The AI Moment: Responsible

AI at Microsoft

Ryan Harkins
Senior Director, Public Policy
U.S. Government Affairs

Microsoft

www.microsoft.com/ai

AI isn't just another piece of technology. It could be one of the most fundamental pieces of technology the human race has ever created.

Satya Nadella

So what has changed?
Why all the buzz?

THE SHIFT

The Brilliance and Weirdness of ChatGPT

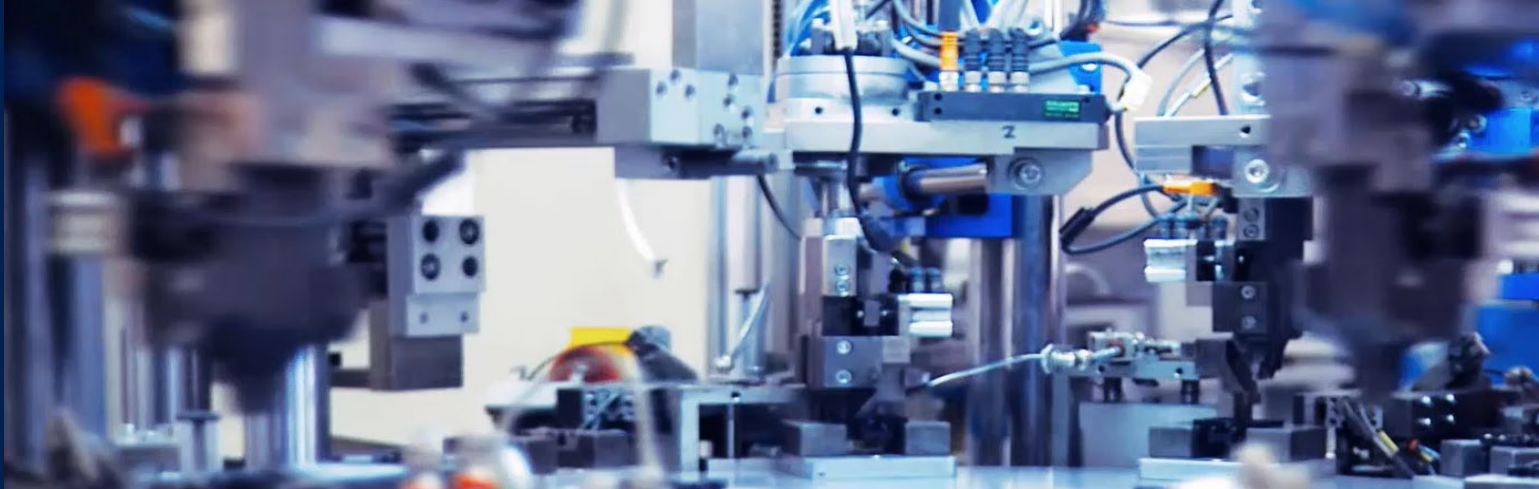A new chatbot from OpenAI is inspiring awe, fear, stunts and attempts to circumvent its guardrails.

🎁 Share full article   ↗   🔖   💬 422

What is AI?

Machine Learning

cost of data collection and storage
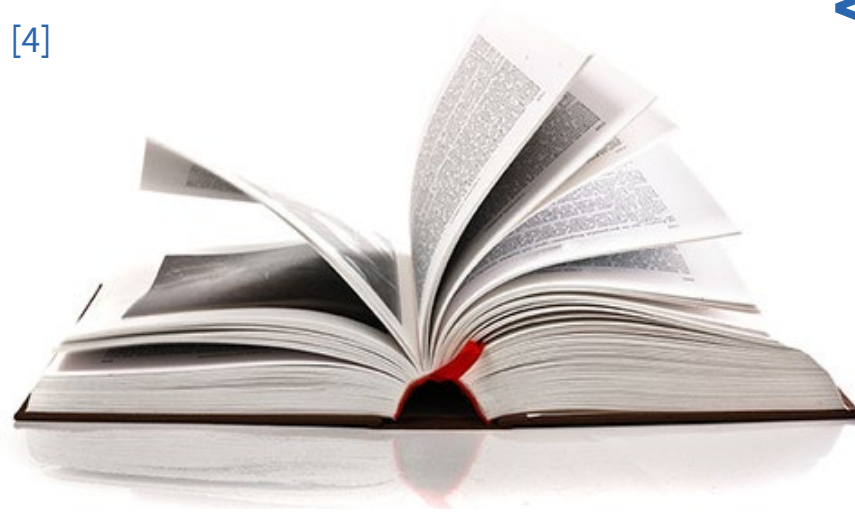have decreased over time

