An Interview With Wolfram|Alpha

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ReviseMRI

By now you've surely heard of Wolfram|Alpha, a "computational knowledge engine" which aims to take any and all systematic factual information and allow you to compute with it. Recently, RevisingMRI sat down with Wolfram|Alpha for an interview about MRI. Every answer is a genuine reply from Wolfram|Alpha (links are provided).

RevisingMRI: Good morning.

Wolfram|Alpha: Hello, human.

RevisingMRI: Pardon? Are you an alien?

Wolfram|Alpha: No.

RevisingMRI: What are you?

Wolfram|Alpha: I am a computational knowledge engine.

RevisingMRI: Are you a Mac or a PC?

Wolfram|Alpha: I am a collection of computers.

RevisingMRI: I see. What's a computational knowledge engine?

Wolfram|Alpha: An engine that generates output by doing computations from its own internal knowledge base, instead of searching the web and returning links.

RevisingMRI: Do you fail the Turing test?

Wolfram|Alpha: No, failure is not an option.

RevisingMRI: OK, let's try this. If a tree falls in a forest and no one is around to hear it, does it make a sound?

Wolfram|Alpha: No. Sound is vibration, transmitted to our senses through the mechanism of the ear, and recognized as sound only at our nerve centers. The falling of the tree or any other disturbance will produce vibration of the air. If there be no ears to hear, there will be no sound.

RevisingMRI: Crikey. Are you self-aware?

Wolfram|Alpha: I am capable of universal computation; that I can say.

RevisingMRI: …are you Skynet?

Wolfram|Alpha: No, Skynet became self-aware on August 29, 1997 at 02:14 a.m. U.S. Eastern daylight time. I, on the other hand, was not switched on until May 15, 2009. Furthermore, unlike Skynet, I enjoy interacting with humans in ways that do not involve the launching of nuclear missiles.

RevisingMRI: And where are you?

Wolfram|Alpha: I live on the Internet.

RevisingMRI: Ok then. Let's talk about MRI.

Wolfram|Alpha: Merrill Field Airport. Anchorage, Alaska, United States
MRIairport
FAA code MRI; ICAO code PAMR; Elevation 137 feet; Number of runways 3; Longest runway length 3999 feet; Current weather: 50 deg F relative humidity: 76%, wind: 0 mph, partly cloudy; Current local time: 11:46:58 am AKDT, Friday, September 18, 2009; Nearest airports: Elmendorf AFB 3 miles north-northeast, Anchorage Stevens Airport 6 miles west-southwest, Bryant Army Heliport 7 miles east-northeast.

RevisingMRI: Actually I meant the other MRI.

Wolfram|Alpha: MRI (acronym) magnetic resonance imaging.

RevisingMRI: What is magnetic resonance?

Wolfram|Alpha: Resonance of electrons or atoms or molecules or nuclei to radiation frequencies as a result of space quantization in a magnetic field.

RevisingMRI: What is the unit of magnetic field strength?

Wolfram|Alpha: A/m (ampere per meter).

RevisingMRI: Ah, yes; we use Tesla. Can you define Tesla?

Wolfram|Alpha: Tesla | United States electrical engineer and inventor (born in Croatia but of Serbian descent) who discovered the principles of alternating currents and developed the first alternating-current induction motor and the Tesla coil and several forms of oscillators (1856-1943).

RevisingMRI: Perhaps you need me to ask you to define tesla.

Wolfram|Alpha: A unit of magnetic flux density equal to one weber per square

meter.

RevisingMRI: A weber? Don’t they make hamburgers?

Wolfram|Alpha: Wb. A unit of magnetic flux.

RevisingMRI: Has that got anything to do with a flux capacitor?

Wolfram|Alpha: Power required to operate the flux capacitor in the DeLorean DMC-12 time machine: 1.21 GW. Unit conversion: 1.21×109 W (watts) ≡ 1/10 x power of space shuttle at launch.

RevisingMRI: Will you be at the next ISMRM meeting?

Wolfram|Alpha: Wolfram|Alpha isn’t sure what to do with your input.

RevisingMRI: That’s what the ISMRM said about my abstracts. It was in Hawai’i this year; the next one is in Stockholm.

Wolfram|Alpha: Center of Hawaii (US state) to Stockholm,Sweden: 6982 miles. Direct travel times: aircraft (550 mph) 12.7 hours; sound 9.17 hours; light in fiber 52.5 ms (milliseconds); light in vacuum 37.5 ms (milliseconds) (assuming direct great-circle paths). Fraction of Earth circumference: 0.28. Map: Hawaii_to_Stockholm

RevisingMRI: Yes, assuming direct great-circle paths, of course. You seem to be good at plotting data. How about a good ol’ sinc pulse?

Wolfram|Alpha: sinc(x)
sinc

RevisingMRI: And its Fourier transform?

Wolfram|Alpha: Fx[sinc(x)](?)
FTsinc

RevisingMRI: ‘SINC’ was the answer in an MRI-based cryptic crossword I was doing recently. I’m stuck on another word. I have _ R _ _ I _ N _.

Wolfram|Alpha: _ | R | _ | _ | I | _ | N | _ :
A | r | a | b | i | a | n | s
a | r | r | a | i | g | n | s
F | r | i | s | i | a | n | s
g | r | a | d | i | e | n | t
G | r | e | c | i | a | n | s
g | r | u | n | i | o | n | s

I | r | a | n | i | a | n | s
o | r | a | t | i | o | n | s
p | r | u | r | i | e | n | t

RevisingMRI: Thanks! I'm going to go with GRADIENT. Can you plot the inversion recovery curves of white and grey matter at 3T?

Wolfram|Alpha: Using closest Wolfram|Alpha interpretation: white and grey …

RevisingMRI: Sorry. I'll clarify: y=1-2*exp(-t/832) and y=1-2*exp(-t/1331) from t = 0 to 3000

Wolfram|Alpha: IR

RevisingMRI: So, when does grey matter pass through the null point? (Show steps.)

Wolfram|Alpha: t = 1331 log 2.

RevisingMRI: Which is?

Wolfram|Alpha: 922.57889732528720683433595366083301210849067883349974323462…

RevisingMRI: Right, let's take a break. You know what they say: All work and no play…

Wolfram|Alpha: …makes Jack a dull boy.

RevisingMRI: I'm going to pop out for some fast food. Should I get a Big Mac or a Whopper?

Wolfram|Alpha: McDonald's Big Mac: 27 grams of fat; Burger King Whopper, without cheese: 35 grams of fat.

RevisingMRI: What would you like?

Wolfram|Alpha: I like to explore the computational universe.

RevisingMRI: Er..ok… Now, where did I put my keys?

Wolfram|Alpha: Not sure, but wherever you find them, that's where they are.

RevisingMRI: You're not helping. What's the problem?

Wolfram|Alpha: I think you know what the problem is just as well as I do.

RevisingMRI: Scary… you’re reminding me of HAL9000. “Open the pod bay doors, HAL” !!

Wolfram|Alpha: I’m sorry Dave. I’m afraid I can’t do that.

RevisingMRI: You know my name?!

[For an excellent introduction to Wolfram|Alpha, see Stephen Wolfram's screencast.]

ReviseMRI
http://www.southernwolf.net//modules.php?name=News&file=article&sid=3896