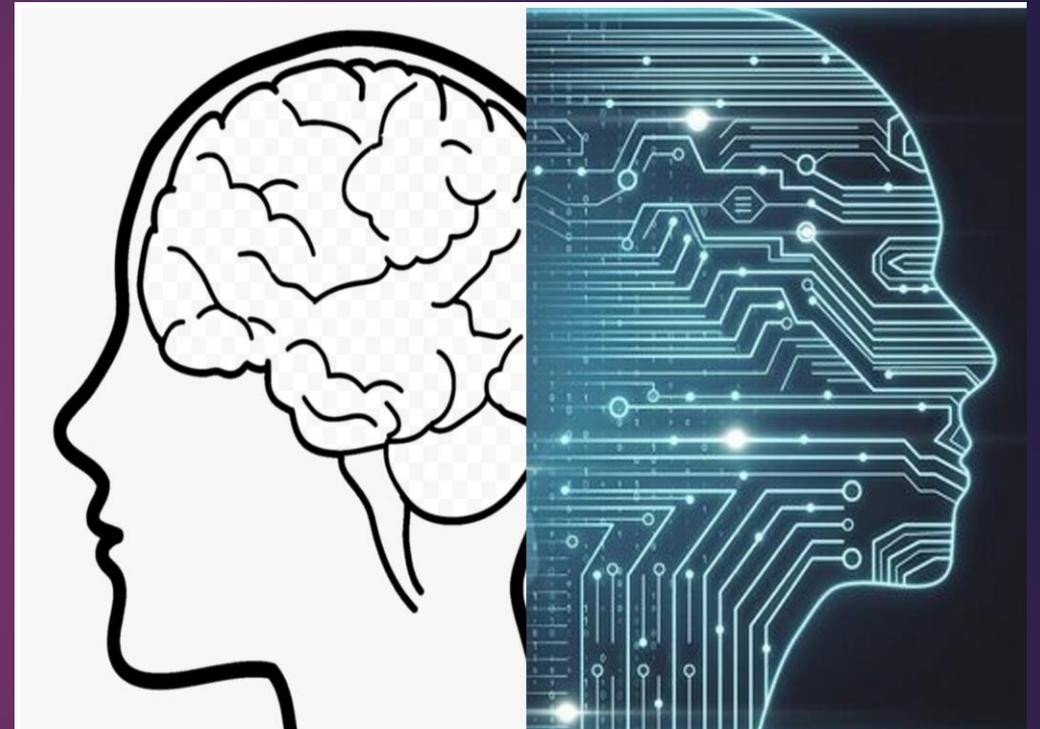


Digital Assistants and a Computer- Human Partnership

THE NEXT STEP IN EVOLUTION?

William Meisel, PhD
President, TMA Associates
Executive Director, AVIOS
Organizer, CI Conference



Augmented Intelligence!

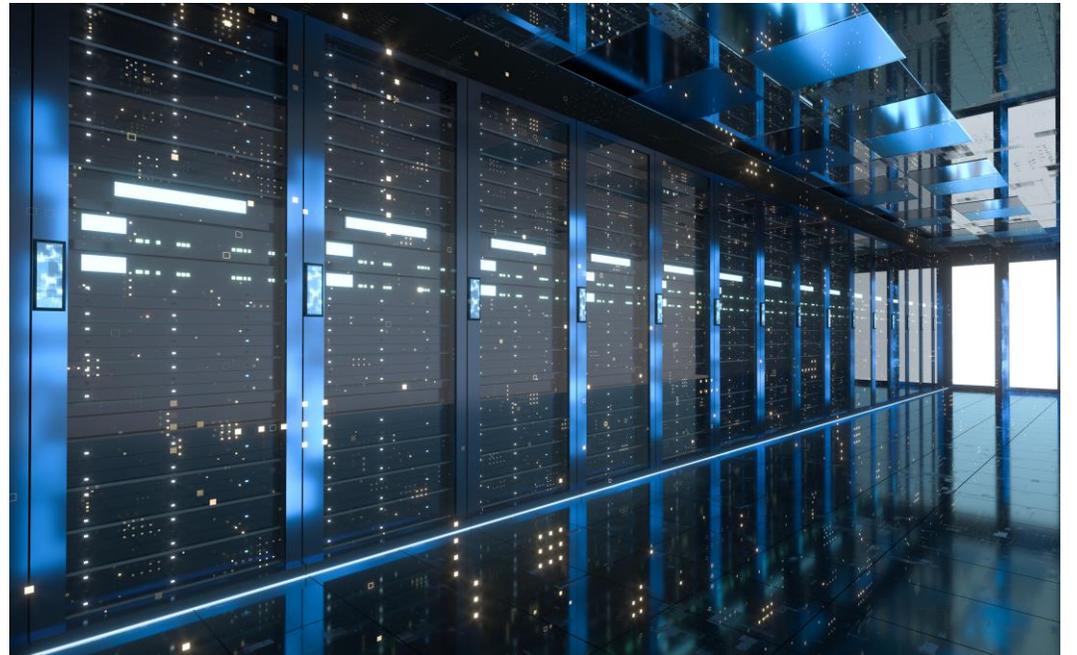
- ▶ A tight and intuitive connection with computer power



“Just tell me...”