Cost of storing every book ever written

1987
> US 1 billion [4]

2023
<US $1,000

130 million books [5]

[4] A history of storage cost, Matthew Komorowski, 2009
[5] There Are 130 Million Books in the World, How Many Have You Read?, 2009 by WALLACE YOVETICH

Massive processing power

er and cold today. Increasing
loudiness and cold tomorrow.
Temperature Range Today—Max., 35; Min., 22
emperatures Yesterday—Max., 36; Min., 26
ull U. S. Weather Bureau Report, Page 41

FIVE CENTS

PIER STRIKE C
SOUGHT IN CO
AS TIE-UPS SP

Walkout on Another
Dock Stirs Fear of
Stoppage Througho

VOTE DISPUTE CON

New Questions Celay
Poll Report to Capit
Tightens Its Freca

By A. H. ĽASK

Shipping employes so
help yesterday to halt t
of Brooklyn pier strik
they exploded into a
shutdown.

The injunction mov
after a second dock
closed by a work stopp
walkout by seventy-five
of the old Internation
shoremen's Association
loading of the British
City of Barcelona at Pie
Terminal.

It occurred on the sixth day of
a strike by 150 American Fed-
eration of Labor dock workers,
which has prevented removal of
cargo from two Isbrandtsen Line
freighters at Pier 29, Brooklyn.
Although the wakouts had no
apparent connection with one

Russian Is Turned Into English
By a Fast Electronic Translator

By ROBERT K. PLUMB

A public demonstration of what
is believed to be the first success-
ful use of a machine to translate
meaningful texts from one lan-
guage to another took place here
yesterday afternoon.

This may be the culmination of
centuries of search by scholars
for "a mechanical translator." So
far the system has a vocabulary
of only 250 words. But there are
no foreseeable limits to the num-
ber of words that the device can
store or the number of languages
it can be directed to translate.

Scholars and scientists who
worked on it believe that within
a few years the system may
greatly increase communication,
particularly in technical sub-
jects, by making translation
quick, accurate and easy.

The demonstration was at the
headquarters of the International
Business Machines Corporation,
590 Madison Avenue. It is the
result of cooperative research by

scientists of the corporation and
scholars of the Georgetown Uni-
versity Institute of Languages
and Linguistics in Washington.

The "mechanical" part of the
translation system, which is
mostly electronic, is a standard
commercial model of the largest
International Business Machines
"stock" computer. This device,
called the IBM Type 701 Elec-
tronic Data Processing Machine,
was put on the market last April.
Since then twelve of the ma-
chines have been sold to commer-
cial, military and university com-
putation laboratories.

The "literary" part of the sys-
tem is a mechanical model of lan-
guage devised at Georgetown by
Prof. Leon Dostert and Dr. Paul
Garvin. The corporation's share
in the project was conducted by
Dr. Cuthbert C. Hurd, director of
its Division of Applied Science.

In the demonstration, a gir

Calculator Takes on a New Job: Language Translation

An electronic calculator produced by the International Business Machines Corporation was
demonstrated yesterday in a new role: translating Russian phrases into English. The de-
vice has a "vocabulary" of 250 Russian words and can be adapted to other languages. Miss
Marilyn Polle "types" Russian phrases on I. B. M. punch cards that are fed into the machine.

This card is punched with a sample Russian language sentence (as
interpreted at the top) in standard IBM punched-card code. It is
then accepted by the 701, converted into its own binary language and
translated by means of stored dictionary and operational syntactical
programs into the English language equivalent which is then printed.

THE QUALITY OF COAL IS DETERMINED BY

Above, specimen punch card and below a strip with translation, typed almost simultaneously

LANGUAGE DEVICE TRANSLATES FAST

Continued From Page 1

duced into the calculator's short
term "memory" with
punch cards. The cards tell the
machine how to cope with syntax
In translating, for instance, i

they determined the rules of syn-
tax required for a meaningful
statement and reduced them to
six instructions for the data
processing calculator.

