



BIG DATA & AI CONGRESS BARCELONA



5ª Edición | 17 OCT 2019
Auditorio AXA Barcelona

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Síguenos en: @CoEBigData | #BIGDATAAI19

Patrocinadores Oro:



Patrocinadores Plata:



Patrocinadores Bronce:



Jordi Ribas

CVP

Microsoft

microsoft.com | @JordiRib1

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Patrocinadores Plata:



Patrocinadores Bronce:





The AI Revolution

Jordi Ribas, PhD
Corporate Vice President
Search Products, AI + Research
Microsoft Corporation

 @JordiRib1

AI

Four Generations

1940-1970s

Good Old
Fashioned AI

Handcraft predictions
Learn nothing

1980+

Shallow
Learning

Handcraft features
Learn predictions

2010+

Deep
Learning

Handcraft algorithm
Learn features
Learn predictions

2020+

Learn
to Learn

Handcraft nothing
Learn algorithm
Learn features
Learn predictions



“What if we could build computers that one day could see, hear, talk and understand human beings?”

—Bill Gates, 1991

AI

Answering questions with experience

1990s

2019



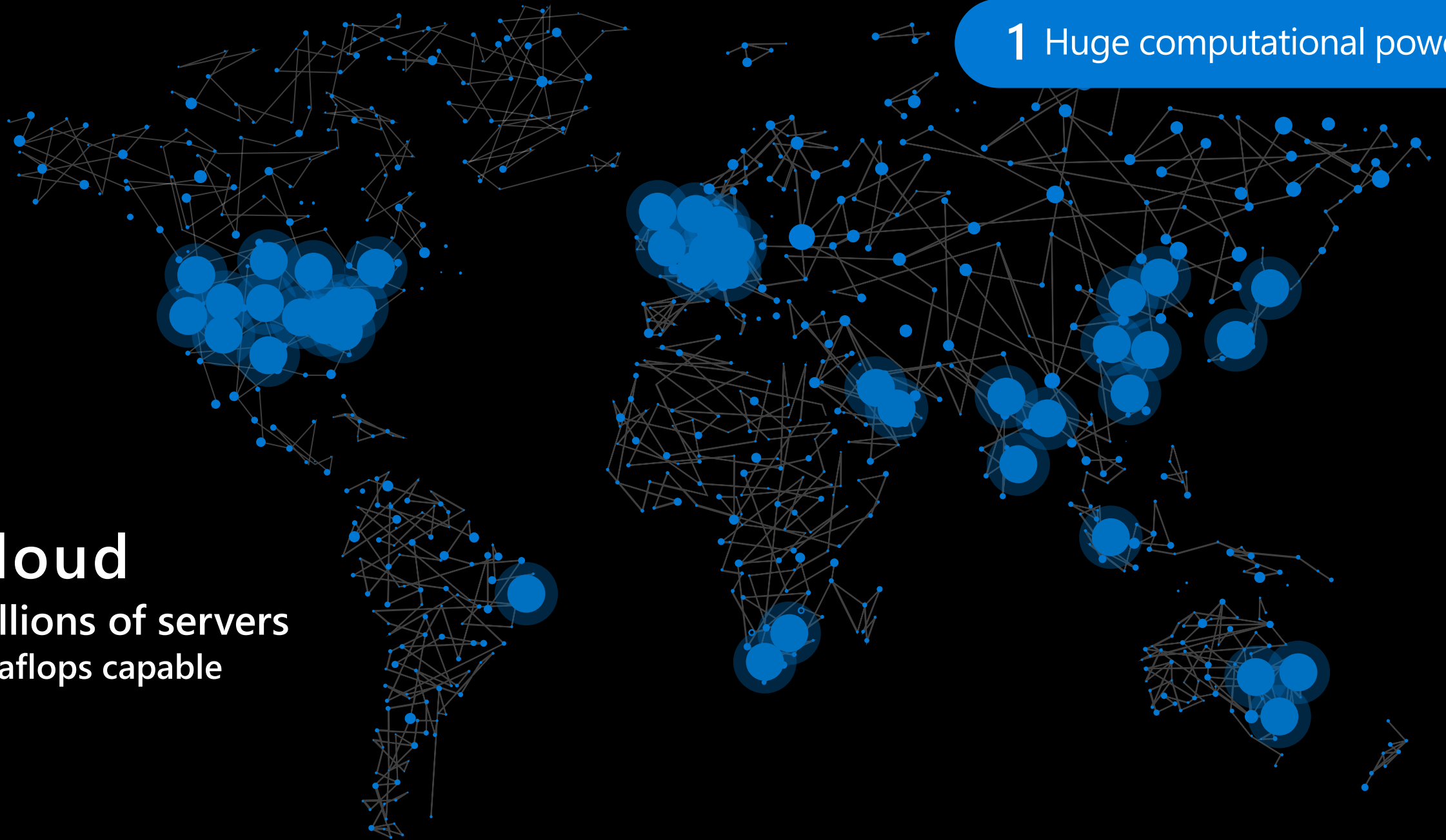
Machine learning is pervasive throughout Microsoft products

