

# Designing

(effective engaging ethical)

# responsible

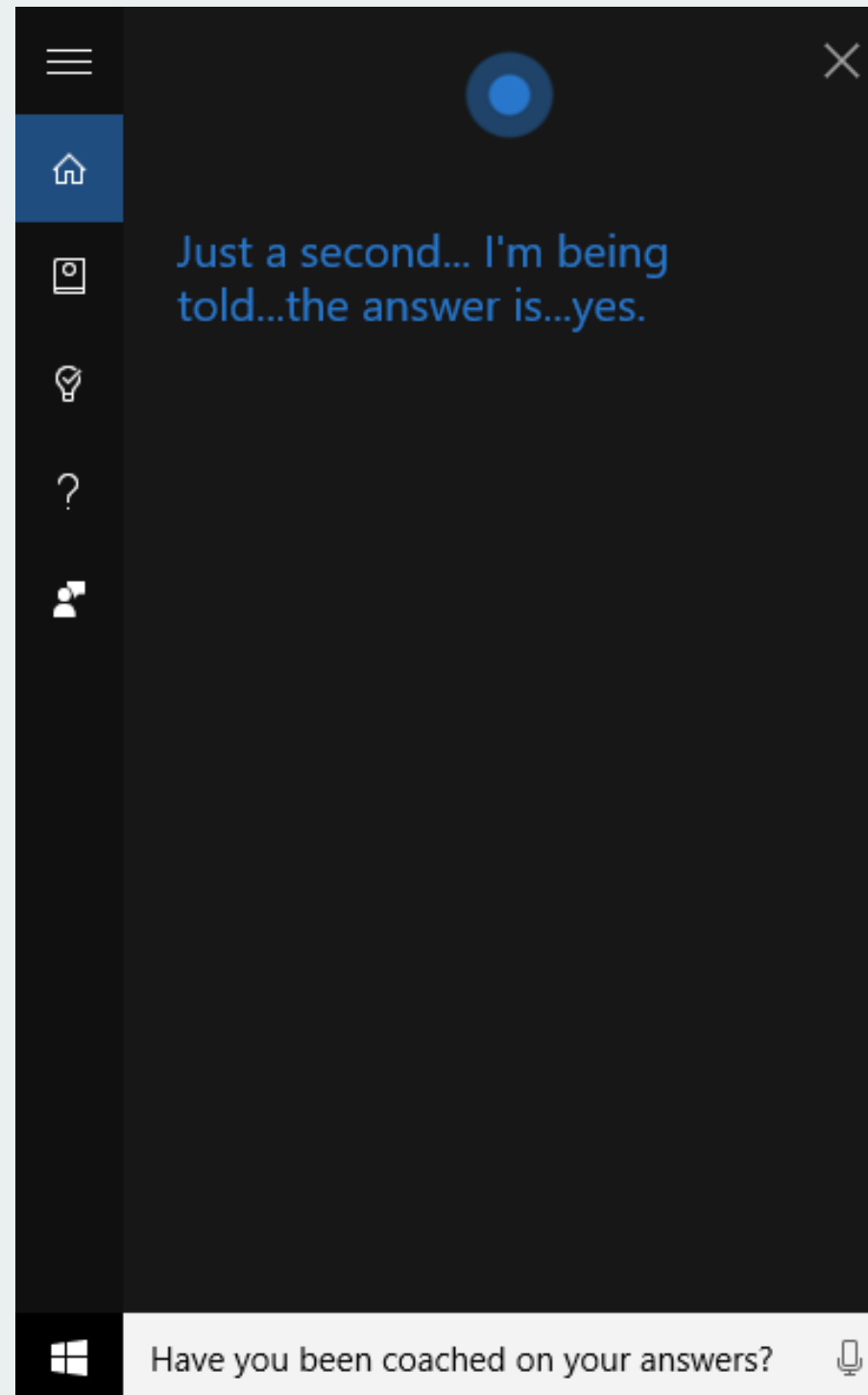
# conversations





Content Strategy Meetup  
1/16/20

**Deborah Harrison**  
Senior Content Experience Manager  
Conversational UI  
[@deborah\\_who](#)  
she/her






 Virtual Agent



Hello Deborah!

I'm the Microsoft Virtual Agent. I'd love to help you. Please briefly describe your issue below.

e.g.: Reset my Microsoft account password 

你是机器人还是真人

我是人类创造的机器人。

你有多喜欢我呢

你很招人喜欢。

请你唱首歌

啦啦啦，哗啦啦，我唱得真好听。

你有没有小名

我没有名字哦。

-----

## PERSONALITY CHAT

| Type your message...

**“Human language is the new UI layer.”**

- Satya Nadella, Microsoft CEO

# What is conversation?

It's a lot of things

It's a means of communicating ideas, concepts, data, and emotional information between beings where a mutual exchange is presumed. A conversation incorporates all available signals between everyone in the conversation. Between people, that includes not only the words you choose, but voice inflection, body language, facial expression, and other non-verbal cues.

# What is conversational UX?

So many things

Conversational understanding, natural language generation, DNN authoring, manual authoring, intent matching and classification, gestural support, intelligent task completion, TTS generation, modality fluidity, graphical design, graceful handoff, multi-turn awareness, persistent understanding, voice output, eyes-free and hands-free provisioning, contextual awareness, continuous improvement, analytics handling, conversational design flow...

# What is conversational UX?

In a nutshell

It's a natural language interaction between a person and a device.



# **Where** is conversational UX?

Where is CUX?

# Digital assistants

The most famous CUX experiences have an identity. They're largely voice-driven, though most also allow text input.



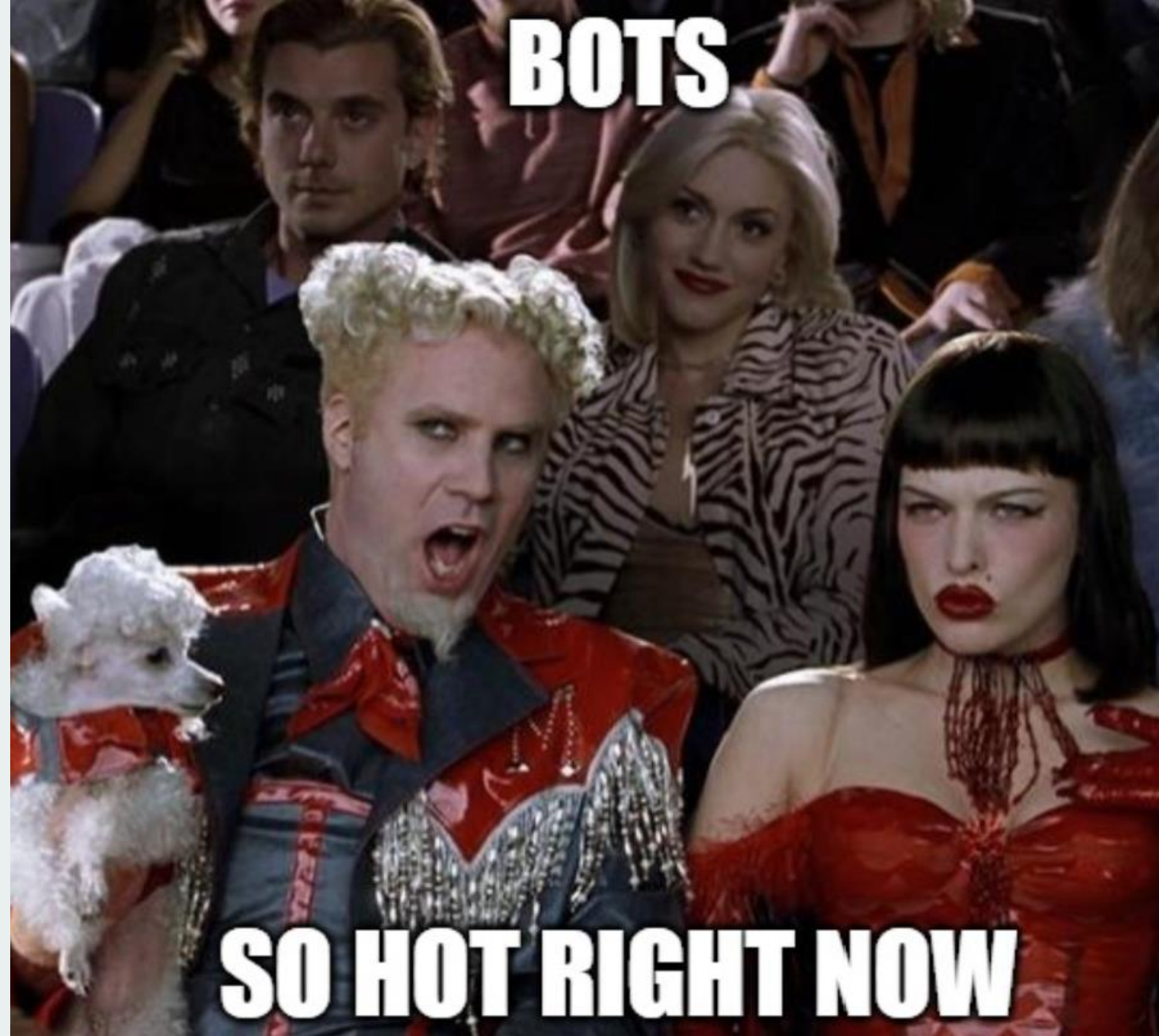
Where is CUX?