These instructions are intro-
operator typed out on a keyboard
the following Russian text in

ertheless, it has a memory capa-
ble of storing roughly 1,000,000
five-letter words. There are 600,-
000 entries in the latest Web-
ster's unabridged New Interna-
tional dictionary.

Dr. Hurd said that the corpora-
tion would now design a machine
particularly fit for translat-
ing utility. Such a device
rather than for general comput-
 be ready within the

MESSAGE ON UNION

Eisenhower Proposes Amendment to Give 18-Year-Olds Vote

Text of State of Union Message is printed on Page 10.

By JAMES RESTON
Special to The New York Times

WASHINGTON, Jan. 7—Pres-
ident Eisenhower, in his second
State of the Union Message, to-
day asked the almost evenly di-
vided Eighty-third Congress to
moderate but sustain the foreign
and welfare policies of the New
Deal era.

He proposed to cut the military
budget, to cut taxes in relation
to Government expenditures, and
to reduce the guarantees to farm-
ers very slowly. The cuts, how-
ever, were designed to reconcile
security and solvency without
jeopardizing the collective secu-
rity or prosperity policies of the

Ambassador Cuts Visit to U.S.
by Week to Report Events
—Vatican Backs Pella

looked to a bng-range solution
of the city-state fiscal problem
and could not in all probability,
bear any fruit in time to help the
city prepare its 1954-55 budget.

"I said almost a year ago," the
Mayor declared, "that I was tired
of the city going to Albany for

President said, is "akin to trea-
son"a and should be dealt with as
such. Any person convicted of
conspiring armed overthrowal of
Government, he proposed, should
be "treated as having, by such
act, renounced his allegiance to
the United States and forfeited

Historic Achievement: Microsoft researchers reach human parity in conversational speech recognition

October 18, 2016 | Allison Linn
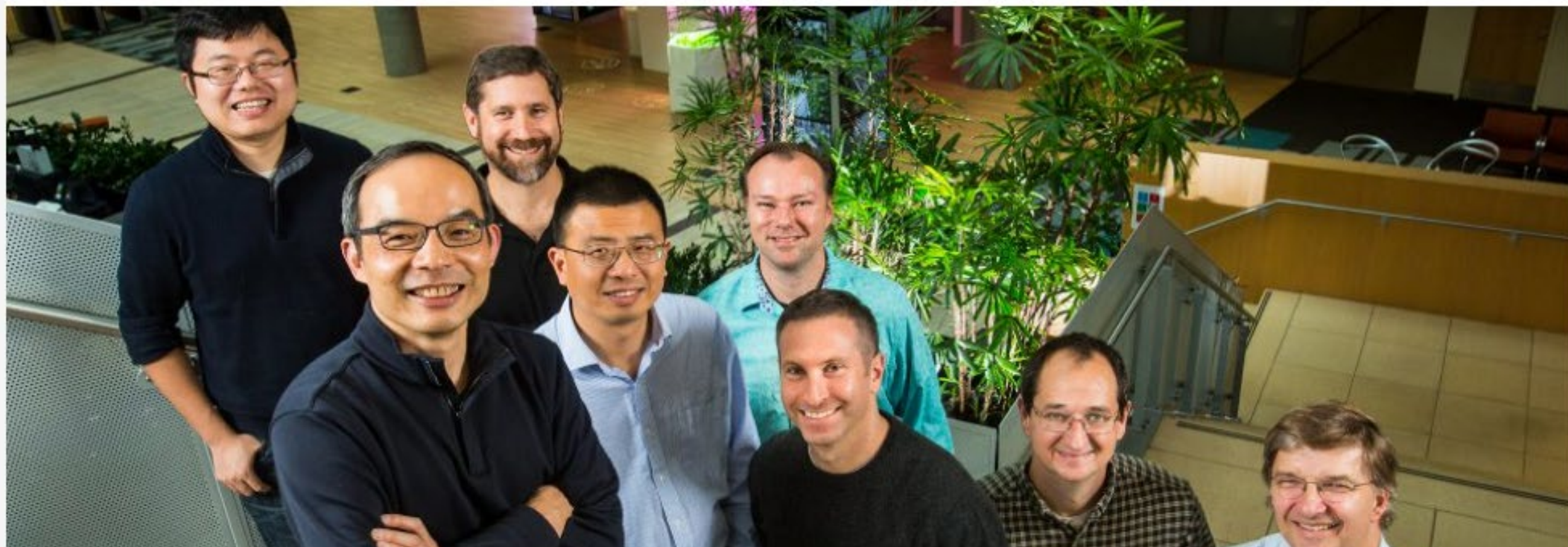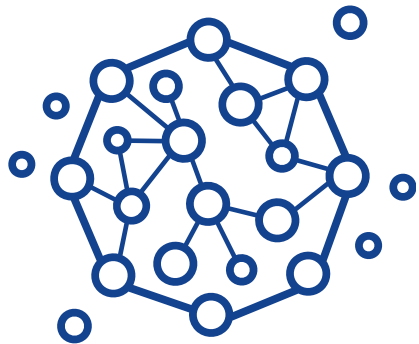
What is a Large Language model?

