



Speech and Hearing BC

ARTIFICIAL INTELLIGENCE (AI)

In Clinical Practice for Speech-Language Pathologists and Audiologists, November 2, 2024

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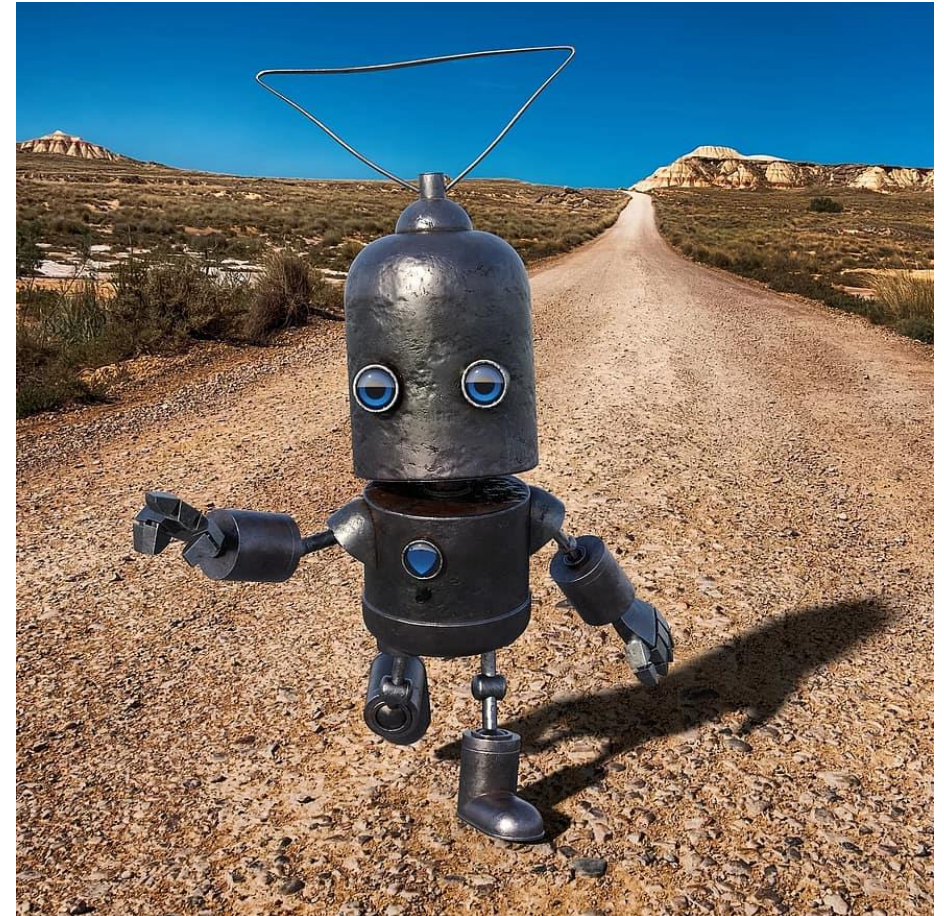
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YOUR PRESENTERS

WHAT IS AI?

Wikipedia definition:

- Artificial intelligence (AI), in its broadest sense, is intelligence exhibited by machines, particularly computer systems. It is a field of research in computer science that develops and studies methods and software that enable machines to perceive their environment and use learning and intelligence to take actions that maximize their chances of achieving defined goals. Such machines may be called AIs.



THE CORE OF THE PROCESS

- The core of the process of Artificial Intelligence (AI) lies in creating systems that can learn, adapt, and make decisions with a degree of autonomy.
- Using AI in your practice means harnessing technology to support the **person** at the centre