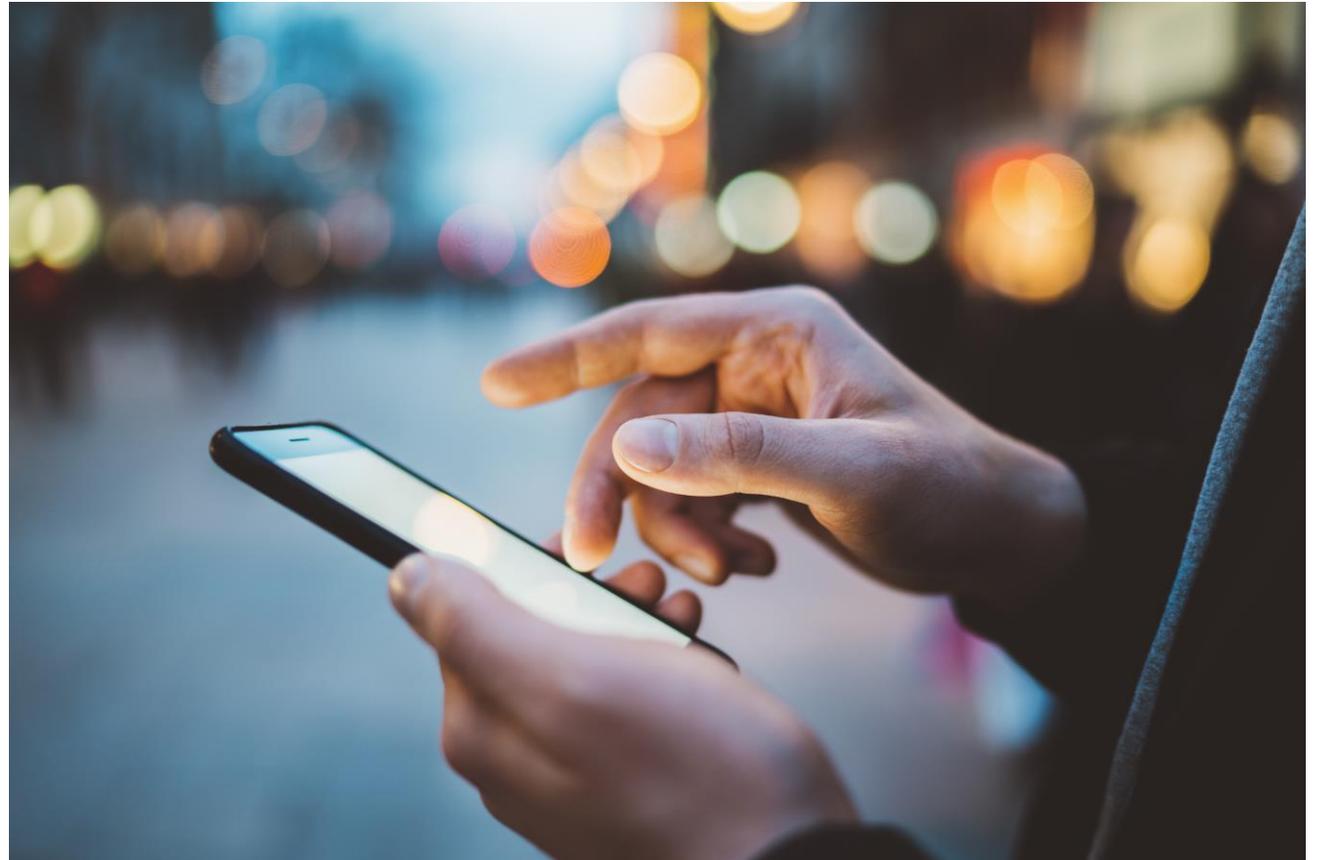


“To summarize...”



Mobile phones' small screens increase motivation

- ▶ “Just say what you want”



Mobile phones' small screens increase motivation

- ▶ “Just say what you want”

Digital assistant always available



General Digital Assistants



“Hey Google, what does antidisestablishmentarian mean?”



“Hey Siri, can you make me laugh?”