What is Language model?

"I woke up this morning and there was a beautiful blue ____"
(Sky, bird, butterfly, flower)

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ChatGPT is an example of a Large Language Model

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"I woke up this morning and there was a beautiful blue ____ "
(Sky, bird, butterfly, flower)

ChatGPT is an example of a Large Language Model

What these models do is Math

Models can be very powerful

GPT 4 BAR Exam results

GPT-4 scored **297** on the bar exam in an experiment conducted by two law professors and two employees of legal technology company Casetext.

That places GPT-4 in the 90th percentile of actual test takers and is enough to be admitted to practice law in most states

"Large language models can meet the standard applied to human lawyers in nearly all jurisdictions in the United States by tackling complex tasks requiring deep legal knowledge, reading comprehension, and writing ability"

GPT-4 Passes the Bar Exam

35 Pages • Posted: 15 Mar 2023

Daniel Martin Katz
Illinois Tech - Chicago Kent College of Law; Bucerius Center for Legal Technology & Data Science; Stanford CodeX - The Center for Legal Informatics; 273 Ventures

Michael James Bommarito
273 Ventures; Licensio, LLC; Stanford Center for Legal Informatics; Michigan State College of Law; Bommarito Consulting, LLC

Shang Gao
Casetext

Pablo Arredondo
Casetext; Stanford CodeX

Date Written: March 15, 2023

Abstract

In this paper, we experimentally evaluate the zero-shot performance of a preliminary version of GPT-4 against prior generations of GPT on the entire Uniform Bar Examination (UBE), including not only the multiple-choice Multistate Bar Examination (MBE), but also the open-ended Multistate Essay Exam (MEE) and Multistate Performance Test (MPT) components. On the MBE, GPT-4 significantly outperforms both human

Design AI to **augment human abilities**

Generative AI offers advancements over traditional AI models

Content generation
Creating a human-like output, including textual, visual, or multimedia content, based on input data or natural language prompts

Summarization
Extracting key themes and insights from a longer piece of text, including answering natural language queries

Semantic search
Going beyond traditional keyword matching by understanding the meaning behind a query and retrieving relevant search results that are semantically related to the user's intent

Code generation
Generating code based on a prompt, translating code from one language to another, or reviewing and improving existing code

Microsoft and OpenAI partnership

OpenAI

Ensure that artificial general intelligence (AGI) benefits humanity

Microsoft

Empower every person and organization on the planet to achieve more

Azure OpenAI Service – As of November 15, 2023

GPT-4, 4-Turbo and 3.5-Turbo	GPT-4 Vision	Babbage and Davinci	DALL·E 3	Whisper
Language	Multi-Modal	Fine Tuning	Images	Transcription & Translation

On Your Data   Azure AI Studio   Assistants

Copilot and Azure OpenAI Service

Microsoft Copilot

First-party conversational generative AI assistants embedded across Microsoft's products and applications. Copilot draws on the power of Azure OpenAI Services to work with natural language, providing an AI companion that works everywhere you do and intelligently adapts to your needs.

Azure OpenAI Service

Cognitive service that provides access to powerful OpenAI language models to enable customers to achieve tasks including but not limited to content generation, summarization, image understanding, semantic search, and natural language to code translation.

New York City is redefining the way small businesses get answers!