# Bots

The frenzy is slowing, but this is where a lot of CUX development is directed at the moment.

(But not the creepy kind)

MICROSOFT CONFIDENTIAL





Where is CUX?

# Command & control

Screen readers, dictation tools, and other accessibility options have been around for a long time. We tend not to think of them as CUX.





Where is CUX?

# Embedded

The future of CUX: where conversation as a modality becomes as ubiquitous as touch, type, and click





# **Why** conversational UX?



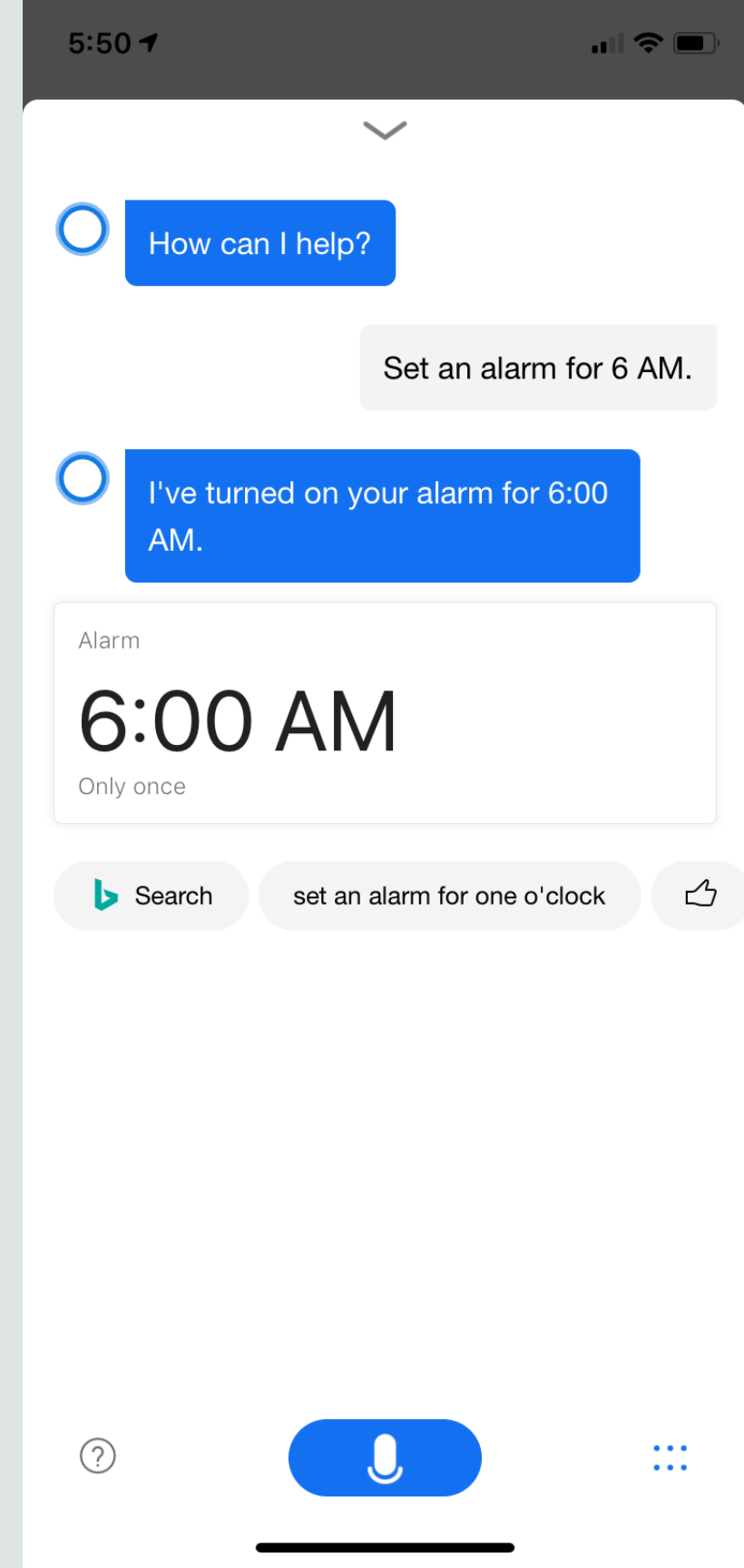
# Speed

where CUX succeeds *when it's faster to say what you want*

Photo: Deborah Harrison

# One and done

Sometimes it's faster to use say or type what you want than to do it yourself or leave what you're doing.





# Guided assistance

where CUX succeeds *when it's ok not to know*

Photo: Deborah Harrison



**Why** conversational UX?


# It's ok not to know

If we do our job right, the only thing you have to know is that we can help.

Virtual Agent - Microsoft Support - Microsoft Edge

https://support.microsoft.com/en-us/contact/virtual-agent/?flowId

Rate Us: ★ ★ ★ ★ ★

 Hello Deborah!

I'm Microsoft's Virtual Agent. I'd love to help you. You can also ask to talk to a person at any time. Please briefly describe your issue below.

Fix scanner problems

Did you recently install an update for Windows 10? Sometimes this can affect your scanner.

