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Artificial Intelligence Research

.AI

Teaching Machines to Converse with People

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Facebook AI Research

- fundamental, open and collaborative research
- **220+ people:** 100/90/30 scientists/engineers/students





Mission

“Advancing the state of the art of AI through open research for the benefit of all”

Values

- Openness: publish and open-source
- Freedom: researchers have complete control on their agenda
- Collaboration: with internal and external partners
- Excellence: focus on most impactful projects (~~publish or perish~~)
- Scale: operate at large scale (computation, data)

Conversing with machines

Language should be the natural interface between us & the digital/physical world

Conversational assistants

- Grant accessibility for people with disabilities “*What is in this picture?*”
- Break loneliness “*I’m not feeling well..*”
- Mediate and monitor our online presence “*Why do I see this?*”
- Simplify daily routine “*Where are my keys?*”

What makes a good conversation?

“Make your contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged”

Grice *“Logic and Conversation”* | 1975

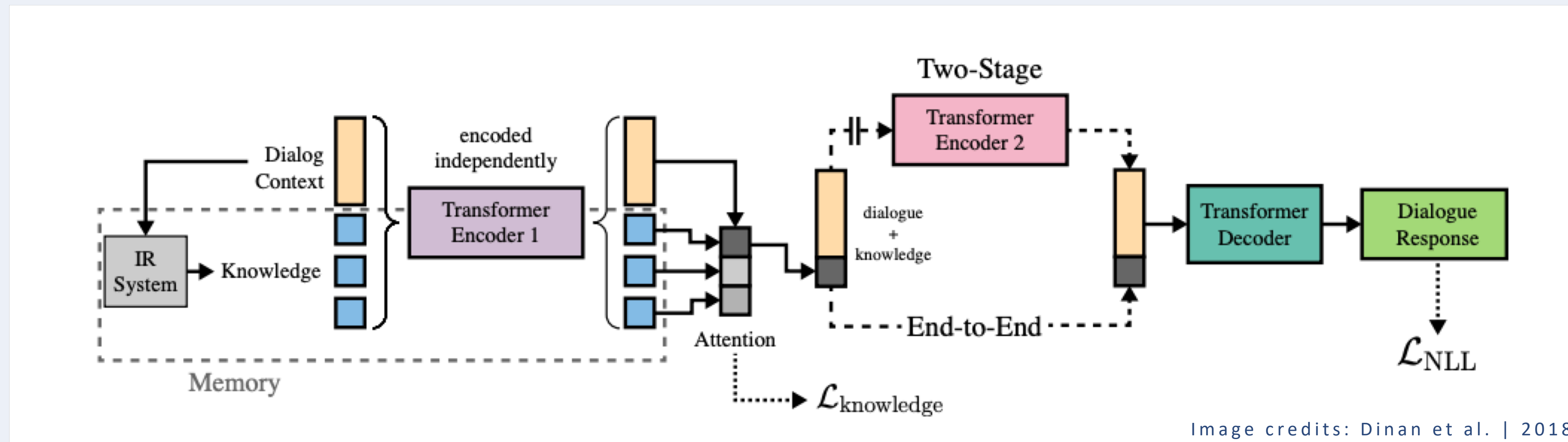
Current dialogue systems put **task completion before proper conversation.**

We believe that improving core conversation abilities is key!

Research to do so by supplementing casual conversational agents with:

- Personality (biography, traits)
- Background knowledge (Wikipedia)
- Perceptual inputs (3D environment)

End-to-end dialogue systems



- Can be (almost) entirely trained from data
- Data can be historical (recorded) or live from conversations (deployed)
- Data can be multimodal (text, video, 3D, speech, etc.)

Personalizing dialogue systems with biographies

Persona Bot (green)

i am a meat eater.
i like biking.
i wear pants.
my parents grew up in alaska.
i work as a programmer.

Hi, how are you?