Enabling constituents and the city to move at the speed of business

> **Government should feel** friendly, not frustrating.
>
> – Mayor Eric Adams

> This is not technology for the sake of technology. This is technology **for the sake of** making the lives of New Yorkers easier.
>
> – Matthew Fraser,
> *Chief Technology Officer*

> Thanks to the chatbot, your new executive assistant, you will never have to waste time ever again going from page to page looking for the information you want and need. No more googling, no more going to multiple sites and no more broken links. It doesn't put you **on hold and** because it's in the city that never sleeps it's available 24/7.
>
> – Kevin Kim,
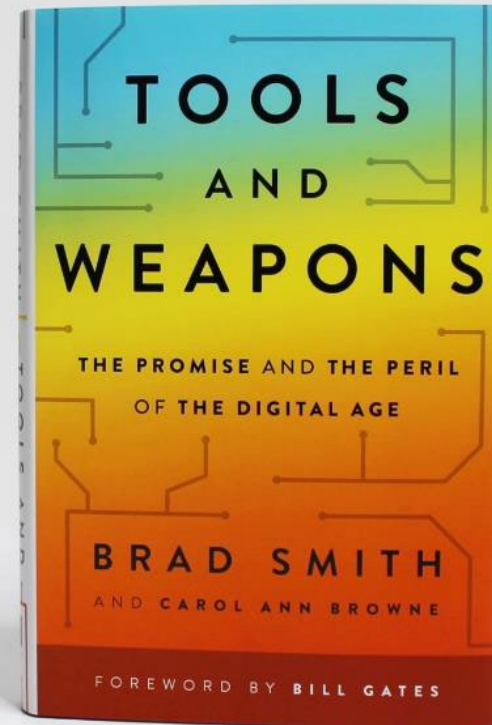> *Commissioner of the Dept. of Small Business Services*

Why Responsible AI?

"When your technology changes the world, you bear a responsibility to help address the world that you have helped create."

Brad Smith
President and Vice Chair, Microsoft Corp.

Responsible AI at Microsoft

Satya Nadella pens an article introducing concepts of responsible AI

Established our AI principles through 'The Future Computed'

Call for regulation of facial recognition

Facial recognition principles published

Responsible AI Dashboard

Responsible AI Standard (external)

2016 — 2017 — 2018 — 2019 — 2020 — 2021 — 2022

Aether Committee

Responsible AI Champs begins

Office of Responsible AI

Responsible AI Standard V1 (internal)

Responsible AI Strategy in Engineering (RAISE)

Responsible AI Standard V2 (internal)