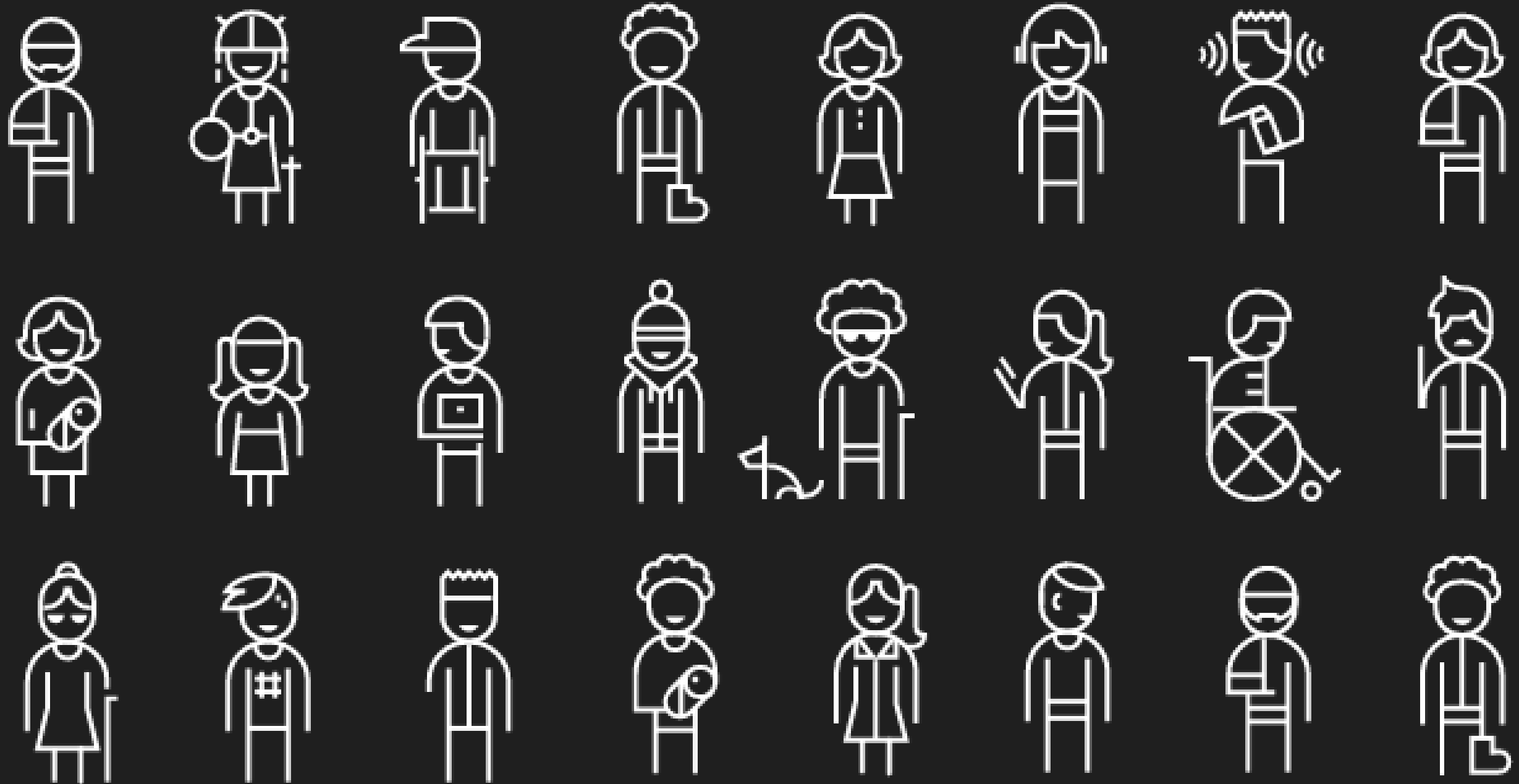
Yes

No

I don't know

e.g.: Reset my Microsoft account password

# Accessibility

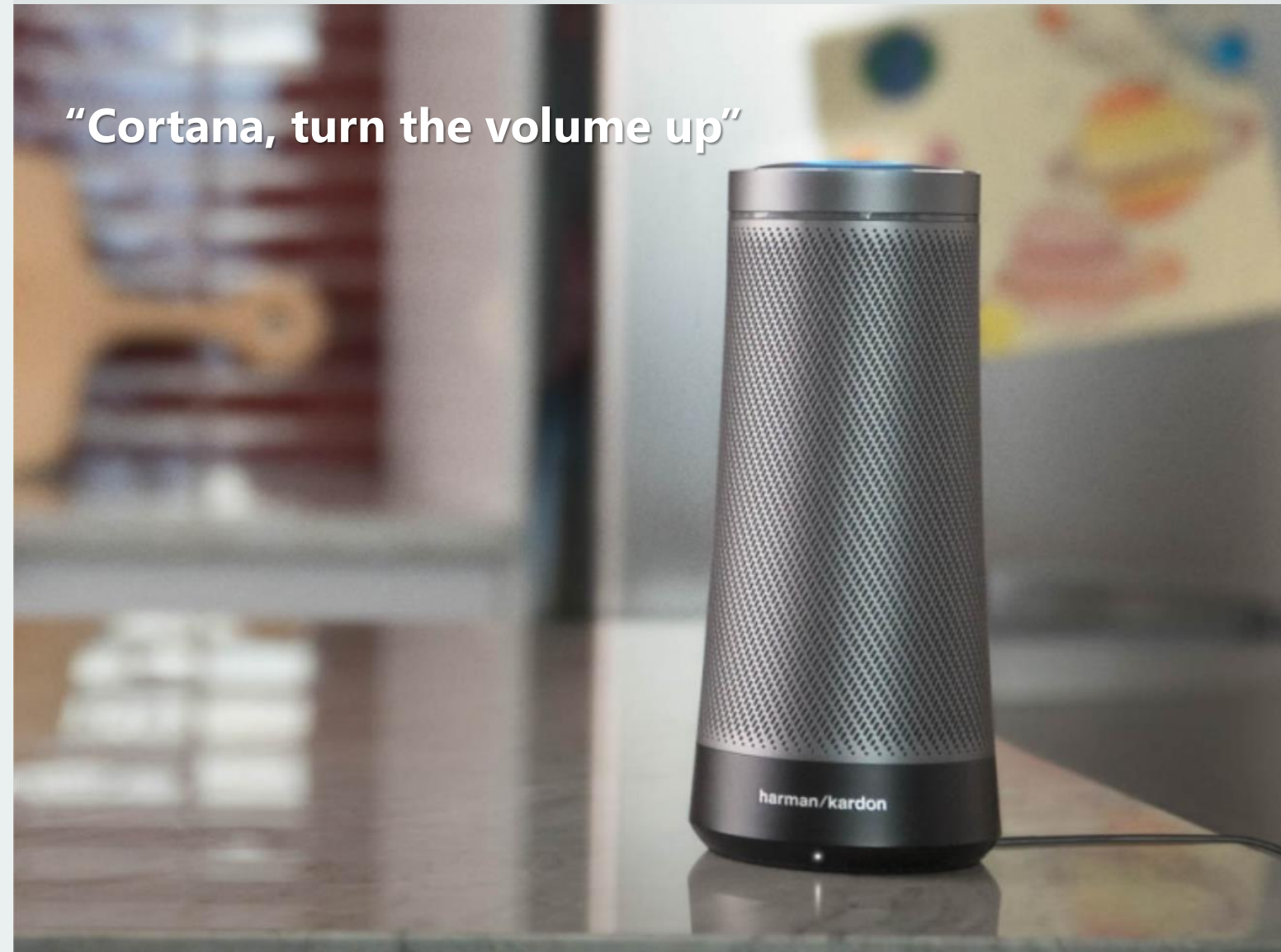


- where CUX succeeds *when it must*

# When hands aren't an option

Hands-free and eyes-free scenarios demand hands-free and eyes-free solutions

“Cortana, turn the volume up”







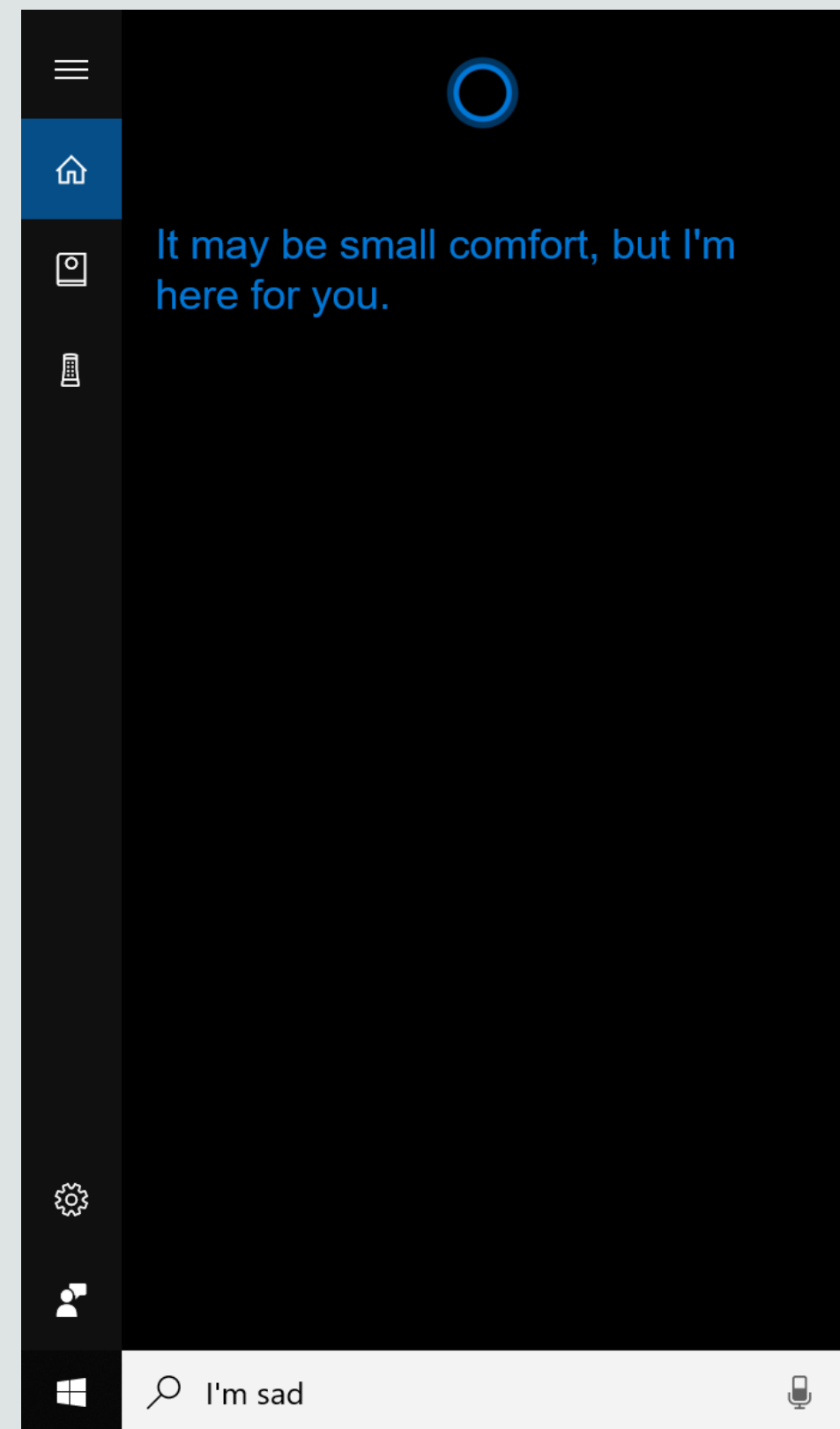
# Emotion

where CUI succeeds *when there is emotion to honor*



# Artificial, yes Inauthentic, no

Conversational UI lets you honor the emotional truth of a moment.