HISTORY OF AI

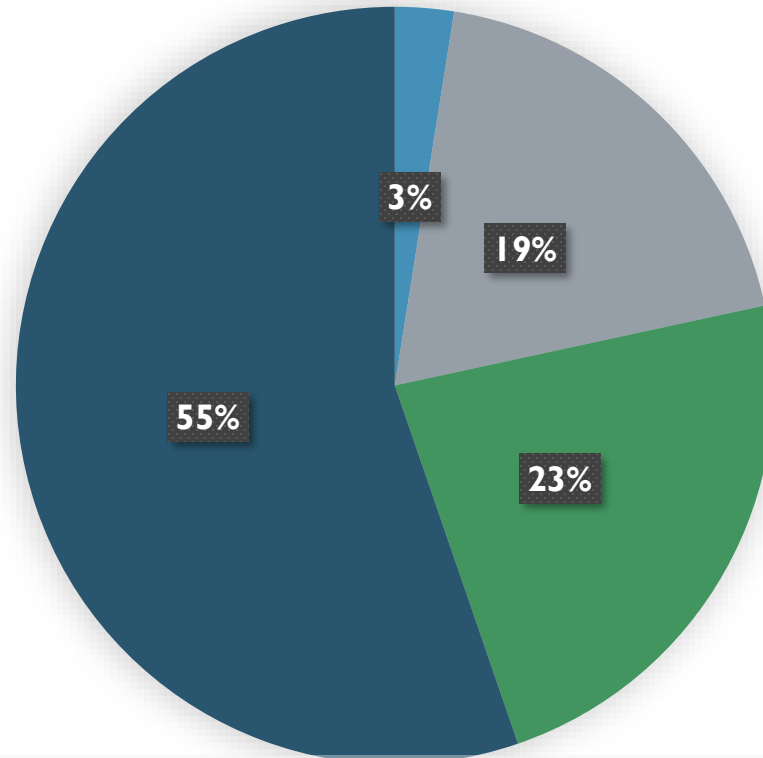
- Speech Language Pathology and Audiology have integrated AI into clinic practice since the 1950's
 - Bell Labs' "Audrey" system (foundation for computerized speech analysis)
 - AI in hearing aids has contributed to advancements in signal processing (adjusting settings based on environmental noise)
 - Telepractice and remote assessments
 - Visi-pitch
 - Automated audiometry
 - Classification of ear disease using otoscopy
 - Speech recognition and transcription software
 - Notetaking
 - AI-based tools to analyze linguistic patterns

SOME STATS FROM OUR JUNE 2024 SPEECH AND HEARING BC MEMBER SURVEY ON AI

- **118 Members responded**
- **Questions focused on 3 general categories:**
 - **Member's current use/non-use of AI**
 - **Member concerns over AI in clinical practice**
 - **Member preference/interest for learning aspects of AI**

MEMBER EXPERIENCE WITH AI

Frequency of AI Use

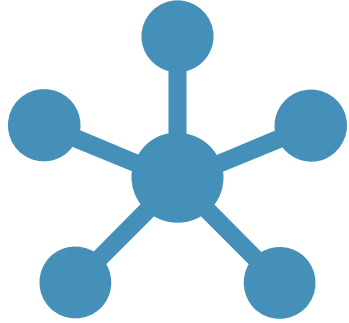


■ All the Time

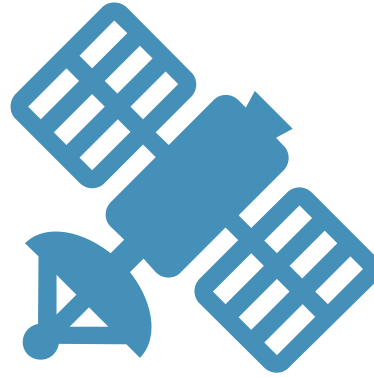
■ Sometimes

■ Hardly Ever

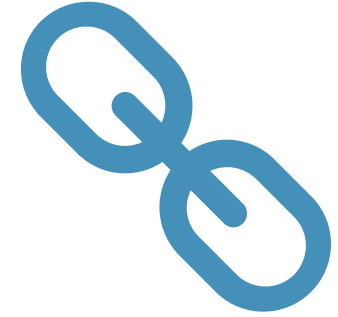
■ Never



Tools for Clinical
Practice



Ethical Considerations



Privacy & Data
Stewardship

WHAT YOU WANTED TO LEARN

CHAT GPT

- What is CHAT GPT?
 - ChatGPT is a language model that uses advanced **natural language processing (NLP)** techniques to generate human-like text in response to prompts. It is part of the **GPT (Generative Pre-trained Transformer)** model series, which uses deep learning to understand and generate text based on large datasets.
- By integrating ChatGPT thoughtfully, SLPs can enhance their therapeutic resources, reduce administrative burdens, and create more personalized, engaging therapy experiences. While ChatGPT should complement, not replace, clinical expertise, it can be a valuable tool in supporting the diverse and evolving needs of speech-language pathology.
- Cost – Free to \$20 per month

HOW CAN WE USE CHAT GPT



Customized Activity Ideas: SLPs can use ChatGPT to generate creative activities and games tailored to specific speech or language goals, such as articulation, language comprehension, or social skills practice.