Microsoft's AI Principles

Fairness

Reliability & Safety

Privacy & Security

Inclusiveness

Transparency

Accountability

Our ecosystem

Microsoft Board

Executive Leadership – Responsible AI Council

Office of Responsible AI

Research

Policy

Engineering

Microsoft's Responsible AI Standard
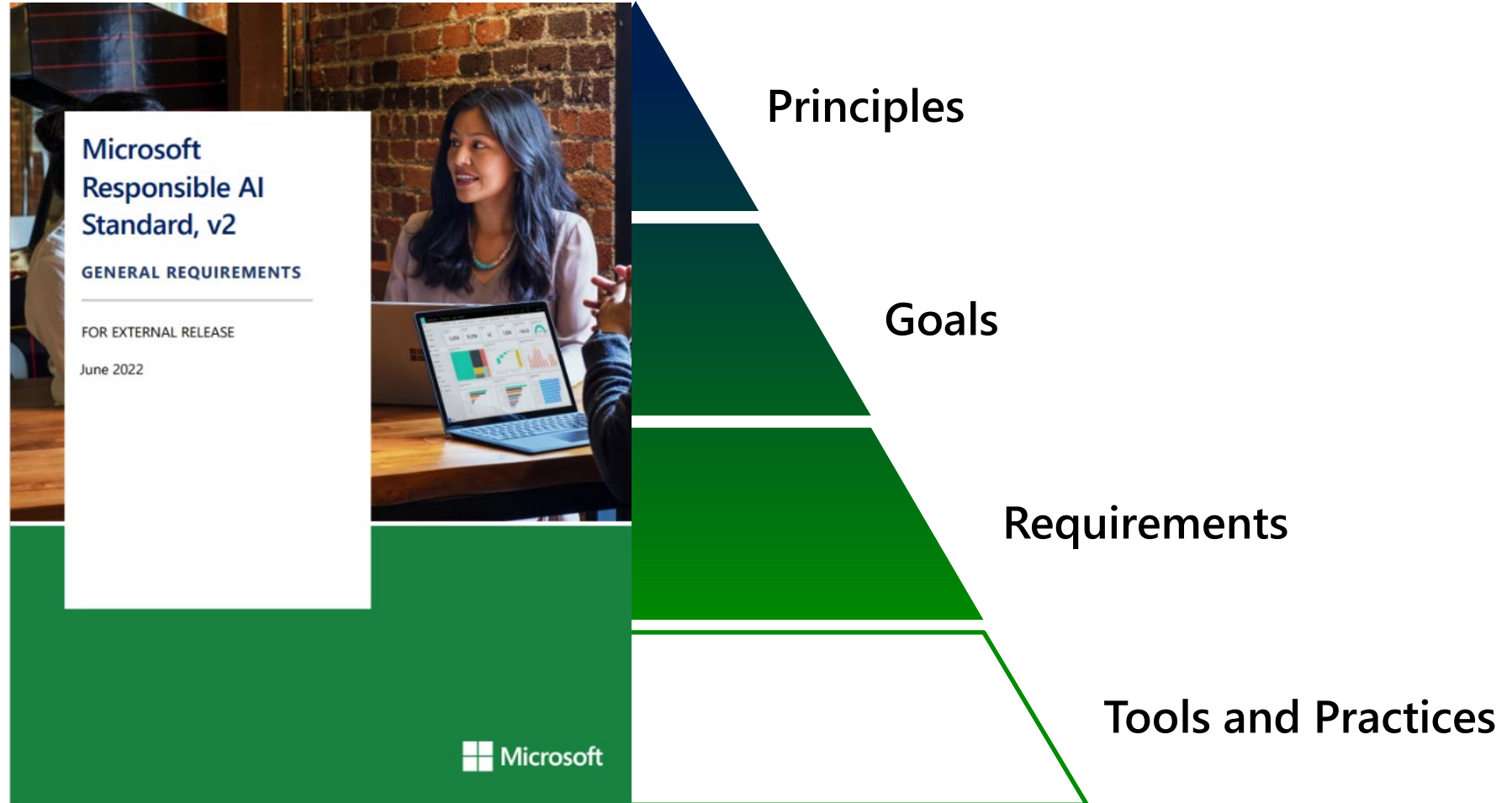
A five-point blueprint for public governance of AI

Microsoft

**Governing AI:
A Blueprint for the Future**
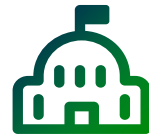
Implement and build upon new govt-led **AI Safety Frameworks**

Require effective **safety brakes** for AI systems that control **critical infrastructure**

Develop a broad **legal and regulatory framework** based on AI's tech architecture

Promote **transparency** and ensure **academic and nonprofit access** to AI

Pursue new **public-private partnerships** to use AI as an effective tool to address the inevitable **societal challenges** that come with new tech