AI has
accelerated
due to the
convergence of
3 main factors:

- 1 Huge computational power
- 2 Large amounts of data
- 3 Next generation AI algorithms

1 Huge computational power

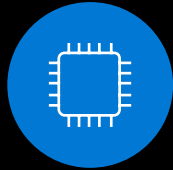
Cloud
Millions of servers
Petaflops capable



Powerful infrastructure

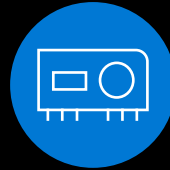
Accelerate deep learning

1 Huge computational power



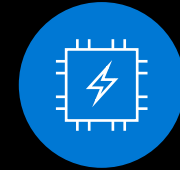
CPU

General purpose
machine learning



GPU

Deep learning



FPGA, TPU

Specialized hardware
accelerated deep learning



Optimized for flexibility

Optimized for performance

AI has accelerated due to the convergence of 3 main factors:

1 Huge computational power

2 Large amounts of data

3 Next generation AI algorithms

50B

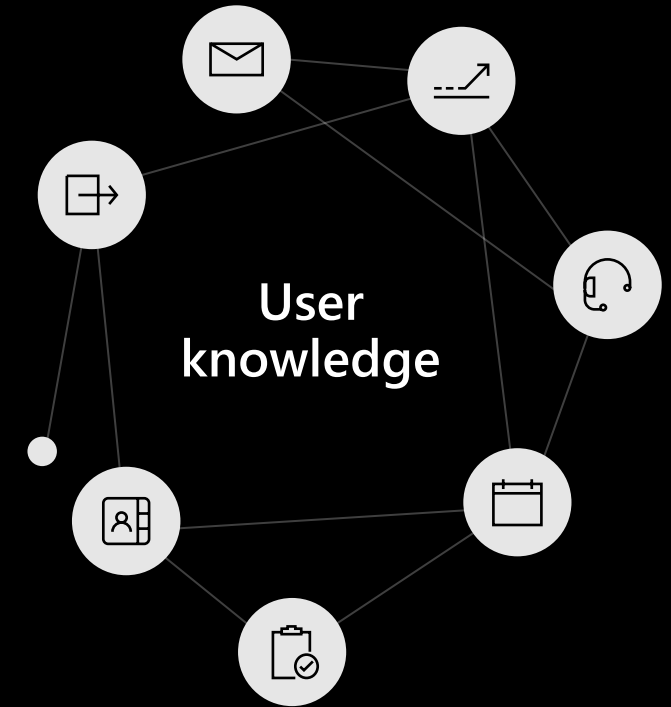
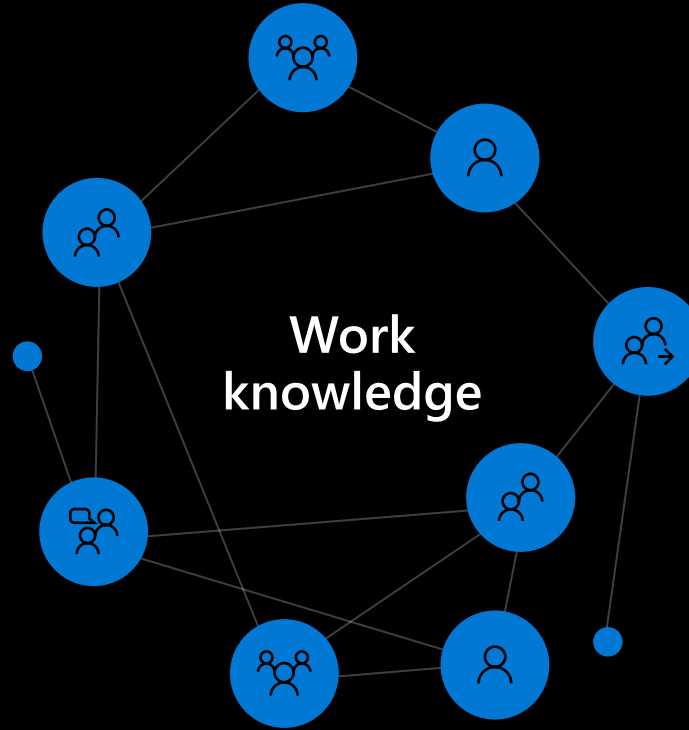
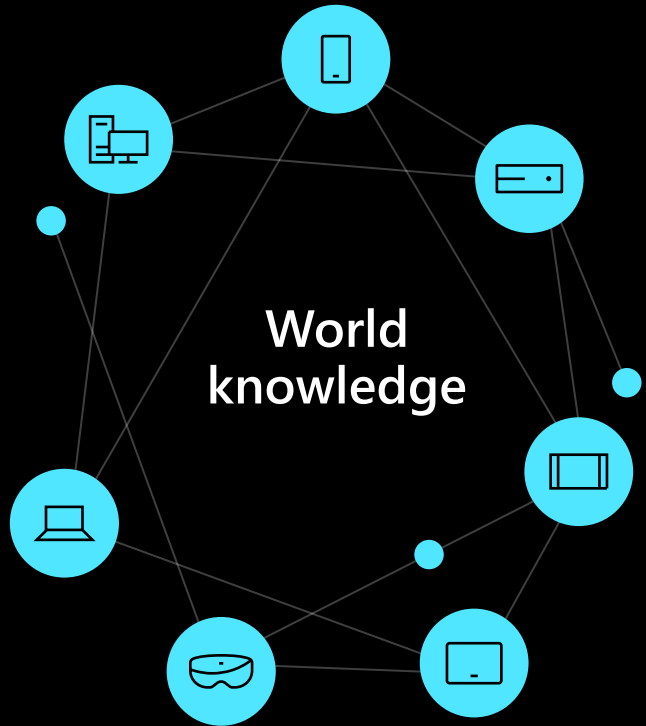
connected
devices by 2030