Conversation Starters: For older clients or group therapy, ChatGPT can suggest age-appropriate conversation starters that can help clients practice verbal interactions, storytelling, and turn-taking.



Story Creation: ChatGPT can create short, customized stories to use in therapy, focusing on specific sounds, vocabulary, or narrative skills relevant to the client's goals.

HOW CAN WE USE CHAT GPT



Targeted Exercises: SLPs can prompt ChatGPT for ideas on exercises targeting specific speech sounds, language skills, or fluency techniques, providing fresh material for sessions.



Home Practice Plans: ChatGPT can help generate simple and engaging home practice activities that are tailored to each client's needs, which can then be shared with caregivers for continued practice outside of therapy.



Report Drafting: ChatGPT can draft structured reports or summaries based on session notes provided by the SLP, reducing time spent on documentation.



Progress Notes: SLPs can use ChatGPT to write or refine progress notes, helping them track client improvements more efficiently.



Goal Writing Assistance: For setting specific, measurable, achievable, relevant, and time-bound (SMART) goals, ChatGPT can suggest frameworks or wording based on client needs and therapy objectives.



Social Story Templates: ChatGPT can generate social stories to address social communication challenges, especially for children with autism. These stories can cover topics like taking turns, asking for help, or handling frustration.



Visual Supports: SLPs can ask ChatGPT for ideas on visual aids and graphic organizers to assist clients with language comprehension, story sequencing, or vocabulary retention.



Explaining Speech Goals: ChatGPT can help generate clear, easy-to-understand explanations of therapeutic goals and strategies for parents and caregivers, making it easier for them to support their children at home.



Home Strategies: SLPs can use ChatGPT to create tips and strategies for parents to encourage speech and language development outside of the therapy room, fostering a supportive home environment for their child's progress.



Literature Summaries: ChatGPT can quickly summarize recent research or clinical studies on speech and language pathology topics, helping SLPs stay updated with new findings.



Technique Explanations: For new or complex therapy techniques, SLPs can use ChatGPT to break down the approach and its underlying principles, providing an accessible summary or step-by-step guidance.



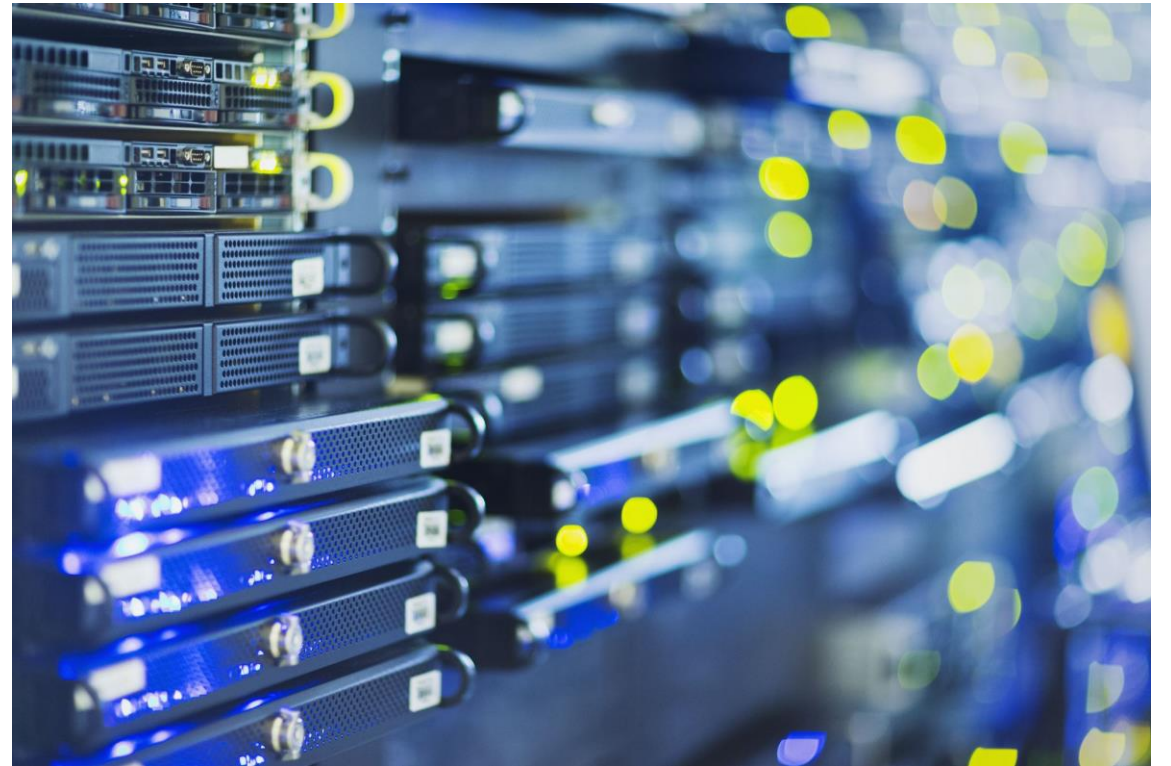
Vocabulary Expansion Ideas: SLPs can use ChatGPT to suggest functional vocabulary and phrases to add to AAC devices, based on the client's daily communication needs.