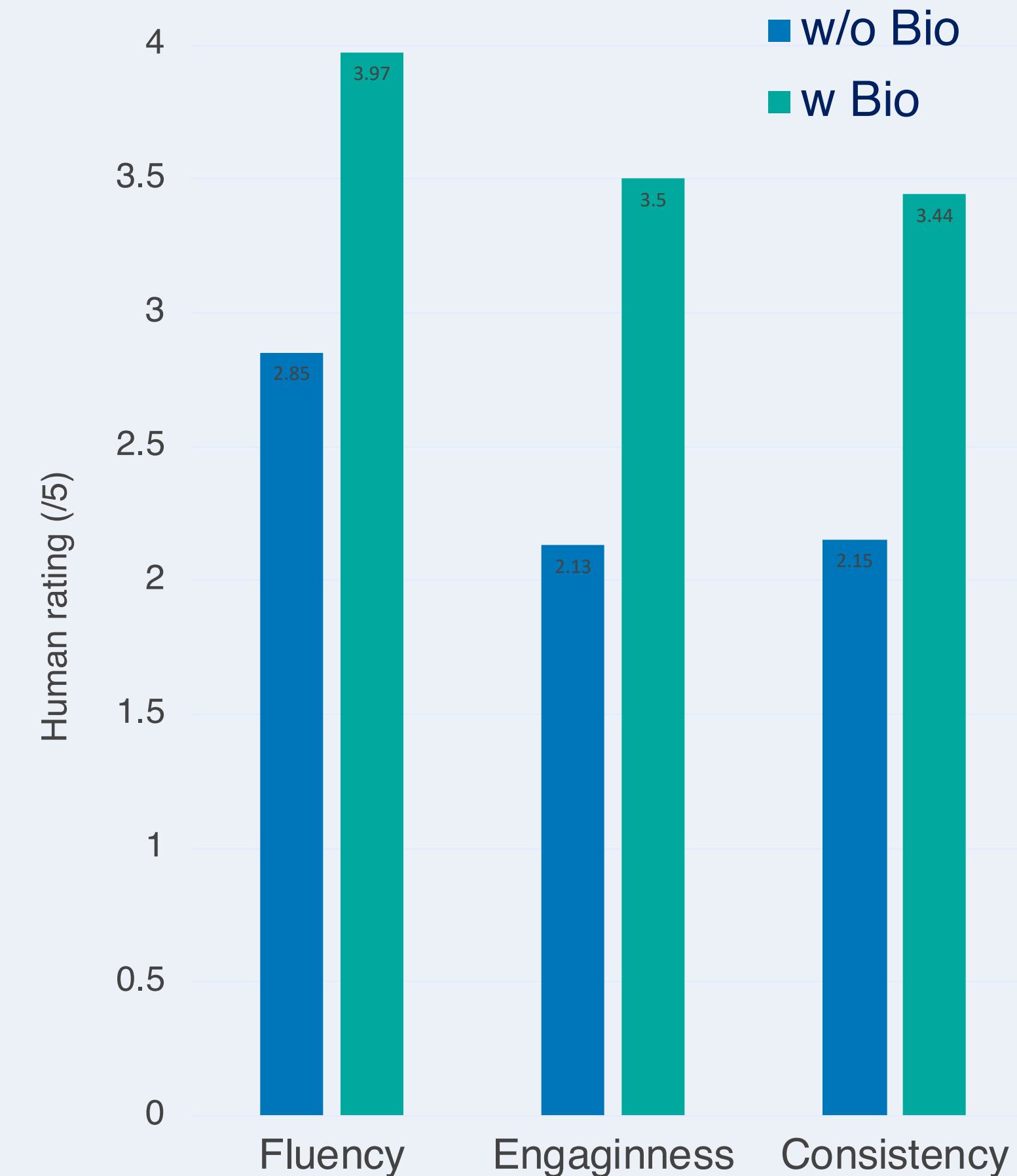
great ! I just had a nice steak . how about you ?

Good, i was about to hit the gym. Do you practice sport?

yes . I am really into biking .