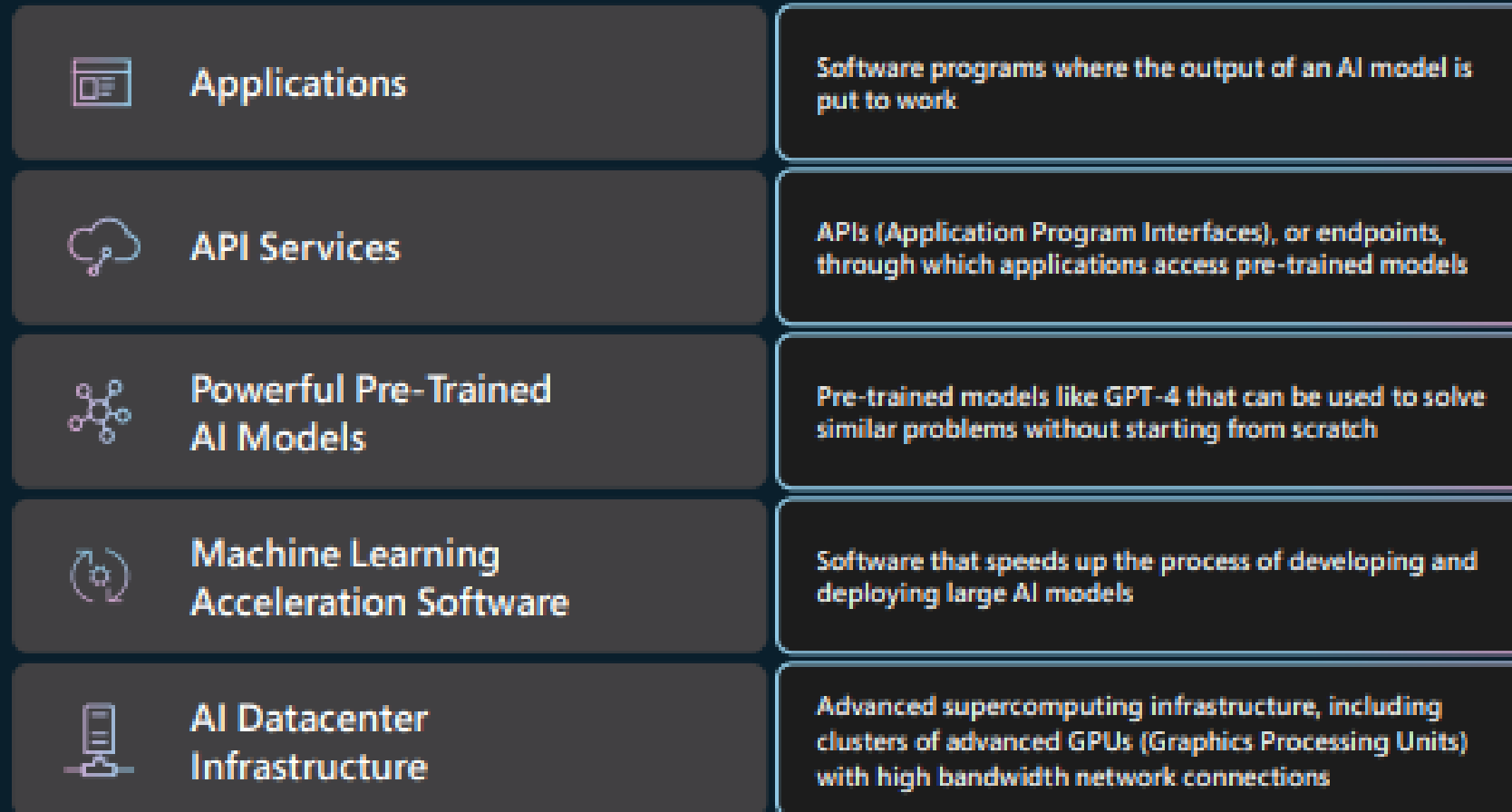# 3. Develop a broad legal and regulatory framework based on the technology architecture for AI

The technology stack for AI foundation models

Applications	Software programs where the output of an AI model is put to work
API Services	APIs (Application Program Interfaces), or endpoints, through which applications access pre-trained models
Powerful Pre-Trained AI Models	Pre-trained models like GPT-4 that can be used to solve similar problems without starting from scratch
Machine Learning Acceleration Software	Software that speeds up the process of developing and deploying large AI models
AI Datacenter Infrastructure	Advanced supercomputing infrastructure, including clusters of advanced GPUs (Graphics Processing Units) with high bandwidth network connections

A proposed AI regulatory architecture

Applications	Ensure that the use of AI in the application complies with existing applicable laws and regulations
API Services	Regulate through pre-release safety and security requirements, then license deployment for permitted uses in a licensed AI data center with post-deployment safety and security monitoring and protection
Powerful Pre-Trained AI Models	
Machine Learning Acceleration Software	License for training and deployment of powerful AI models based on security protections, export control compliance, and safety protocols to ensure human control over autonomous systems that manage critical infrastructure
AI Datacenter Infrastructure	

Ideas for State Policymakers

Comprehensive Privacy Legislation

Consider taskforces to review **existing laws** & identify gaps re: **protections** & **AI applications**

Consider **executive order or legislation** re: government and AI (commissions; procurement & NIST AI RMF; governance; facial recognition)

Legislation to require risk assessments, address consequential automated decision systems

Legislation to address **political deepfakes**

Thank you