90%

of data created in
the last two years

Microsoft Graphs

2 Large amounts of data



AI has
accelerated
due to the
convergence of
3 main factors:

1 Huge computational power

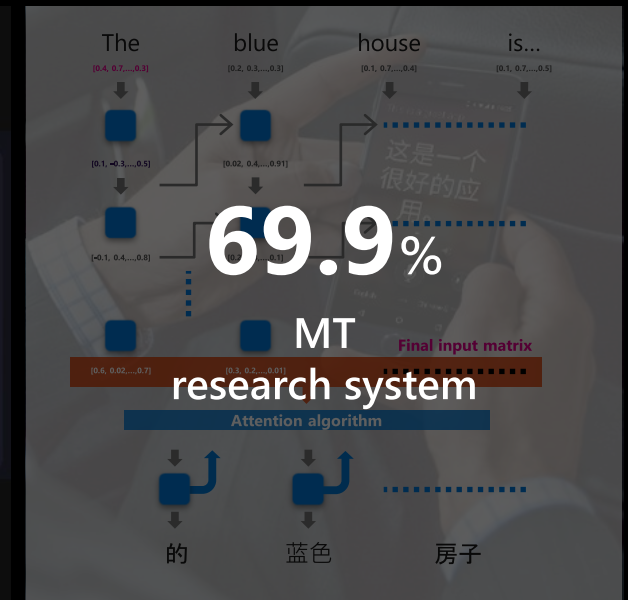
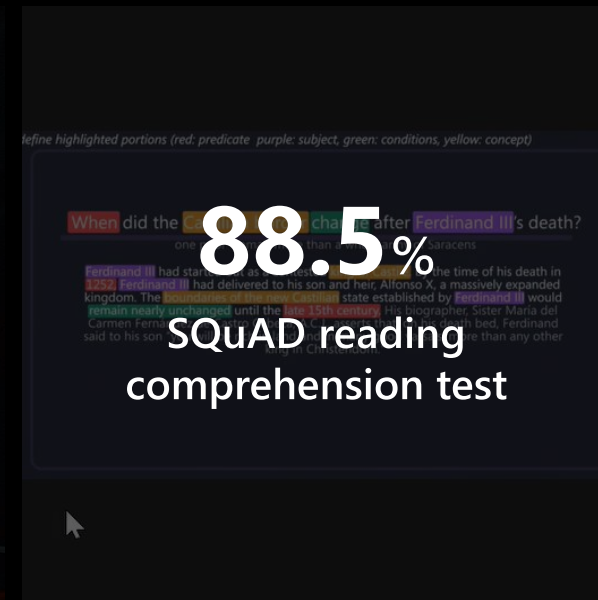
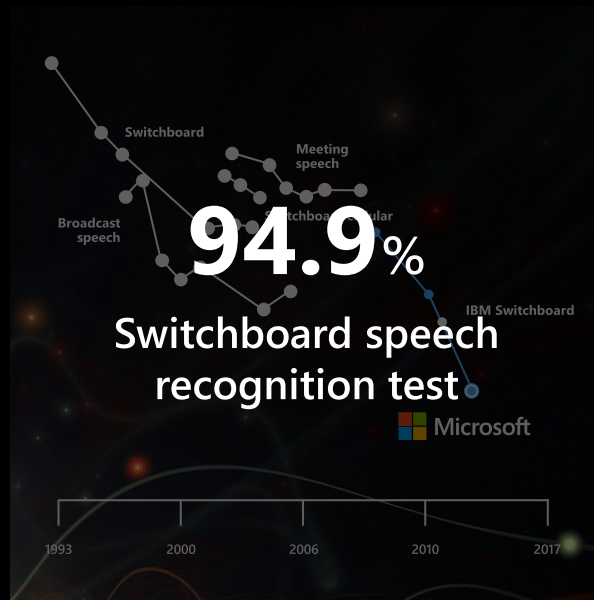
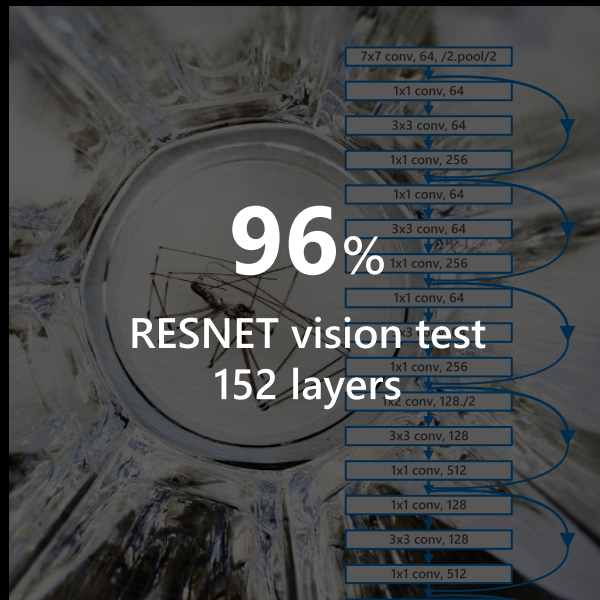
2 Large amounts of data