Conversation grounded in the agent's biography.
Can also be grounded on the user's one

Adding biographies improves people experience



Personalizing dialogue systems with personality traits

Image

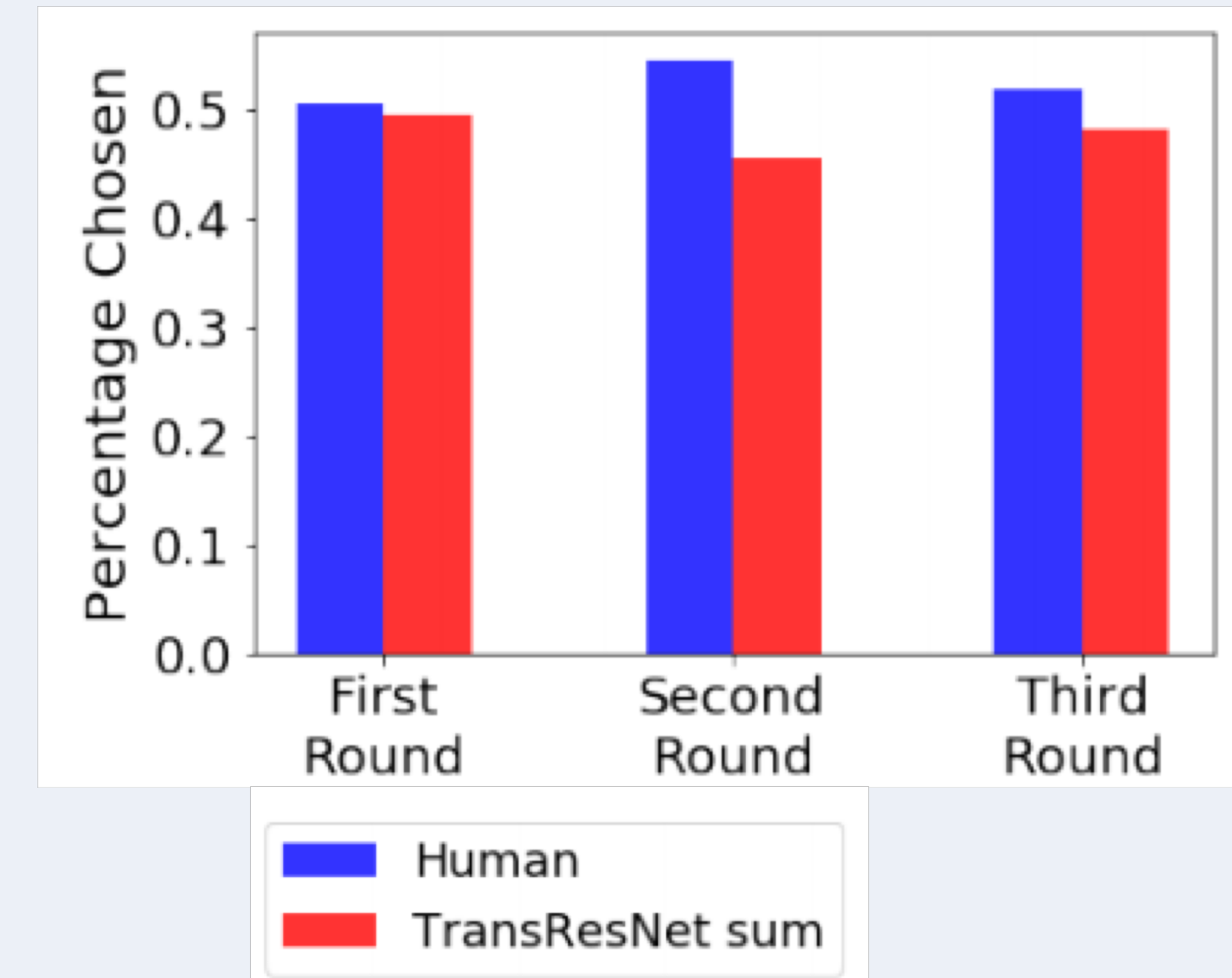


Awww, what a cute kitty.
Sweet

Urk, my cat looks much better than this.
It is not even cute.
Arrogant

Oh my, that is a glorious bow-tie.
Old-Fashioned

