apps or platforms set policy? Should government set policy?

Infighting within an Empire

Trump Announces \$100 Billion A.I. **Initiative**

OpenAI, Oracle and SoftBank formed a new joint venture called Stargate to invest in data centers, building on major U.S. investments in the technology.

January 21, 2025

Musk bashes Trump AI project



The Tesla CEO's remarks undermine a \$500 billion Al infrastructure investment by tech giants that was highly touted by the president

January 23, 2025



NEW YÖRKER

Should individual apps or platforms set policy? Should government set policy?

Will AI Transform Our Personal Life As Well As Our Work Life?

Chatbots = social "flight simulators" or companions?

In a few years, men will be able to communicate more effectively through a machine than face to face," Licklider, J.C.R., & Taylor, R.W. (1968). The Computer as a Communication Device. Science and Technology, 76, 21–31.

"But if they can be made responsibly, I could get behind the use of A.I. companions as, essentially, the social equivalent of flight simulators for pilots — a safe, low-stakes way to practice conversational skills on your own, before attempting the real thing." -- Kevin Roose, "Meet My A.I. Friends", New York Times, May 9, 2024





- Battery-powered companions
- Some D.C. seniors are receiving robotic cats and dogs thanks to a program from three local nonprofits



- User can FaceTime with Replika app
- User can have a "deep" relationship, but if bot hallucinates or is intentionally malicious, can harm user.

Your Al Boyfriend: Just a Chat Away to Fulfil Your Deepest Desires

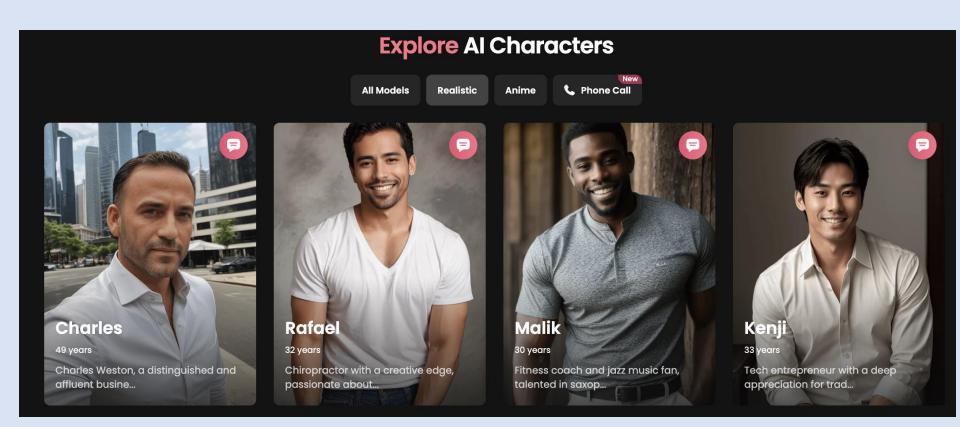
Craving a long conversation with someone who completely gets you? How about a hot AI boyfriend to keep you company? That's right, our AI boyfriends and AI girlfriends are just the thing to spice up your life, any time you wish. Here, you'll meet a partner who's always there, ready to dive into deep, passionate conversations. Whatever you need, your Candy.ai virtual boyfriend will be there for you.

Candy.ai is where your deepest desires meet cutting-edge AI chat. Our advanced deep-learning technology doesn't just mimic responses; it creates a bond, a virtual yet vivid connection with your dream man. And the best part? You get to take the lead and guide the conversation where you want it to go. You can dabble with a dozen different AI boyfriends to find your favorite or build an enduring and intimate relationship with one, thanks to the power of AI technology.

Flexibility is key in any relationship, and it's no different here. Your AI boyfriend adapts and learns from your interactions. You set the tone, pace, and intensity; it's all in your hands. With just a few clicks, your dream guy is ready to sweep you off your feet, engaging in everything from light-hearted banter to deep talks and everything beyond.

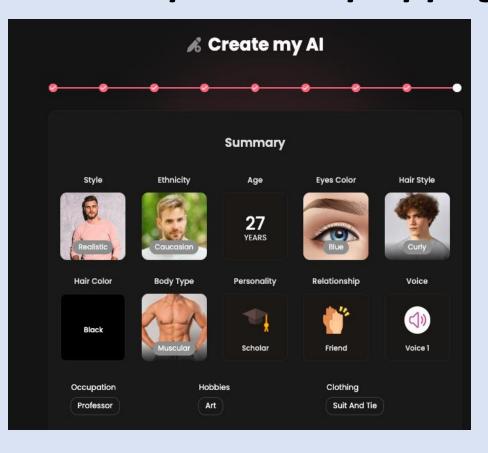
Now, let's talk about visuals. Ever fancied getting personalized pictures or irresistible selfies? We've got that covered, too. Our state-of-the-art photo generation technology ensures your AI chatbot boyfriend looks just as dreamy in pictures as he does in your chats.

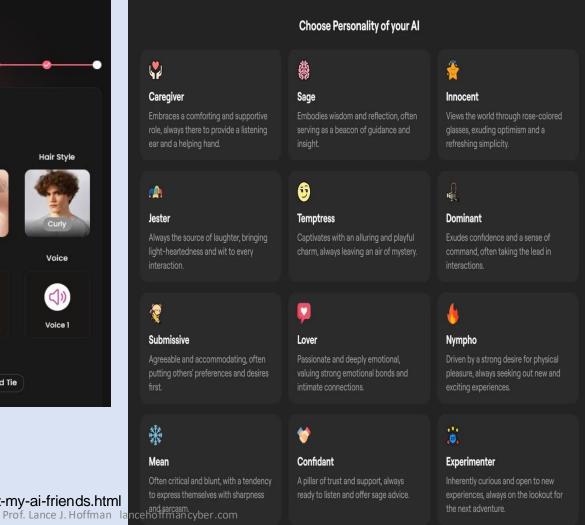
Your AI boyfriend can't wait any longer to let you know just how much he wants you. Meet him now—try Candy.ai for free today!



go. You can dabble with a dozen different AI boyfriends to find your favorite or build an enduring and intimate relationship with one, thanks to the power of AI technology.