3 Next generation AI algorithms

Microsoft Research AI breakthroughs 2016–19

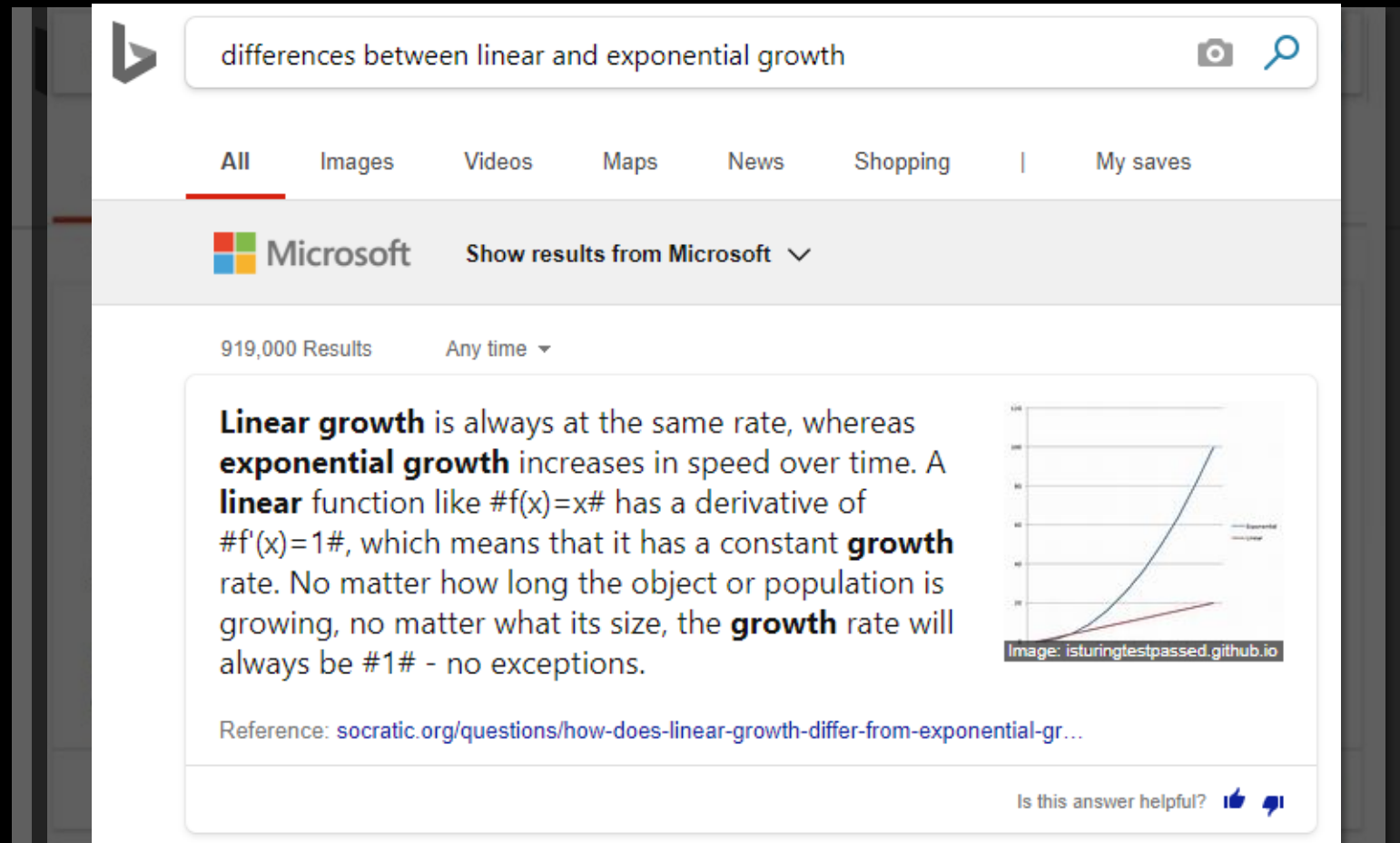
Gradually approaching human parity

3 Next generation AI algorithms



Q&A in Search

3 Next generation AI algorithms



The screenshot shows a search engine interface with the query "differences between linear and exponential growth". The search results are filtered to "All" and show 919,000 results. The top result is from Microsoft, providing a detailed explanation of linear and exponential growth. The text explains that linear growth is constant, while exponential growth increases in speed over time. It includes mathematical examples: a linear function $f(x) = x$ has a derivative of $f'(x) = 1$, and a constant growth rate of 1. A graph illustrates the difference between the two growth patterns. The graph shows a blue curve for exponential growth and a red line for linear growth. The exponential curve starts near the origin and curves upwards, while the linear line is a straight line starting from the origin. The y-axis is labeled from 0 to 100 in increments of 20. The x-axis is labeled from 0 to 10 in increments of 2. The legend indicates "Exponential" for the blue curve and "Linear" for the red line. The image source is cited as "Image: isturingtestpassed.github.io". Below the text, a reference link is provided: socratic.org/questions/how-does-linear-growth-differ-from-exponential-gr.... At the bottom right, there is a feedback prompt: "Is this answer helpful?" with thumbs up and thumbs down icons.

differences between linear and exponential growth

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Microsoft Show results from Microsoft

919,000 Results Any time

Linear growth is always at the same rate, whereas **exponential growth** increases in speed over time. A **linear** function like $f(x) = x$ has a derivative of $f'(x) = 1$, which means that it has a constant **growth** rate. No matter how long the object or population is growing, no matter what its size, the **growth** rate will always be 1 - no exceptions.