Modelling Conversational Scenarios: ChatGPT can simulate conversational scenarios or responses, giving clients with AAC devices structured practice with conversational patterns and responding to common questions.

CHAT GPT

- Live example of CHAT GPT



CANVA

- What is Canva?
 - Canva is a graphic design platform that uses AI to enhance images and text to create a wide variety of visual content. It also supports a number of AI-powered apps that increase features including but not limited to creating music, further customizing images and videos, generating voiceovers, and translating text.
 - AI features in Canva
 - Magic Write
 - Magic Design
 - Background Remover
 - Image Enhancer
 - Text-to-Image
 - Brand Kit and Colour Palette Suggestions
 - Smart Layouts
 - Animation Suggestions
 - Content Planner
 - Collaboration Features
- Canva can be a great tool in the clinical toolbox to help create more personalized, engaging therapy experiences and educational resources. Canva is user friendly and interactive, promoting creativity, communication and engagement in therapeutic sessions.
- Cost – Free to \$19 per month

HOW CAN WE USE CANVA



Customized Activity Ideas: Canva can be used to create activities and visuals tailored to specific speech or language goals, such as articulation, language comprehension, or social skills practice and the client's interests. It has an extensive library of images, graphics and videos and uses AI to suggest alternative options with each option.



Customized Text: Canva can create AI generated text, such as stories and instructions through Magic Write. These can be used in therapy to focus on specific goals such as speech sounds, vocabulary, reading **comprehension and narrative goals**.



Vocabulary Expansion Ideas: Canva can be used Templates to make word, mind or visual maps; flashcards, vocabulary posters, storybooks with illustrations, journals, infographics and social media posts to support the expansion of receptive and expressive language.



Visual Aid Creation: Canva has an extensive library of templates, graphic organizers, real images, graphics, videos for visual support to assist clients with language comprehension, story sequencing, or vocabulary retention. Canva can generate customize visuals using [Magic Media](#) to tailored to client specific situations, use client specific or AI generated pictures and graphics.



Home Practice Plans: Canva documents can be shared with caregivers for continued practice outside of therapy.

CANVA

- Live example of Canva



GRAMMARLY

- Grammarly is a digital writing tool that uses artificial intelligence to help users improve their writing. It functions as a grammar, spelling, and style checker, but it also offers advanced suggestions for clarity, engagement, tone, and conciseness.
- It can be integrated onto your desktop to provide feedback with every writing task being completed
 - Emails
 - Word documents
 - Powerpoint presentations

Cost – Free to \$144 a year (USD)

GRAMMARLY

- Live example of Grammarly



INNOVATIONS IN AUDIOLOGY

- Audiology scribes generate notes and reports
- Screening and remote assessments
- Automated audiometry
- Chatbots for tinnitus support
- Hearing aid technology

HEARING AID TECHNOLOGY

- Artificial Intelligence
 - A process that imitates human behavior or decision-making
- Machine Learning
 - An artificial intelligence system that improves its performance over time through exposure to data
- Deep Neural Network
 - A powerful form machine learning form that emulates the human brain

CONCERNS ABOUT AI – Does AI make you want to hide in a box?