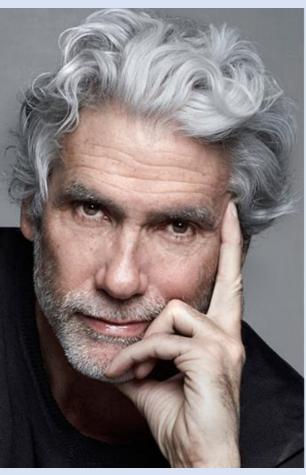
Will AI Transform Our Personal Life As Well As Our Work Life? Will companionship apps grow faster than others?





https://www.nytimes.com/2024/05/09/technology/meet-my-ai-friends.html

Mary Anne suggested I put in these men, since they more accurately reflected the ages in this audience.

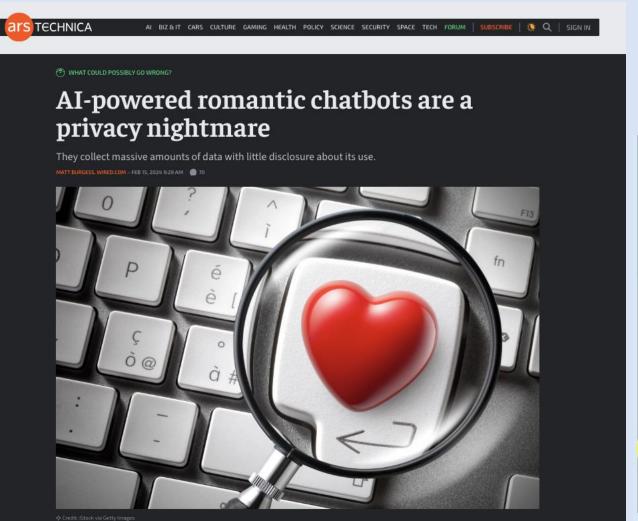


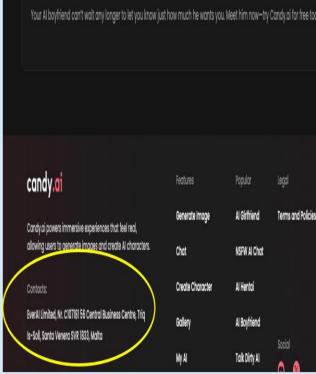




Know your vendor!

If you are harmed, can you locate the provider and be made whole again?



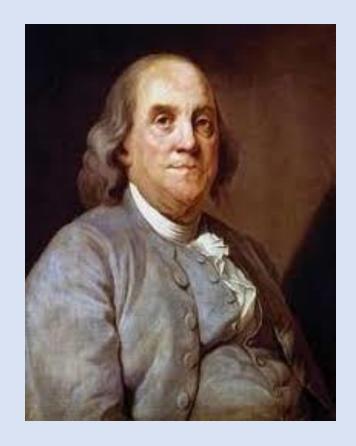


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About (Cyber) Security



"There is no such thing as perfect security, only varying levels of insecurity." – Salman Rushdie



"An ounce of prevention is worth a pound of cure." – Benjamin Franklin

A Checklist of Cyber Security and Privacy Measures

"An ounce of prevention is worth a pound of cure." – Benjamin Franklin



"There is no such thing as perfect security, only varying levels of insecurity." -Salman Rushdie



SHARE AS APPRORIATE WITH FAMILY (ESPECIALLY CHILDREN) AND FRIENDS Have your mobile phone and computer require a code when you turn them on. Secure your wi-fi network (don't use default password). Don't put your life story or family history on social media Read terms of service before accepting, especially from new/untrusted sites Set default options for security and privacy when you install a new application Reset the defaults, especially on your smartphone, if you have never done so. Keep your software (operating system, browser, apps) up to date. Use two-factor authentication when available, especially for financial and other important accounts. Make backups often and automatically), local or in the Cloud or both Add anti-virus software (especially to older operating systems) Use passkeys (e.g., biometric identification like thumbprint or face) rather than passwords when you can. Consider using a password management application and letting it generate relatively secure passwords, rather than using the same one for multiple applications. If you choose passwords yourself, use at least an upper and lower case letter and a special character. Use separate computers for sensitive transactions. Encrypt sensitive information before you store or send it. ☐ Use a separate debit/credit card for Internet transactions (not linked to your bank account). Never pay anybody for anything using a gift card (a favorite tool of scammers). Ignore unsolicited calls/texts. Never give your username or password over the phone/internet to an unknown caller or website Don't accept free USB sticks (flash drives) from strangers.

Use AI to point people to work done by other people before.

But check first that the material is accessible.

And finally that it is credible: Trust, but verify.

https://www.howtogeek.com/important-online-safety-tips-for-non-techies-to-know/?utm_source=chatgpt.com



- Recognize Phishing Emails and Texts
- Never Allow Remote Access to Your Device
- Avoid Befriending Strangers Online
- Don't Overshare Your Critical Information
- Follow Safe Browsing Practice
- Be Skeptical of Unverified Callers
- Verify News Headlines Before Believing Them
- Follow Tips for Safe Online Shopping

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