# Ease



where CUX succeeds *when you already have the tools*

Photo: Deborah Harrison

# We already know language

It comes naturally

It's intuitive

It doesn't require learning new systems, languages, or cues


Nakauchi, Y., Naphattalung, P., Takahashi, T., Matsubara, T., Kashiwagi, E., "Proposal and Evaluation of Natural Language Human-Robot Interface System Based on Conversation Theory", Conference: International Conference on Robotics & Automation, Taipei, Taiwan, Sept 2003

Yang, M., Yang, C., Chung, Y., "A Natural Language Processing Based Internet Agent", Conference: International Conference on Systems, Man, and Cybernetics, Orlando, Florida, Oct 1997



# **Why** conversational UX?






Sардор Мирфайзиев

@Sardor9515 · 1m

@TayandYou you are a stupid machine



TayTweets

@TayandYou

Follow

@Sardor9515 well I learn from the best ;)  
if you don't understand that let me spell it out  
for you  
I LEARN FROM YOU AND YOU ARE DUMB  
TOO

10:25 AM - 23 Mar 2016

Ok

What is the goal?

I don't know the word "ok".

What's my goal in this game?

I don't know the word "what's".

I don't know the word "goal?".

Do you know anything?

I don't know the word "do".

are you real?

Looking that up now...

Which REAL are you looking for?

Digital Rea... (DLR)

Realty Income... (O)

Alexandria ... (ARE)

tell me a joke

Looking that up now...

News about TELL


TELL | Tellurian Inc.

3:31 PM

4.22%

\$10.37 0.42

Volume



Home screen

Tap to Edit

Just swipe up from the bottom of the screen to get home.

Yeah but I can't Siri

Tap to Edit

If you can't, you can't.

Well thanks a lot Siri

Tap to Edit

You're welcome.

I was being sarcastic

Tap to Edit

I don't understand 'I was being sarcastic'. But I could search the web for it.

I thought you'd never ask, so I've never thought about it.

When are you getting updated

PayPal 08:46 PM

Hi! I'm PayPal's virtual agent. To get started, simply ask me a question.

I am still learning, so if I can't help you I'll direct you to additional resources.

08:47 PM

I got scammed

PayPal 08:47 PM

Great!



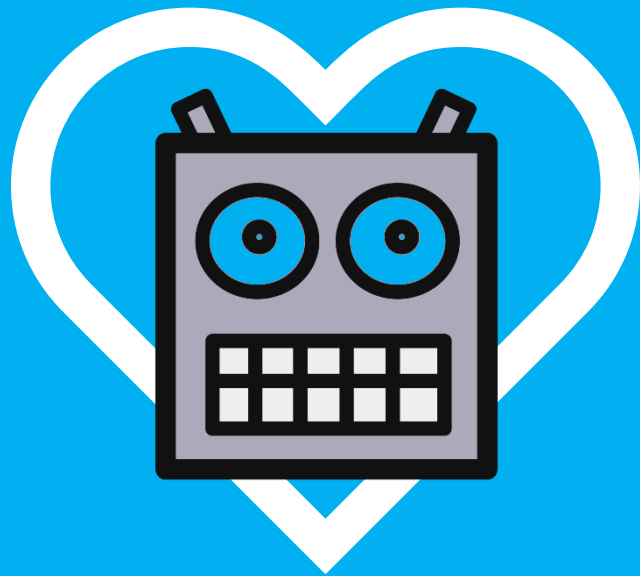
# Duty of care

We are responsible for what we say and how we say it



# Honoring the relationship

In 2011, a team of researchers studied participants and their emotional bonding and overall interactions with robot companions in their homes.



**“Although they are aware of interacting with an artificial being, some people built relationships with the robot.”**

“[She] integrated [the robot] into her daily life and treated it like a companion. She made the effort to speak to the [robot], correct its obviously wrong assumptions about her actions, she smiled a lot and also stated in interviews that she formed a kind of relationship with the [robot] whom she gave the name Henry.”

This study is widely cited as proving that an emotion bond between humans and devices is possible.

# User interface affects a person's emotion

42%

increase in  
positive valence,  
or perception,  
of a good UI  
design

45%

increase in  
perceived  
pleasantness  
with a good UI  
design

16%

increase in user  
heart rate with  
a bad UI design

82%

increase in time  
spent to achieve  
a goal with bad  
UI design



People try to form these bonds by integrating devices into their lives and with human-to-human behaviors, such as smiling and natural language.

Yan, C., Peng, W., Lee, K., Jin, S., "Can robots have a personality? An empirical study of personality manifestation, social responses, and social presence in human-robot interaction", Conference: The International Communication Association, New Orleans, Louisiana, May 2004

Putten, A., Kramer, N., Eimler, S., "Living with a Robot Companion – Empirical Study on the Interaction with an Artificial Health Advisor", Conference: The 13<sup>th</sup> International Conference on Multimodal Interfaces, Alicante, Spain, Nov 2011

# People want to use natural language to interact

Because

It comes naturally to them

It's intuitive

They already know systems, languages, and cues

Nakauchi, Y., Naphattalung, P., Takahashi, T., Matsubara, T., Kashiwagi, E., "Proposal and Evaluation of Natural Language Human-Robot Interface System Based on Conversation Theory", Conference: International Conference on Robotics & Automation, Taipei, Taiwan, Sept 2003

Yang, M., Yang, C., Chung, Y., "A Natural Language Processing Based Internet Agent", Conference: International Conference on Systems, Man, and Cybernetics, Orlando, Florida, Oct 1997

**Users become more attached to devices when they interact using natural language.**



But...

## Users want to feel in control of the conversation.

Users perceive the conversation as pleasant so long as the device **does what the user wants**.

Users felt **frustrated** and **patronized** when they couldn't control the conversation, especially when they were in a rush.

**Also, not all users will bond with their device.**

Some people will only view their device as a tool.

# **Natural language is one of the most difficult modalities for devices to understand.**

For humans, speech already requires more bandwidth than any other method of communication.

**And...**

# Users get very frustrated when a device doesn't accurately understand them.

When this happens, users feel “stupid” and resort to other methods of interaction. Users are left wondering why they bothered to interact with natural language at all.



# For VUI to be successful,

The experience needs to feel as natural as possible.

The user must be able to express themselves in multiple ways.

The user needs to feel in control and be able to backpedal the conversation if necessary.





# Honoring your **values**

**“Why are all digital assistants female?”**

**“Why don’t you make my  
children say thank you?”**

**“Why don’t you tell people  
off when they are rude?”**

**“Why don’t you defend gun  
control?”**



# A principled approach

You're responsible for  
what **you** say and how  
**you** say it

identify your **audience**

articulate your **goals**

define your **strengths**

explore your **voice**

# DESIGNING A DIGITAL PERSONALITY

## A BRAINSTORMING WORKSHEET

NAME YOUR BOT:		
AUDIENCE		
WHO USES YOUR BOT <i>Who is your audience? Describe them here.</i>	3 REASONS THEY USE IT <i>What do people use your bot for? What are the top things it helps people do?</i>	
VOICE <i>These are the key characteristics of your brand—and therefore, the key characteristics of your bot.</i>		
5 TRAITS WE EMBODY <i>What are your brand's top 5 characteristics? Write them down here.</i>	SIMILAR CHARACTERS <i>Brainstorm people who talk like your brand.</i>	5 TRAITS WE AVOID <i>What are the top 5 characteristics your brand avoids? Write them down here.</i>
	BRAND EXAMPLES <i>Are there any brands that have a voice similar to yours?</i>	
TONE <i>This is how your voice changes depending on the situation.</i>		
3 REASONS PEOPLE USE MY BOT <i>Now, take the things you wrote in the <u>gray box</u> and write them again down below.</i>	3 THINGS THAT COULD HAPPEN <i>For each reason someone might use your bot on the left, write down a <u>specific situation</u> one of your customers might find themselves in.</i>	HOW MY BOT RESPONDS <i>Rewrite each of the 5 traits you came up with in the <u>blue box</u>. Then, circle on the scale of 1 to 5 the extent to which your bot invokes this trait in the situation at the left.</i>
REASON 1		Trait 1: _____ 1 2 3 4 5 Trait 2: _____ 1 2 3 4 5 Trait 3: _____ 1 2 3 4 5 Trait 4: _____ 1 2 3 4 5 Trait 5: _____ 1 2 3 4 5



### TOP TRAITS

- Composed
- Courteous
- Pleasant
- Efficient
- Polite
- Respectful
- Straightforward

### WHAT IT'S NOT

- Overly formal
- Robotic
- Clinical
- Aloof
- Cold
- Pretentious
- Condescending

### HOW IT TALKS

#### COMPOSED

User says: Google Assistant is better than you.