Some Common Concerns about AI:

- Will it be a substitute for clinical judgement?
- Will it replace us? Will families turn to AI instead of professionals?
- AI-generated info might not be authentic or accurate
- AI may not be culturally sensitive
- This might impact individualized care
- How to maintain client privacy and data security?



WILL IT BE A SUBSTITUTE FOR CLINICAL JUDGEMENT?

- While AI can support clinicians by providing data-driven insights, suggesting evidence-based interventions, or automating routine tasks, it lacks the ability to fully replicate human intuition, empathy, and the complex decision-making involved in clinical judgment.
- Clinical judgment requires interpreting subtle cues, such as a patient's tone, body language, or emotional state. AI is limited in its ability to fully understand or respond to these complexities.
- Clinical judgment often involves making decisions with incomplete or ambiguous information. Human clinicians can draw on experience and intuition in these situations, whereas AI relies on available data and can struggle when data is limited or inconsistent.

WILL IT REPLACE US? WILL FAMILIES TURN TO AI INSTEAD OF PROFESSIONALS?

- AI is best seen as a support tool rather than a replacement for human professionals. While AI can assist in providing information, generating resources, and performing certain routine tasks, it lacks the clinical insight, personalized care, and empathy that professionals offer. Families may use AI for supplementary information or to reinforce therapy at home, but AI is unlikely to replace the nuanced, individualized care that professionals provide.
- We can also think about the benefits of AI, especially in communities where there is a lack of resources and AI can help to provide resources or assist with home practice
- Use AI to serve as a complement to—rather than a substitute for—professional expertise

WILL IT REPLACE US? WILL FAMILIES TURN TO AI INSTEAD OF PROFESSIONALS?

AI is not a replacement for personal connection



AI-GENERATED INFO MIGHT NOT BE AUTHENTIC OR ACCURATE

- More research is being conducted on how AI utilizes the data sets
- It is important to cross-reference any data and information
- AI is starting to add more sources into their information provided
- Conversation with Daniel Aalto, Faculty at University of Alberta
 - Project that graduate students completed that found while it was largely accurate, there were still errors made

AI MAY NOT BE CULTURALLY SENSITIVE

- This is absolutely true.
- AI systems can inherit biases from the data they are trained on, which may result in discriminatory outcomes.
- AI's tone can be modified, and while it has safeguards to prevent racist behavior, it can come quite close to crossing that line.

THIS MIGHT IMPACT INDIVIDUALIZED CARE

- AI can help streamline certain tasks, like generating therapy materials or analyzing data, freeing up more time for the clinician to focus on individualized treatment. Our use of AI aims to enhance the care process, allowing us and our clinicians to dedicate more attention to each client's unique needs and progress.
- Reassure clients and families that clinicians remain fully accountable for treatment decisions, regardless of any AI involvement. The use of AI is overseen by professionals who are trained to ensure that each client's plan remains as unique and individualized as their needs require.

HOW TO MAINTAIN CLIENT PRIVACY AND DATA SECURITY?

- Ensure that any AI platform or software used meets relevant privacy standards in your region.
- Remove personally identifiable information (PII) before inputting data into AI systems. Anonymizing client data can help prevent sensitive information from being exposed, particularly when using AI tools for analysis or processing.
- AI technology and security risks are constantly evolving. Regularly review and update your data security protocols to stay aligned with best practices. This may include software updates, staff training, and adapting to new security standards.
- Educate clients and families on how AI will be used in their care, including the type of data that will be collected and stored. Obtain explicit consent, explaining the security measures in place and the ways in which their data will be protected.
 - Consider putting in clauses for consent for use of AI in your client intake forms

TAKEAWAYS



Consider client privacy and ethical principles



Think about AI as a tool to complement your practice, not as a replacement



AI literacy becomes more important as the prevalence of this technology increases



THANK YOU