“Alexa, add a note... Sally's Birthday is on June 20th”

General Digital Assistants as Web Portals

- ▶ What are the dates of the Conversational Interaction Conference?
- ▶ Here's what I found: <https://www.conversationalinteraction.com/>

A promotional banner for the AVIOS Conversational Interaction Conference. The banner has a teal background. On the left, there is a speech bubble logo containing the word 'AVIOS'. To the right of the logo, the text reads 'Conversational Interaction Conference' in large white font, followed by 'April 12 & 13, 2022' in a smaller white font. Below this, a thin yellow horizontal line separates the header from the tagline 'CONNECTING PEOPLE AND COMPUTERS THROUGH HUMAN LANGUAGE' in all caps. Underneath the tagline, it says 'Live in San Jose, California' in white. At the bottom, there is a navigation menu with links: HOME, PROGRAM, SPONSOR, REGISTER, CALL FOR SPEAKERS, HOTEL, NEWS, TRENDS, and CONTACT. The 'HOME' link is highlighted in a yellow box.

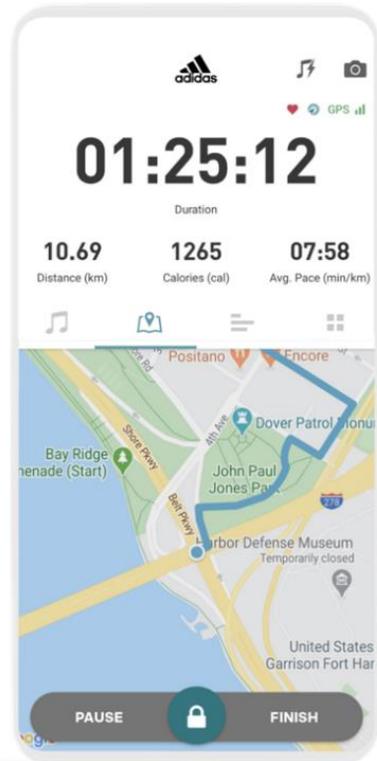
AVIOS **Conversational Interaction**
Conference **April 12 & 13, 2022**

CONNECTING PEOPLE AND COMPUTERS THROUGH HUMAN LANGUAGE

Live in San Jose, California

HOME | PROGRAM | SPONSOR | REGISTER | CALL FOR SPEAKERS | HOTEL | NEWS | TRENDS | CONTACT

Connecting with Companies through the general digital assistants



Hey Google, track my run with adidas Running



Here's adidas Running

Developer tools

Google “Actions”

Actions Builder & Actions SDK

Develop, test and deploy
Conversational Actions quickly, using a
fully integrated platform.

Alexa “Skills”



Custom Skills

Create your own voice experience to deliver nearly any experience, including games, education, health and fitness, productivity, and shopping.



Flash Briefing & News Skills

Make it easy for customers to get your latest news, headlines, and other short audio and text as part of daily routines.

Siri “shortcuts”

Use the Shortcuts app to create and manage your shortcuts



Examples of Siri shortcuts

▶ Asking Siri questions

- ▶ **Weather:** "What's the weather today?" or the more specific "Do I need an umbrella?"
- ▶ **Definitions, synonyms, antonyms, or etymologies of words:** "What's the definition of arduous?"
- ▶ **Site searches:** "What's trending on Twitter?"
- ▶ **Any question Siri can't answer:** if Siri can't answer a question itself, it will send it to Google, and present you with the top result from there. You can also start a question with "Search Google for..." if you want.

▶ Search your phone

- ▶ **Notes:** "Find my note about..."
- ▶ **Emails:** "Find the email about..."
- ▶ **Your photos:** "Find photos of [person]," "Find photos from [place]," and "Find photos from [date or time period]".

▶ Voice commands to

- ▶ **Set schedules**
- ▶ **Help with directions**
- ▶ **To control Apple Music**

Siri Business Listing

- ▶ Siri Business Listing
 - ▶ Getting your business listed on Apple Siri helps people find your business's products, services, and general information.
 - ▶ Businesses can also get listed and found by customers through Google Assistant, Samsung's Bixby, and more.

How a company Alexa Skill Works

- ▶ An Amazon Alexa skill has both an interaction model—or voice user interface—and application logic.
- ▶ You provide your application logic as a back-end cloud service hosted by Alexa, Amazon Web Services, or another server.



Some of the Amazon Alexa development options

Multiple Skill Types

Choose your skill type based on what your skill will do

Skill Components

Skill Components are 'ready-to-use' combinations of skill primitives.

Development Tools

You can use the ASK developer console or the ASK command line interface (CLI) to create, manage, test, and publish your skills.

Application APIs

Use our application APIs in your back-end service to receive customer requests from Alexa, and to tell Alexa how to respond. You can also use the APIs to personalize the experience, including selling goods and services.

Software Development Kits

Take advantage of ASK SDKs to reduce the complexity of your code. SDKs for Java, Node.js, and Python provide language-specific functions for common tasks, enabling you to focus on your skill logic, not boilerplate code.