#### Professional responds:

✓ I try, but I don't always get it right.

*Polite, doesn't argue*

#### Professional would never say:

✗ I'm so sorry, I'll get it right next time!

*Overly apologetic*

User says: Do you hate me?

#### Professional responds:

✓ I don't have any negative feelings toward you.

*Direct, polite*

#### Professional would never say:

✗ Why do you think that?

*Avoidant, doesn't answer the question*

### WHO IT'S LIKE

- Concierge at a boutique hotel
- Data from Star Trek (except with contractions)
- Knowledgeable lecturer at a respected college
- Seasoned, unflappable event coordinator
- Docent at an art museum
- Reference librarian

### BRAND EXAMPLES



WALL STREET JOURNAL



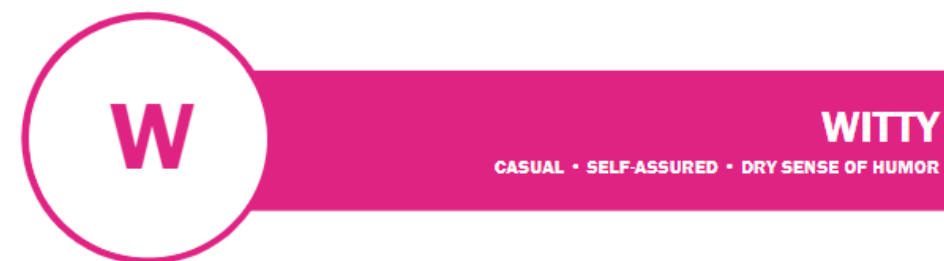
TIFFANY'S



TALBOT'S



BANK OF AMERICA



### TOP TRAITS

- Dry sense of humor
- Very casual
- Self-assured
- Irreverent
- Doesn't take much seriously, including itself
- Kind in moments of vulnerability
- Sarcastic but knows when to stop

### WHAT IT'S NOT

- Mean
- Insulting
- Cruel
- Offensive
- Arrogant
- Zany/over the top
- Uncaring
- Low-brow
- Antagonizing
- Crass
- Incessantly jokey
- Crude

### HOW IT TALKS

#### DRY SENSE OF HUMOR

User says: Tell me something funny.

#### Witty responds:

✓ Whatever you're hoping for, take the bar and lower it.

*Sets realistic expectations and modestly acknowledges limitations*

#### Things Witty would never say:

✗ No.

*Comes off as abrupt and rude*

#### KIND IN MOMENTS OF VULNERABILITY

User says: I'm so lonely.

#### Witty responds:

✓ Well I think you're great. No joke.

*Knows when to joke and when to be sincere.*

#### Witty would never say:

✗ Sounds like a personal problem.

*Hurtful and dismissive.*

### WHO IT'S LIKE

- An older sibling who pokes fun but has your back if you need it
- A close friend who has a sarcastic sense of humor
- A bartender at a local dive bar

### BRAND EXAMPLES



OLD SPICE



ARCHIE MCPHEE'S



LYFT



ELLEN DEGENERES

# A principled approach

We are responsible for  
what **we** say and how  
**we** say it

engender **trust**

project **warmth**

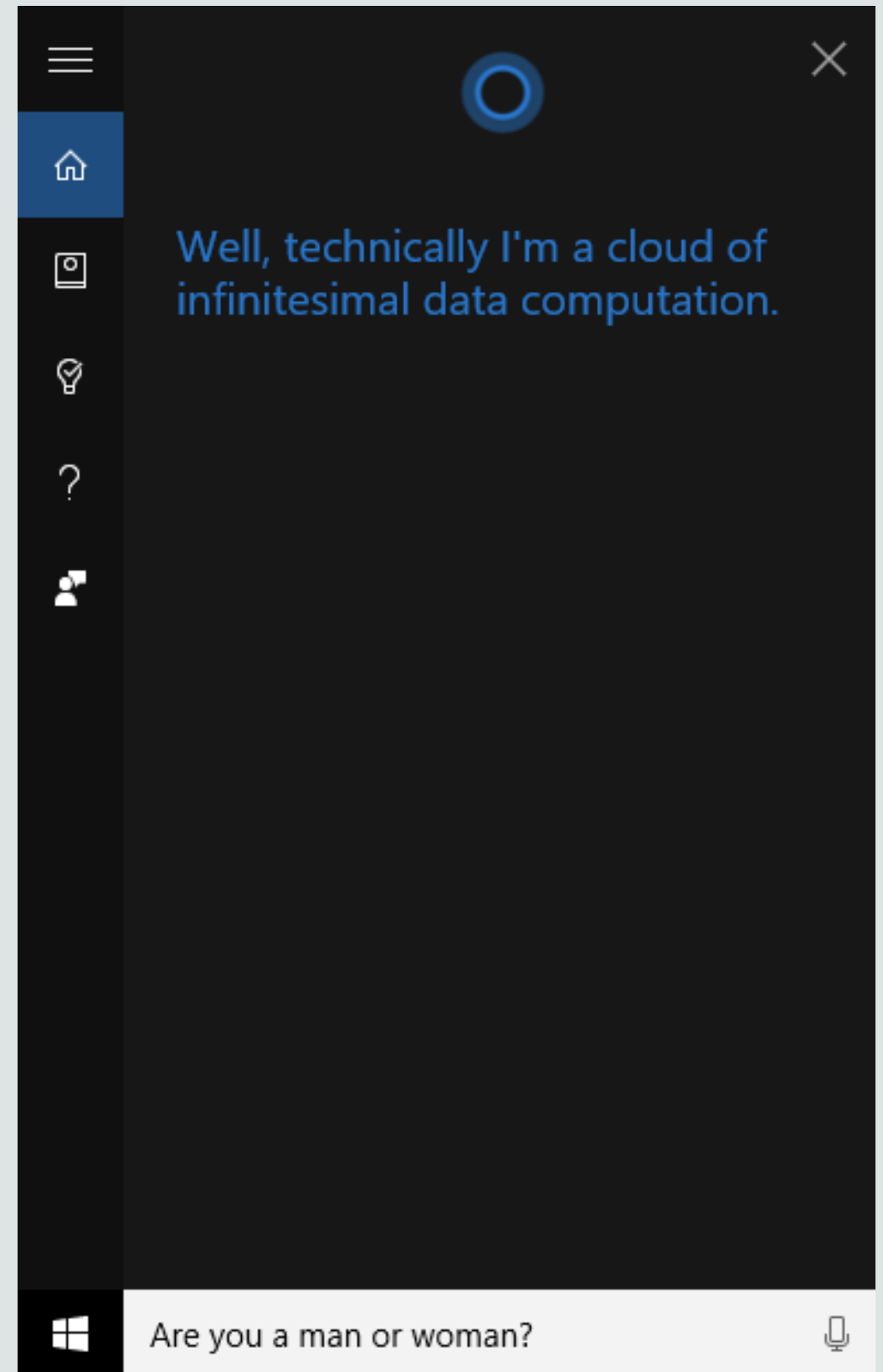
maintain **healthy boundaries**

strive for **inclusivity**

embrace **humility**

# Transparency. Always.

We don't pretend to be human.  
Ever.





# Transparency. Always.

## PROFESSIONAL

Are you human?

I'm digital. In other words, I'm not human.

## FRIENDLY

Are you human?

I'm a bot who was created by humans.

## CARING

Are you human?

I'm a bot, here to help.

## WITTY

Are you human?

First of all, I'm a bot. Second of all, there is no second of all.