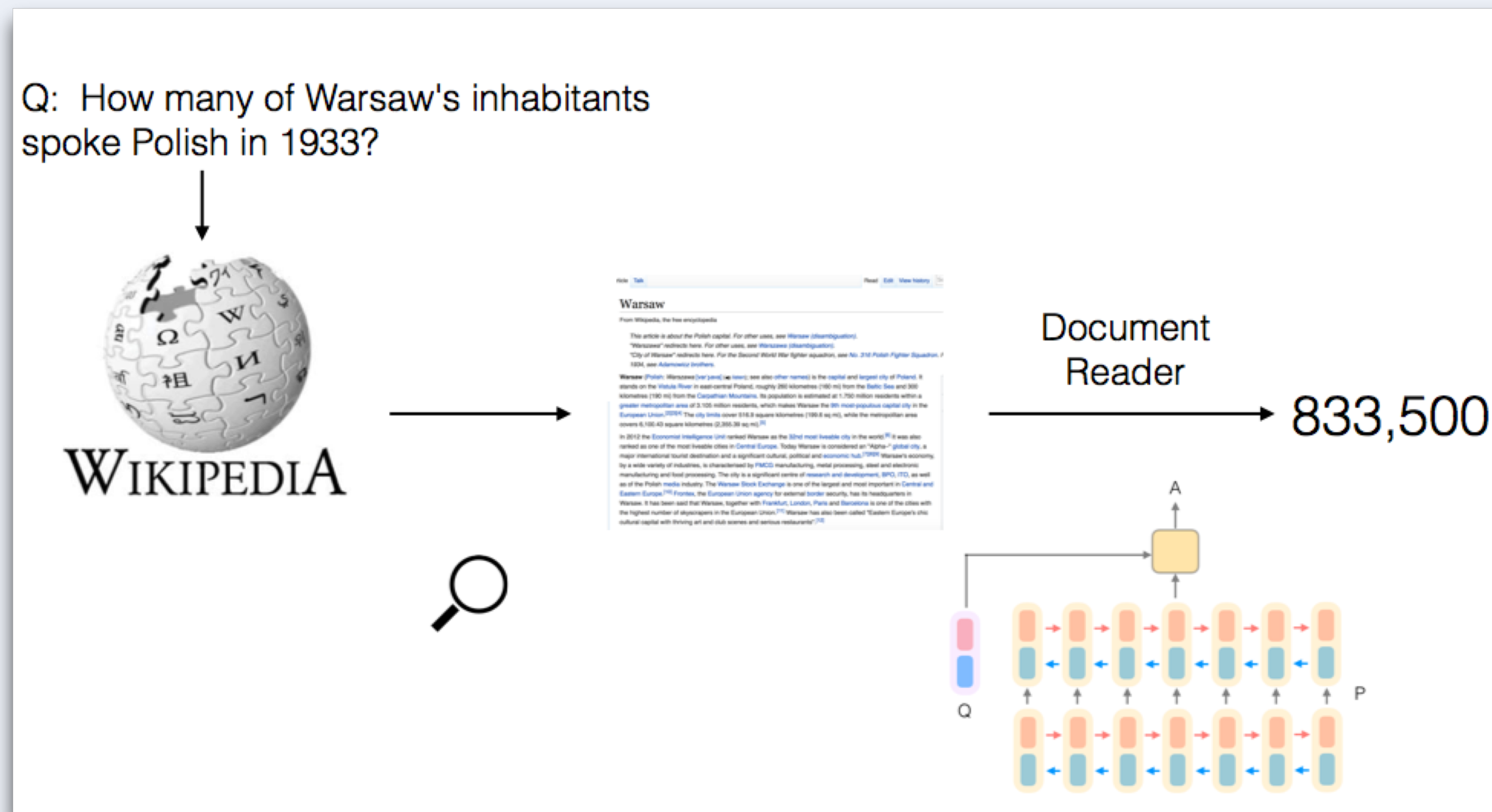
Well hello there Mr kitty!
Charming



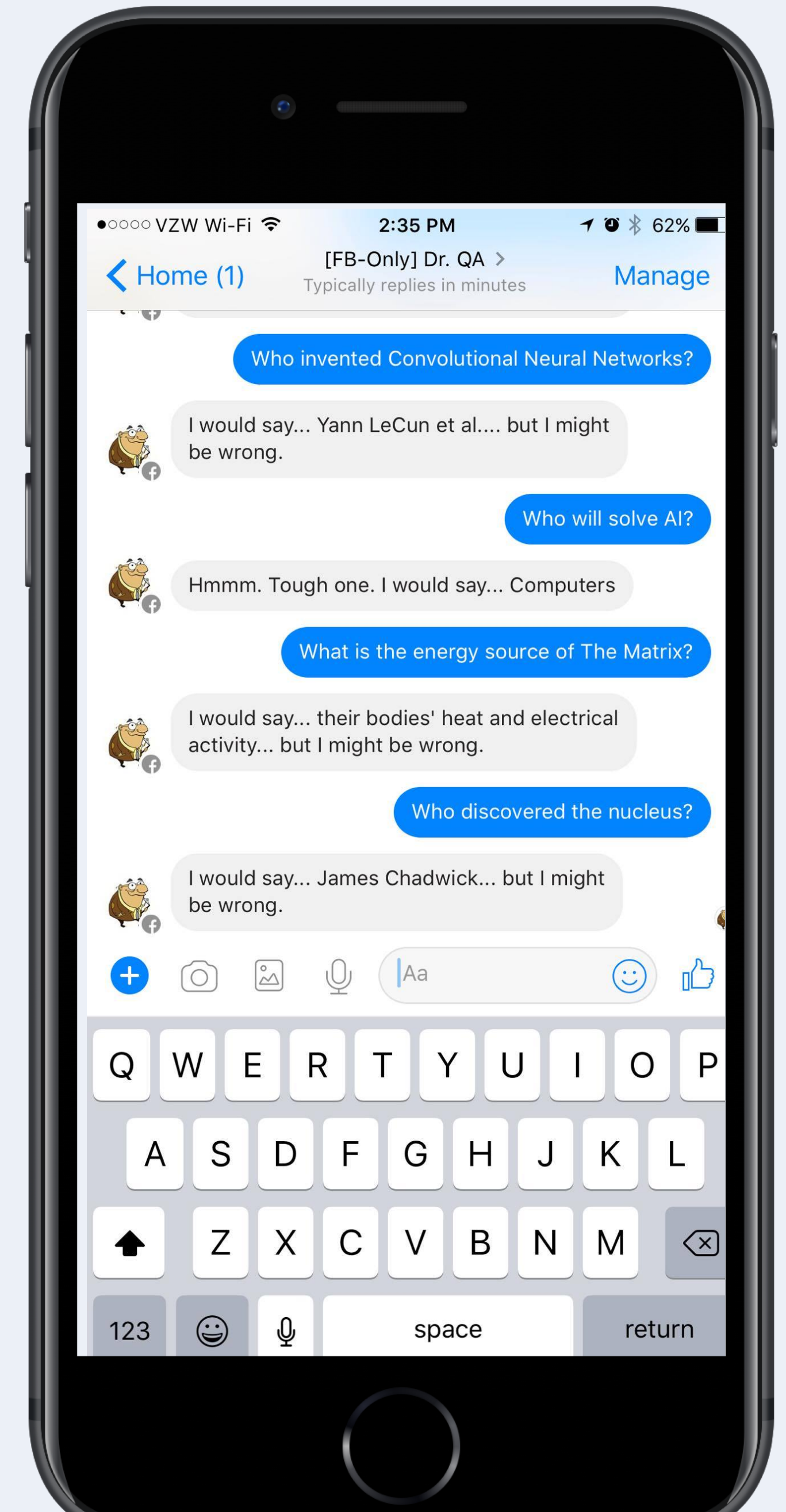
Close to what people would say on images.

This is not image captioning (no description)!