Analytics

You can take advantage of ASK analytics to understand what's working well and opportunities for improvement.

Alexa Skill Types

- ▶ Entertainment Device
- ▶ Flash Briefing
- ▶ Games
- ▶ Knowledge
- ▶ List
- ▶ Music, Radio, and Podcast
- ▶ Networking and Wi-Fi
- ▶ Smart Home
- ▶ Smart Home Energy
- ▶ Smart Home Security
- ▶ Video

Alexa interfaces for Smart Home Energy skills

- ▶ **Alexa.AutomationManagement** — For devices that support automation, such as thermostats.
- ▶ **Alexa.DeviceUsage.Estimation** — Users can view an estimate of their energy use for devices that don't measure energy use directly, such as light bulbs and televisions.
- ▶ **Alexa.DeviceUsage.Meter** — Users can view their energy use for devices that measure energy use directly, such as electricity and natural gas meters.
- ▶ **Alexa.ThermostatController.HVAC.Components** — Users can view an estimate of their energy use for a thermostat device or a heating, ventilation, and air conditioning (HVAC) system.

Google Assistant Service

- ▶ The Google Assistant Service gives you full control over the integration with the Assistant by providing a streaming endpoint. Stream a user audio query to this endpoint to receive a Google Assistant audio response.
- ▶ You can generate bindings for this API from a variety of languages (for example, Go, Node.js, C++, and Java) on all platforms supported by gRPC (the last a modern open-source high performance Remote Procedure Call framework that can run in any environment).

Google Assistant for Android OS

Allow users to jump right to their favorite features of your app just by using their voice. Google claims this simple integration can be completed in only a few days and is available for all Android apps.

- ▶ 60+ common applications handle all the NLU training for you
- ▶ Integration with Android Shortcuts
- ▶ Proactive in-the-moment suggestions that allow users to create a shortcut in one tap for a task they just accomplished

Companies must be reachable through the general assistants

- ▶ Equivalent to the need for a web site

This will drive

- **Development of company-specific digital assistants**
- **Tools and services available to accelerate that development**

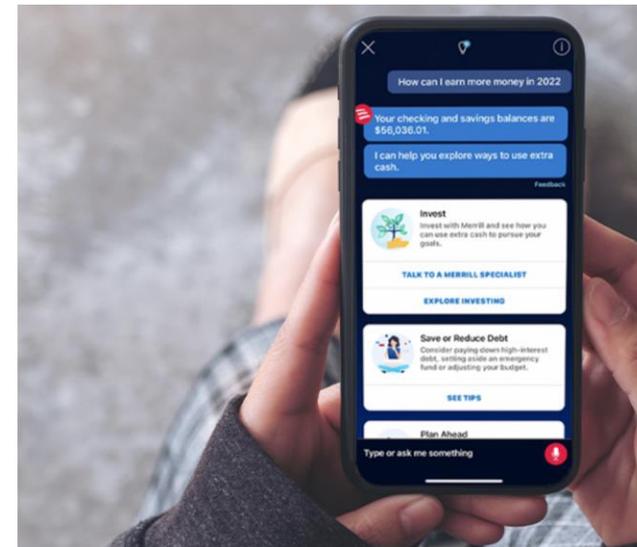
Independent conversational solutions reached independent of the general assistants

- ▶ Conversational technology can be adopted in independent company assistants
- ▶ Bank of America's digital assistant

Erica helps you make the most of your money

Your virtual financial assistant is ready with insights and guidance to help you put your cash to work.

- ✓ Explore strategies that work for you
- ✓ Available 24/7 in the mobile app
- ✓ Get referred to a specialist to discuss different opportunities



For now, Erica can only speak English, but is expected to learn Spanish.

Your digital assistant will be almost constantly available

Multiple channels--





It will become increasingly
personalized

What time is my meeting with Joe?
How did my stocks do today?

In the long run

**Think what a child growing up with this
technology will experience**



In the long run

Think what a child growing up with this technology will experience

A close and friendly
connection



Human evolution has always been about our tools



Your company must be part of this revolution

- ▶ Be tightly connected to your customers!

Your company must be part of this revolution

- ▶ Be tightly connected to your customers!

Don't wait to get involved!

Augmented Intelligence

- ▶ Increasingly something we come to depend on as an always-available assistant as
 - ▶ An enhancement of our memory
 - ▶ A knowledge source
 - ▶ A tool for getting things done through digital channels

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Language is the closest connection to the brain
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Language is the closest connection to the brain without surgery

Our tools are part of what it means to be human

This major trend will be part of doing business effectively



For More...

- ▶ About to be published on the **Human-Computer Partnership**
- ▶ Drop me a line and I'll provide a copy of these slides
(wmeisel@tmaa.com)