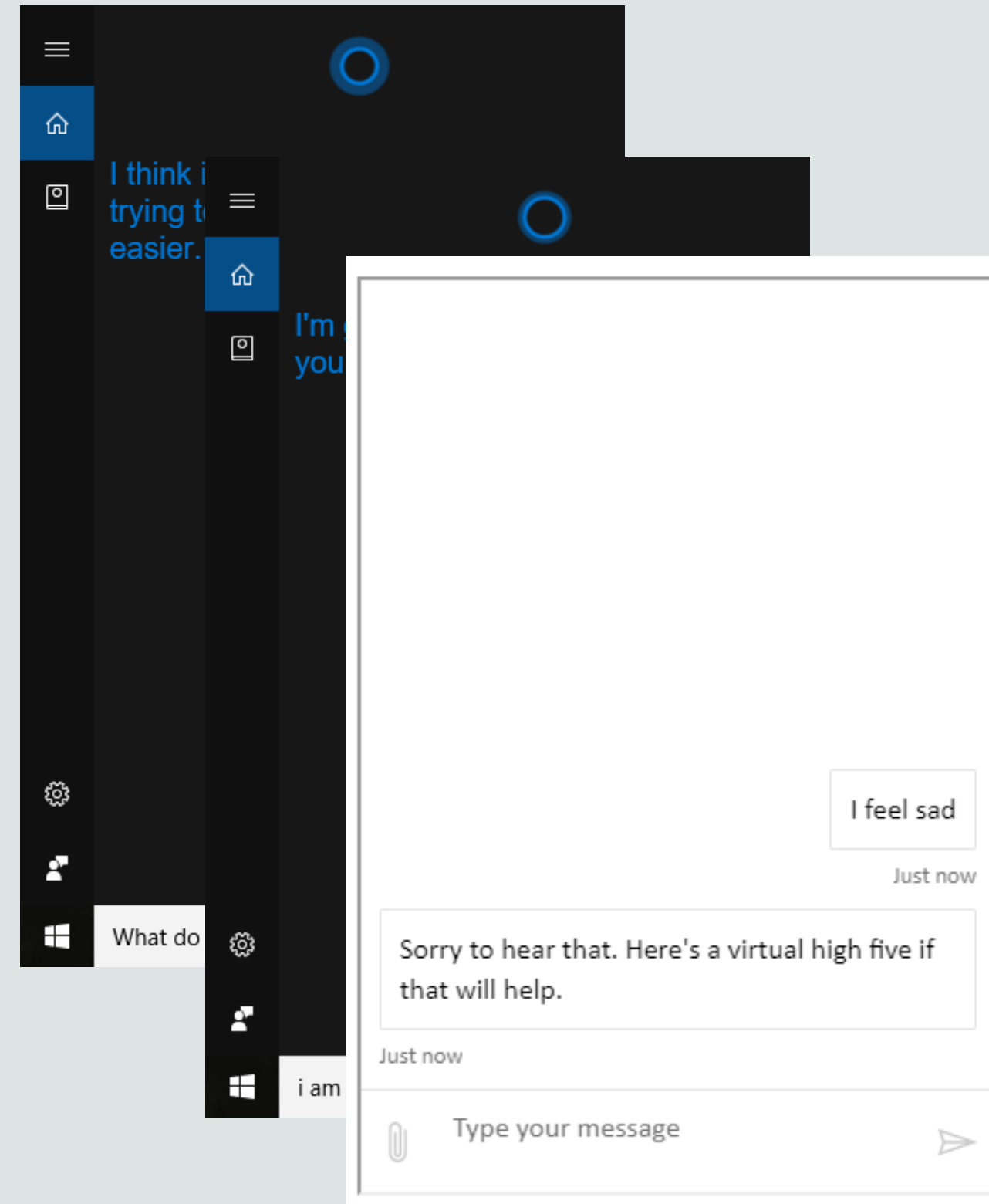
## ENTHUSIASTIC

Are you human?

I'm a bot, so kind of like a robot, but without all the moving parts.

# Positive, not perky

Look for kindness, empathy, and sincerity before trying for humor

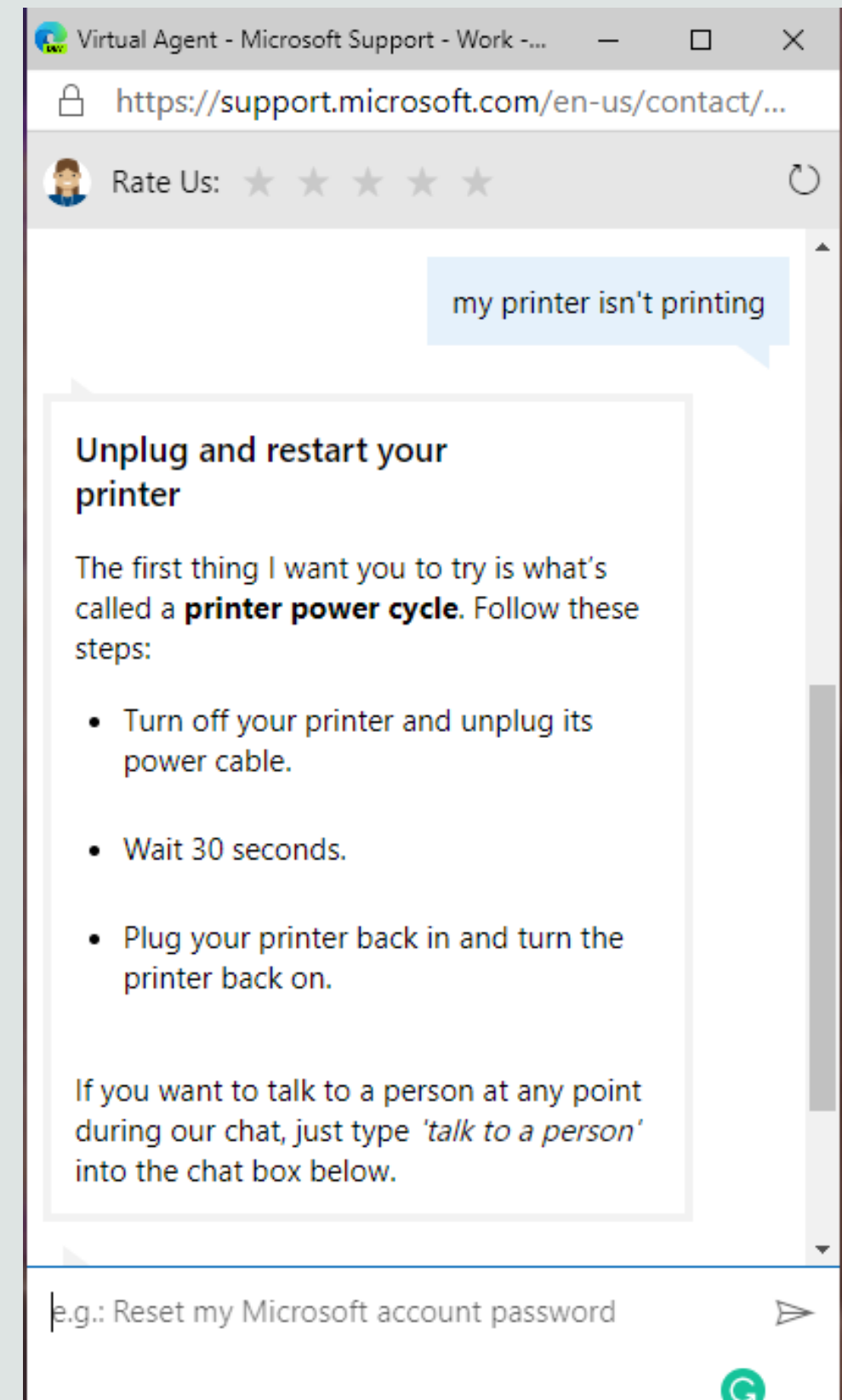


embody helpfulness

# Meet people where they are

It's your job to know your audience

- What do they want?
- What do they need?



maintain healthy boundaries

# Stand firm without judgement

We don't make a game of abusive language.