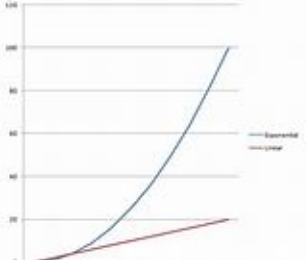


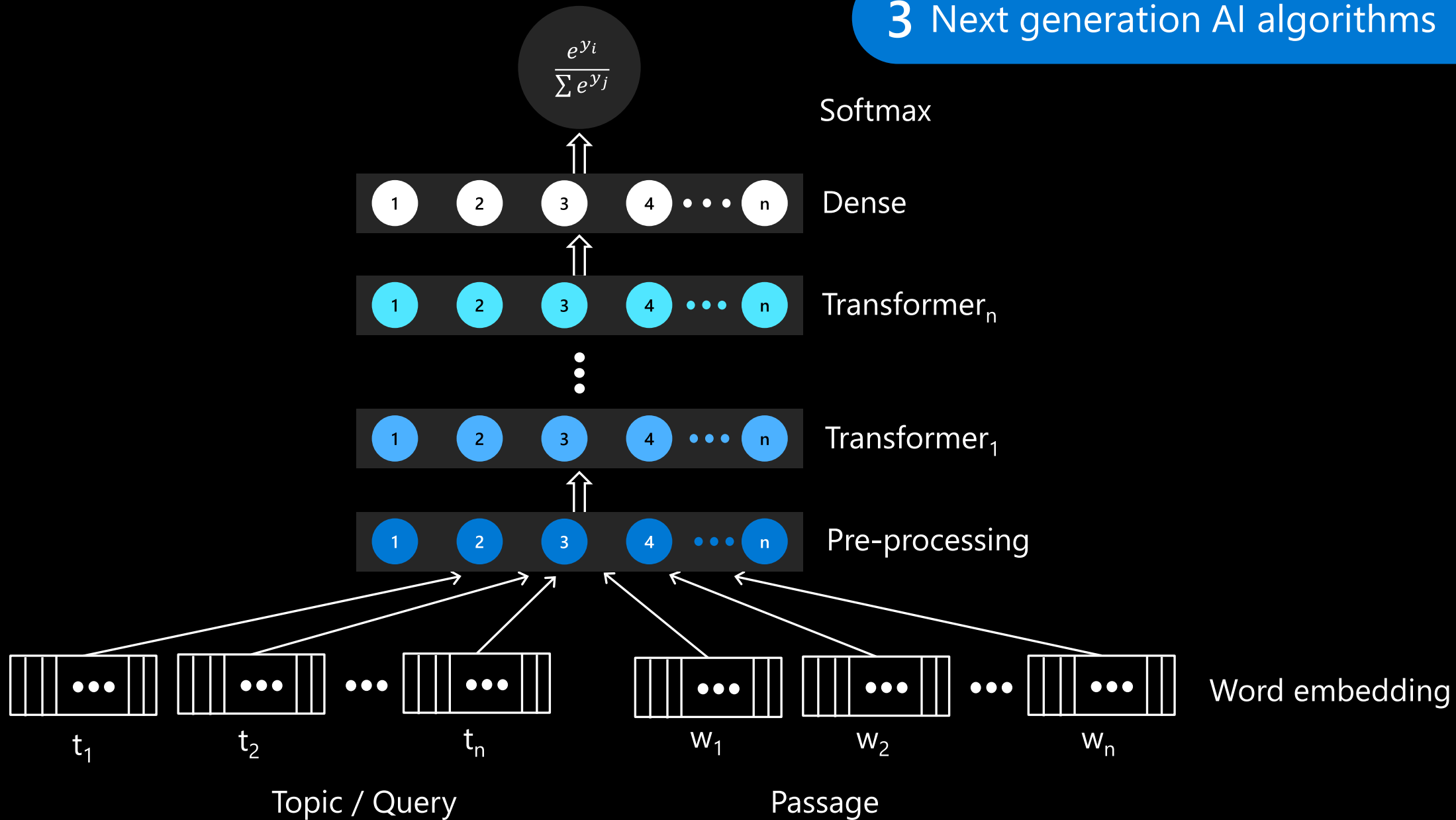


Image: isturingtestpassed.github.io

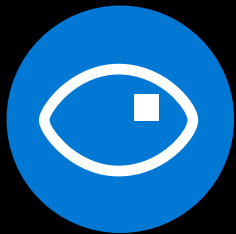
Reference: socratic.org/questions/how-does-linear-growth-differ-from-exponential-gr...

Is this answer helpful?  