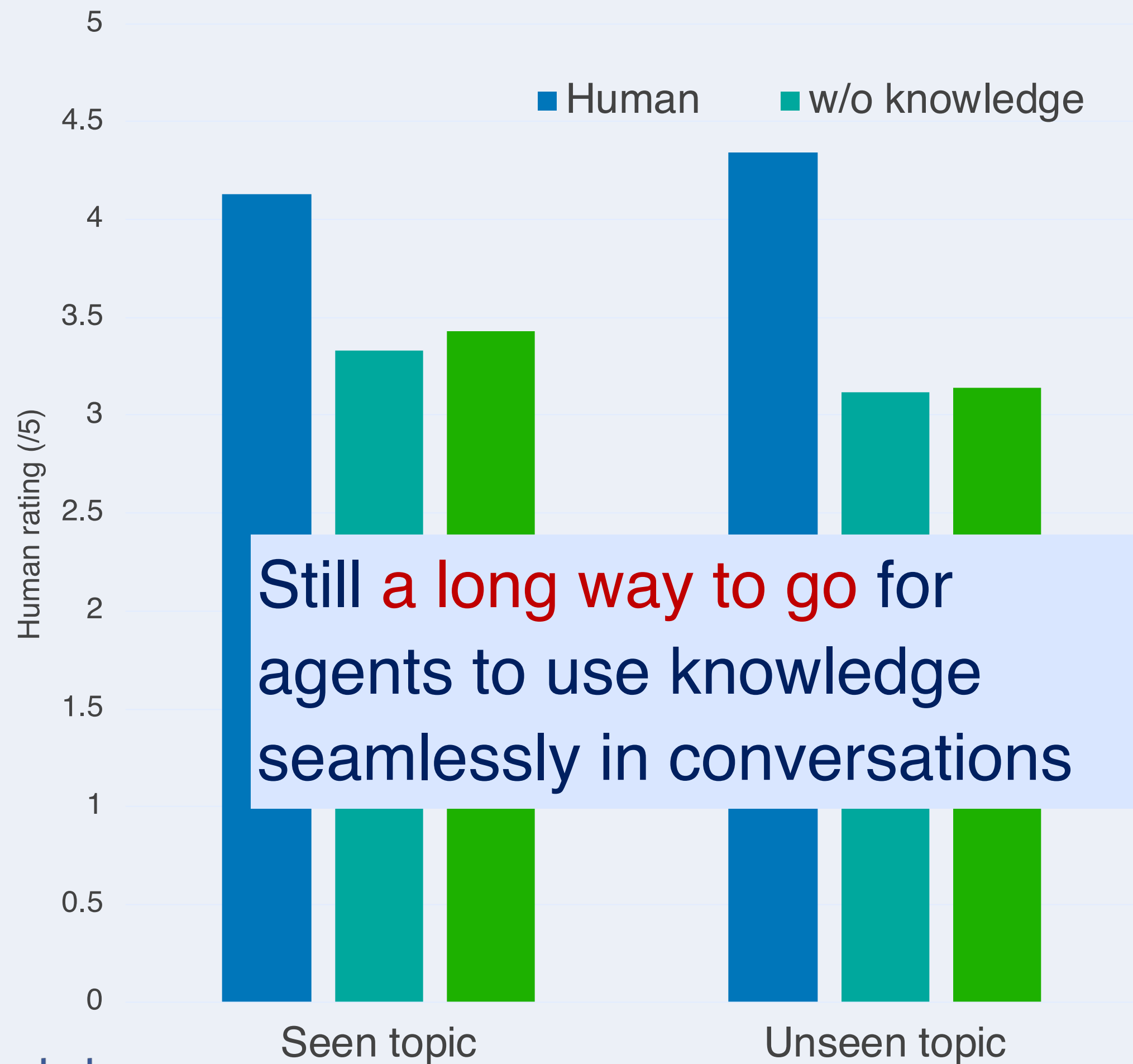
Reading Wikipedia to answer any question



Chen et al. | 2017



Augmenting conversations with background knowledge (Wikipedia)



Still a long way to go for agents to use knowledge seamlessly in conversations

Topic
E-book

I do not know why, but I have never gotten into E-books

Same here. I have a kindle, but I don't use it for books. It's nicer to hold a real book and turn pages.

yes, i like the physical feel and smell of a real book

I actually had a Nook e-book where you had to download the e-book after selecting it online. I grew out of it, I prefer paper books also.

i tried e-books but I do not like reading on a screen, its disorientated for me

Yes, reading a book on a tablet just isn't the same!

plus I like owning the physical copy of a real book, I feel like I own it

I prefer print and newsreels.





Challenges & perspectives

Combining all aspects together: personality, knowledge and perception must be used altogether by the same agent

Online learning and personalization: how can an agent improved itself during deployment?

Trust, safety and transparency: any agent must earn trust of people by being clear on what it is (artificial!), on what it knows and does not and by mitigating any bias built-in the training data.



ParlAI

Get Started

About

Projects

GitHub

Docs

Fork me on GitHub

A unified platform for sharing, training and evaluating dialogue models across many tasks.

Many popular datasets available all in one place -- from open-domain chitchat to visual question answering.

A wide set of reference models -- from retrieval baselines to Transformers.

Seamless integration of Amazon Mechanical Turk for data collection, training and human evaluation.

See Examples

<http://www.parl.ai>

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