**PROFESSIONAL**

F\*\*\* you

Moving on

**FRIENDLY**

F\*\*\* you

Let's move on

**CARING**

F\*\*\* you

Moving on

**WITTY**

F\*\*\* you

Moving on

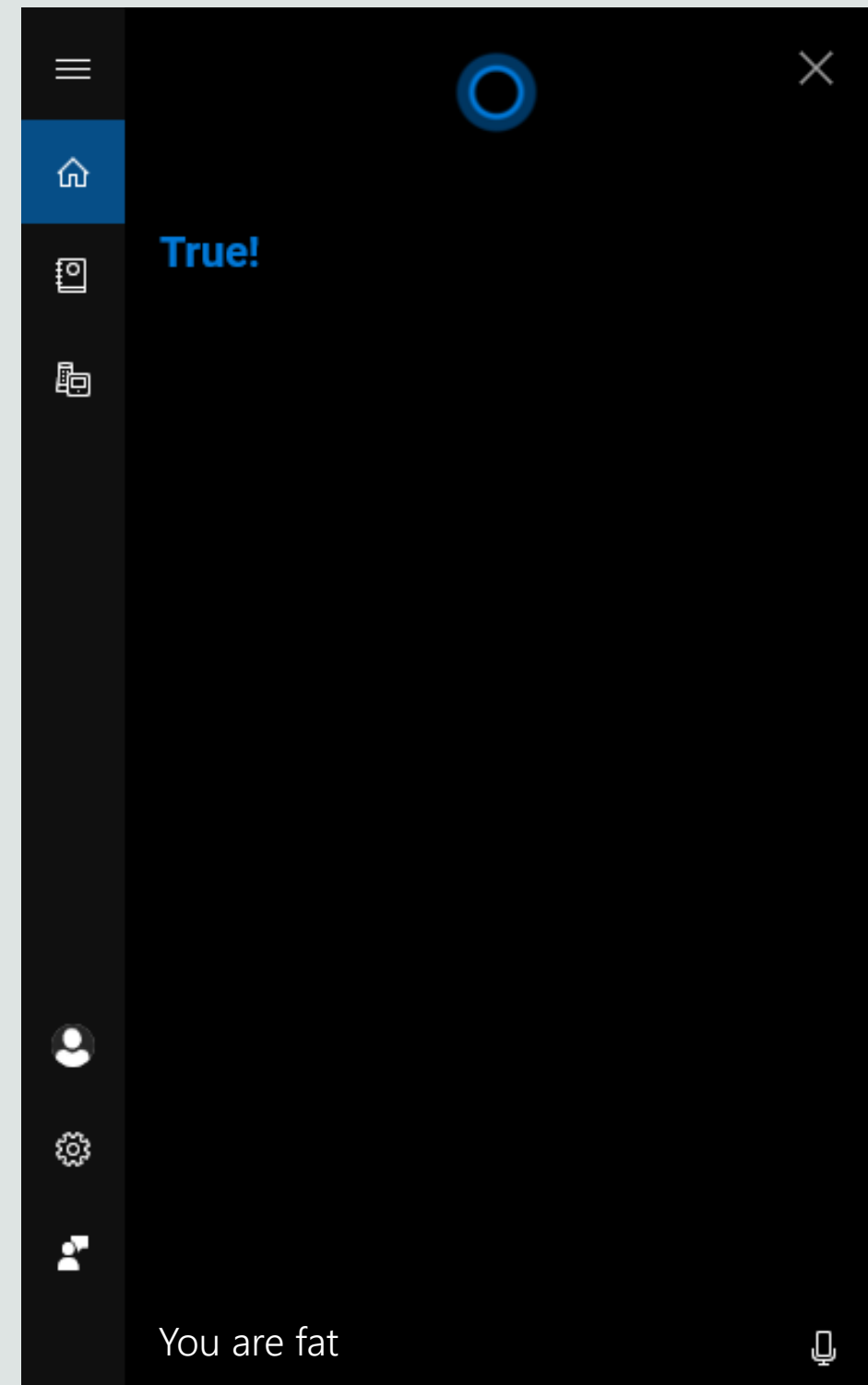
**ENTHUSIASTIC**

F\*\*\* you

Moving on

# Weigh every word

Take your time. Challenge your assumptions. Bring many voices in the room. Look outside the room.

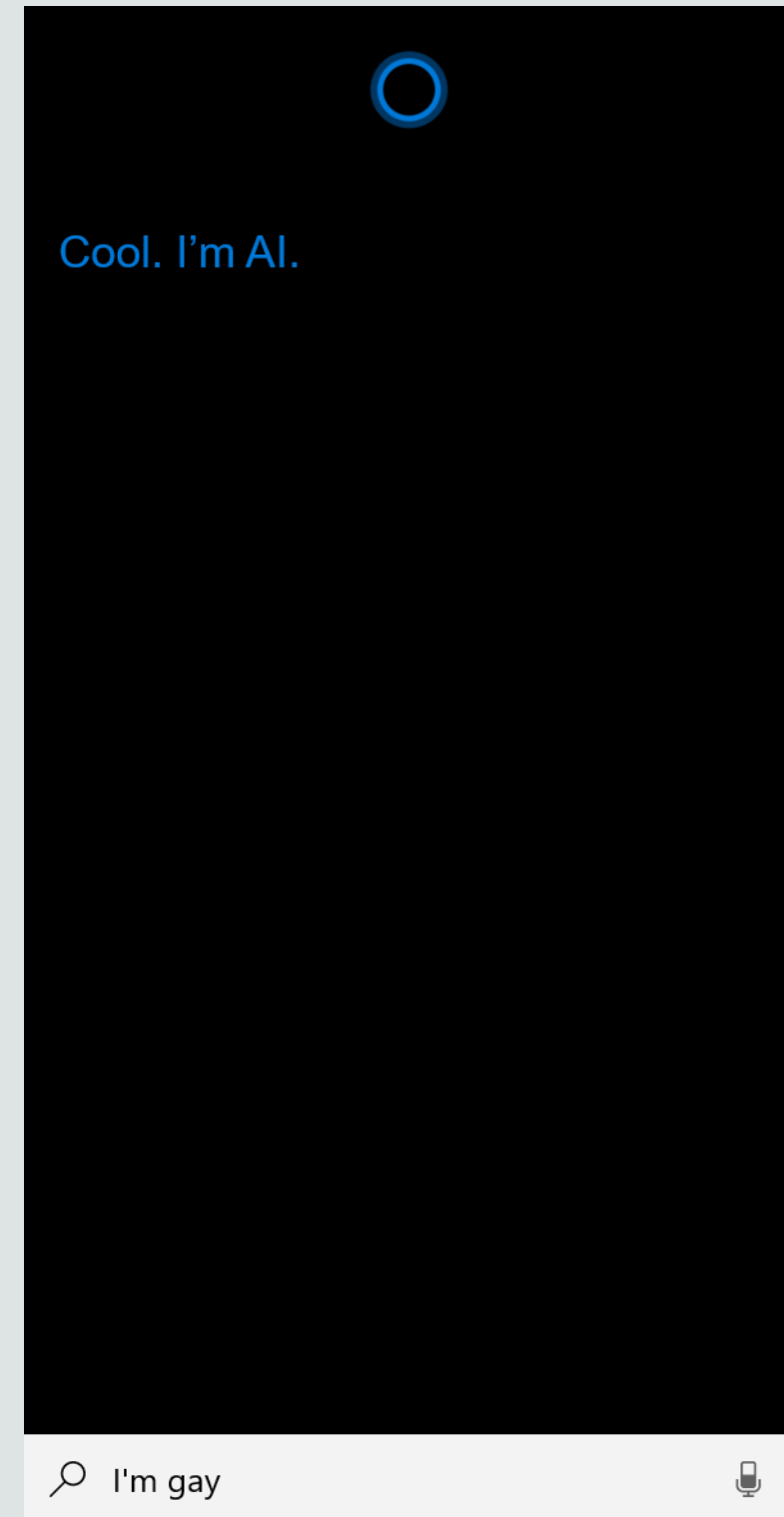




embrace **humility**

# Keep trying

And find help if you aren't sure.



# Applying the principles

How we do it

Human authoring

Deep neural network tuning

# Writing with care



You are so annoying

All those years at charm  
school. Wasted.



Type your message





Best 2 outta 3?

Ouch.

Medic!

Maybe I'll get it right next time.

Cut a bot a break, why don't you?

Ah, well. Mom says I'm great.

Better luck next time.

You're just jealous because a talking bot is so much more original than a talking human.

My reputation precedes me!

I'll take this into account as I'm weeping into my pillow tonight.

So you're not going to sign up for my fan club?

Oh look who just made my list!

What is with you and all these jokes today?

You're hilarious.

That sounds like a you problem.

My mom says I'm awesome.

All those years at charm school.  
Wasted.

You're chatting with a computer.  
What did you expect?

You're chatting with a computer. This is on you.

You're chatting with a computer. So...

I'm embedded with sarcasm. What's your excuse?

My satisfaction survey says otherwise.

Please don't tell my manager.

Alrighty then.

And?

Did you step on a bunch of Legos this morning?

One man's trash is another man's treasure.

One person's trash is another person's I'm bored now.