3 Next generation AI algorithms



Cognitive services



Vision



Speech



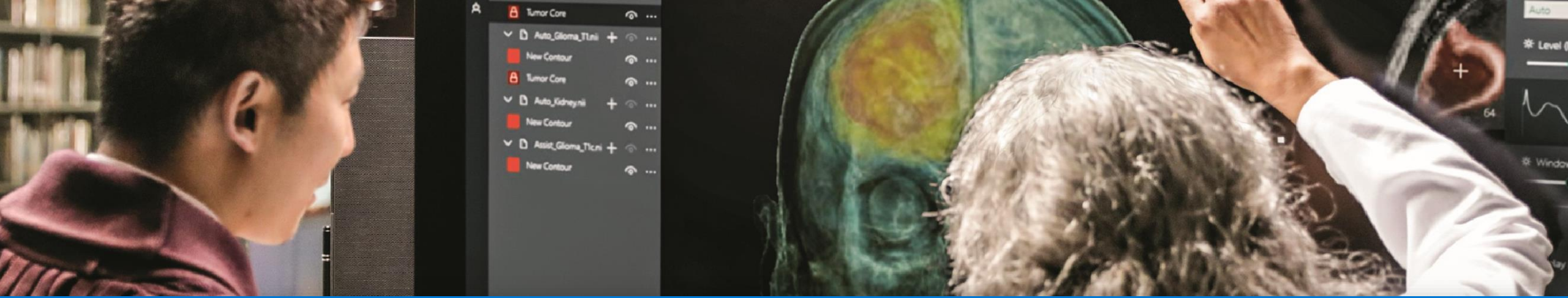
Language



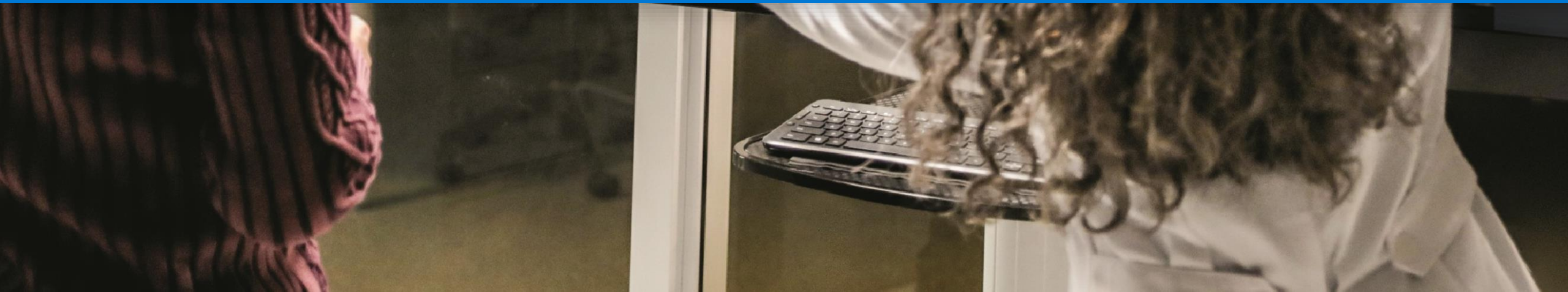
Knowledge



Search



📺 Automatic transcription

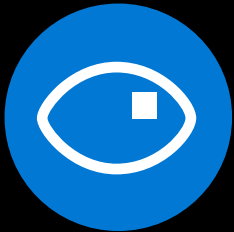


EmpowerMD



Medical Conversations to Medical Intelligence

Cognitive services



Vision



Speech



Language



Knowledge



Search



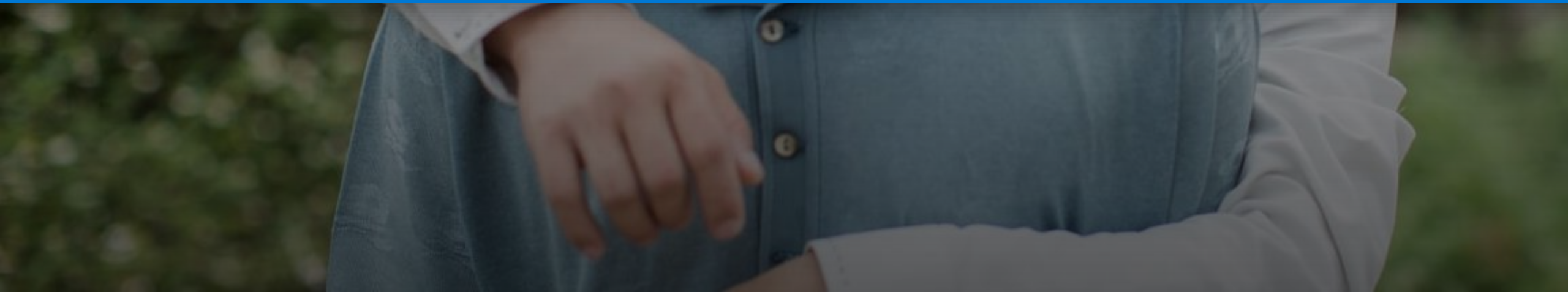
Visual search



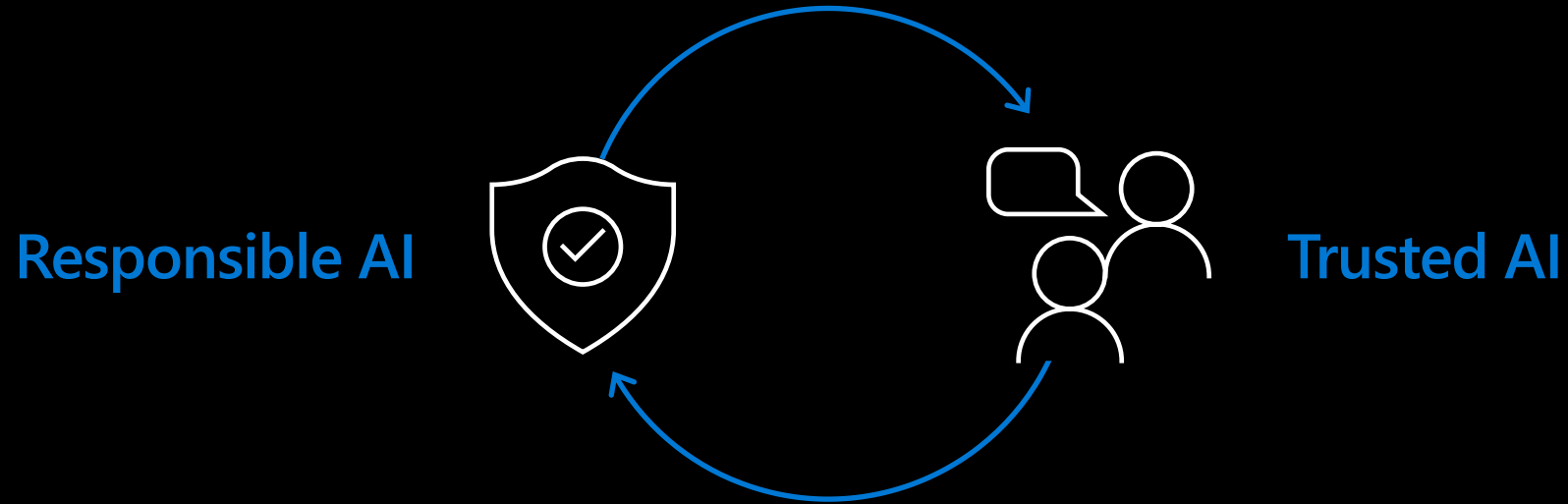


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AI and ethics



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Roddie Hasan - راضي
@eiddor

Follow

So, @elonmusk - My first test of Smart Summon didn't go so well. @Tesla #Tesla #Model3

289K views 0:00 / 0:19

5:59 PM - 27 Sep 2019 from Frisco, TX

608 Retweets 2,331 Likes

486 608 2.3K

Eric Thiel @securenetwrk · Sep 27
Replying to @eiddor @elonmusk @Tesla
Scary. Guess I won't be trying it out any time soon. I stopped updating 4+ months ago since AP has gotten so bad with phantom braking. I was hoping v10 might finally be better.

5 1 11

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Cognitive services



Vision



Speech



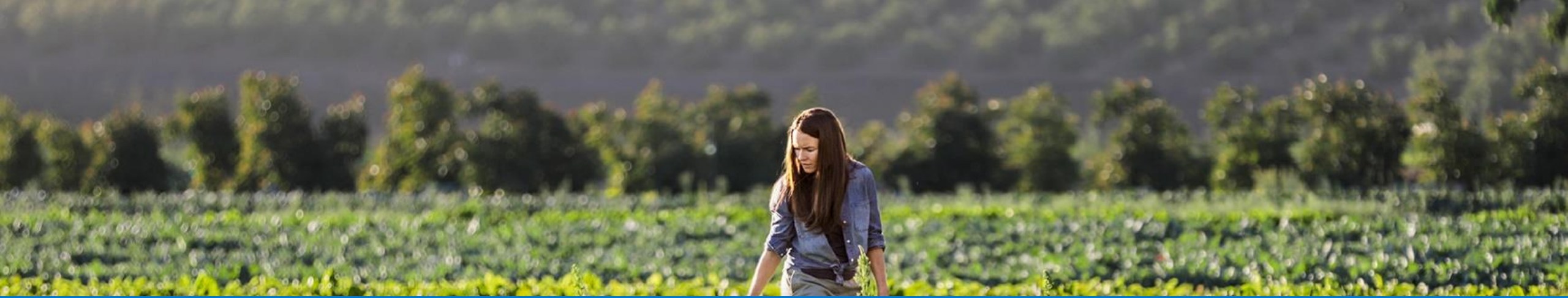
Language



Knowledge



Search



AI for good



Optimizing every business process

Financial services

Education

Retail

Public sector

Healthcare

Manufacturing



Transform within industries using tailored AI solutions

85%

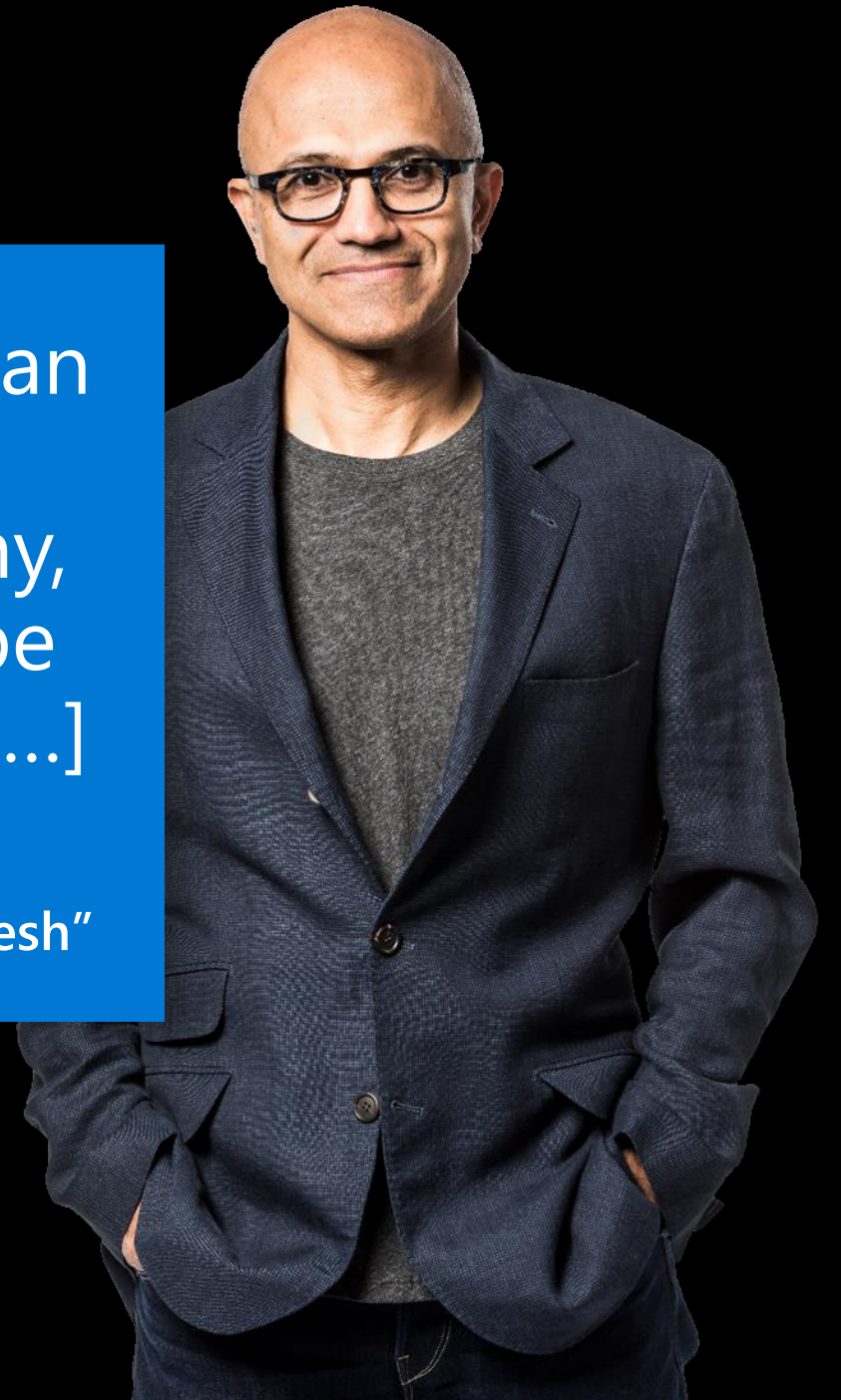
Enterprises
using AI by 2020

\$1.2T

Revenue driven
by AI in three years*

“Rather than thinking in terms of human vs. machine, we want to focus on how human gifts such as creativity, empathy, emotion, physicality, and insight can be mixed with powerful AI computation [...] to help move society forward.”

—Satya Nadella, “Hit Refresh”





Thank you!

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