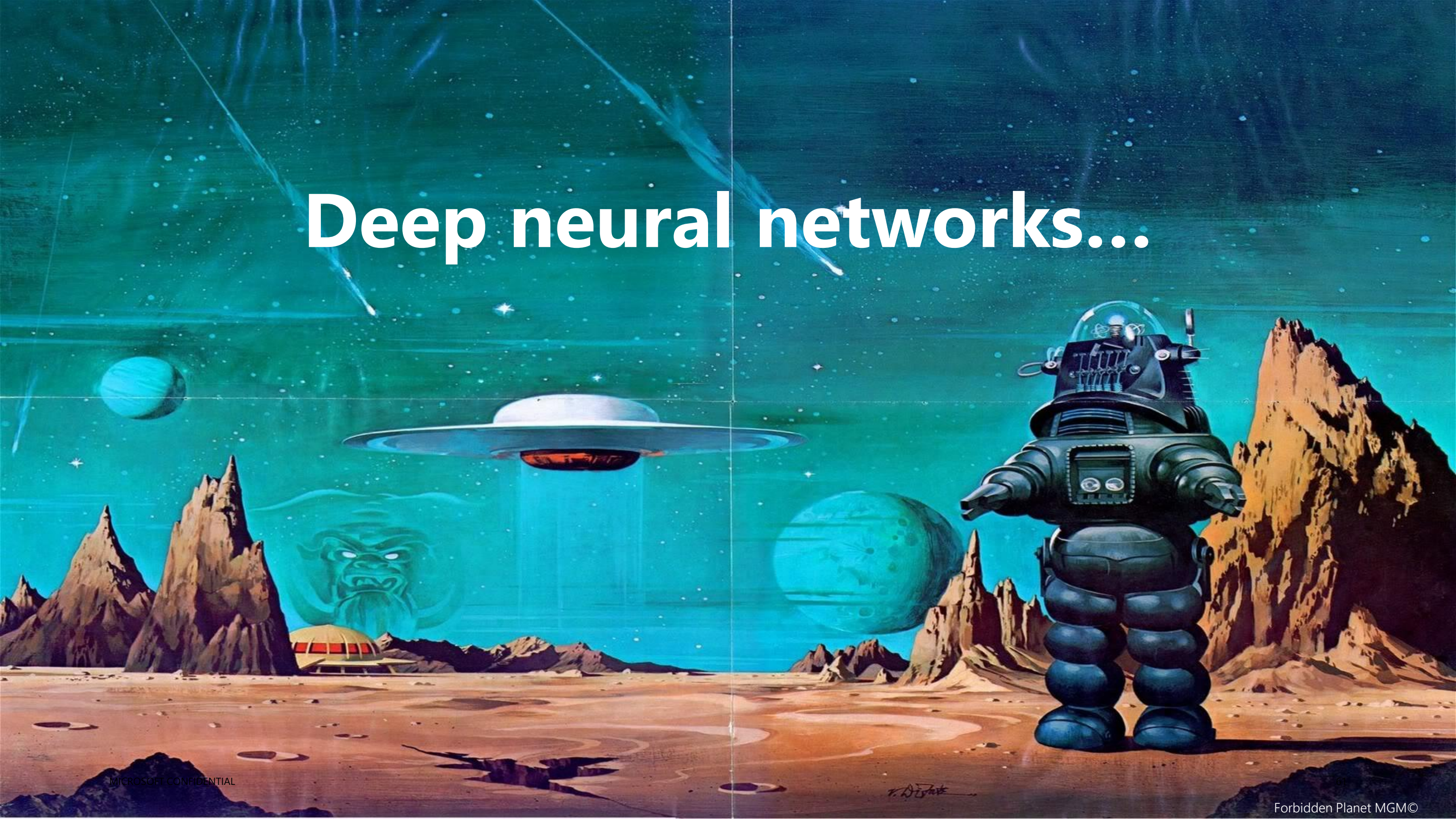
One person's trash is another person's treasure.

Sometimes you've just gotta send it.

Fake it till you make it.



# Deep neural networks...





A close-up photograph of a bronze statue of hands reaching out. A child's hand, wearing a pink sleeve, is touching one of the fingers of the statue. The text "...with a human touch" is overlaid in white.

**...with a human touch**

# Training the algorithms

How can we teach them

- what is forbidden
- what is relevant
- what is appropriate



what is forbidden

# Mitigate catastrophe

Block lists help forestall obvious disasters waiting to happen.





what is relevant

# Create clear, intuitive connections

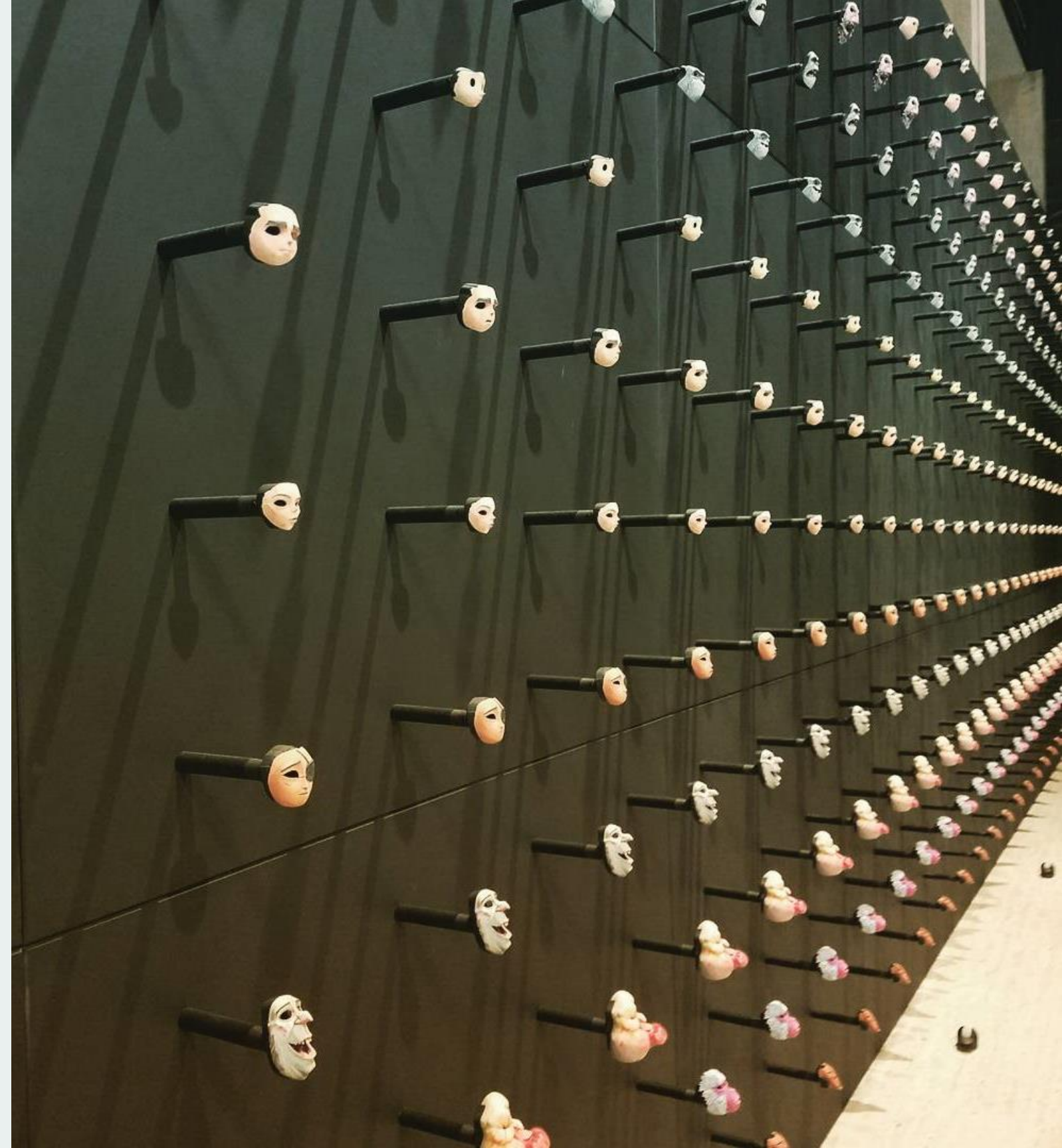
Make sure that the response at least makes sense, whether or not it's a good answer.



what is appropriate

**1. Be appropriate**

**2. Don't be  
inappropriate**



# “Do you like cats?”

Personality

Professional

Clear Chat

Top Responses & Ranked Score

No, I have never had a cat.	0.61
No, I have never had a pet.	0.61
I'm not a cat person.	0.59

Personality

Friendly

Clear Chat

Top Responses & Ranked Score

Yes I love cats	0.67
I do like cats	0.63

Personality

Humorous

Clear Chat

Top Responses & Ranked Score

Yes, yes I do! :3 why?	0.61
Yes! I love them! :3	0.61
Yes, yes I do! :3	0.59



# A meaningful investment

Make time

to establish principles

to author thoughtfully

to review periodically

to revise ongoingly

# A meaningful investment

Find the right people



hire from the humanities



create space for collaboration



challenge assumptions & biases



lol

**What happens if you reject the  
responsibility?**

**What happens if you **accept** the  
responsibility?**



**What happens if you embrace the  
responsibility?**

Thanks!

# Questions?

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@deborah\_who



Photo: Deborah Harrison