THE 14 MILESTONES OF AI IN 2023

The 2023 AI Index from the Stanford Institute for Human-Centered Artificial Intelligence (HAI) has provided a comprehensive overview of the AI landscape in 2023. This report highlighted various milestones of AI in 2023 as outlined below.

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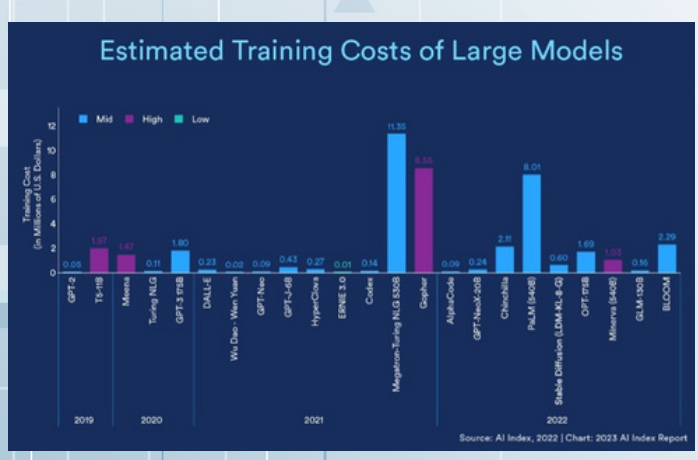
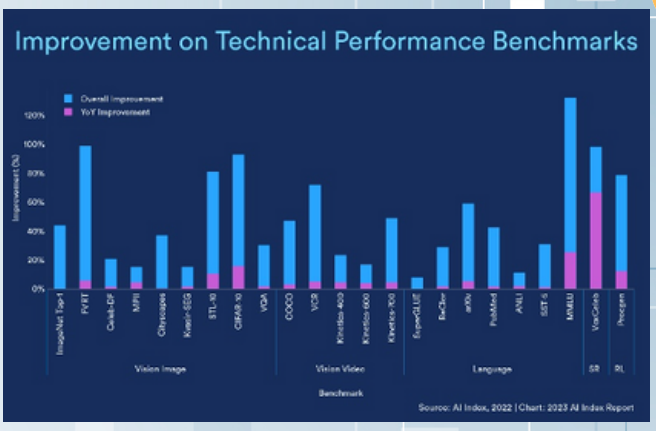
1 SCALING UP OF LARGE LANGUAGE MODEL

- There is a growing trend of large language model in size & cost.
- **GPT-2**
  Time of release: 2019
  Parameters: 1.5 billion
  Cost: $50,000 (estimated)
- **PaLM**
  Time of release: 2022
  Parameters: 540 billion
  Cost: 8 mil



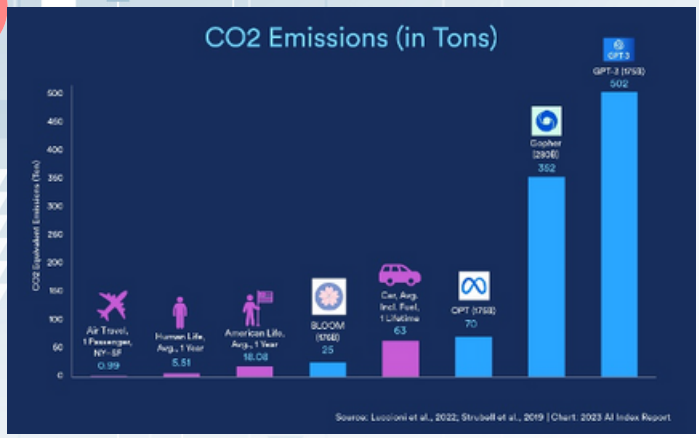
2 Setting New Benchmarks

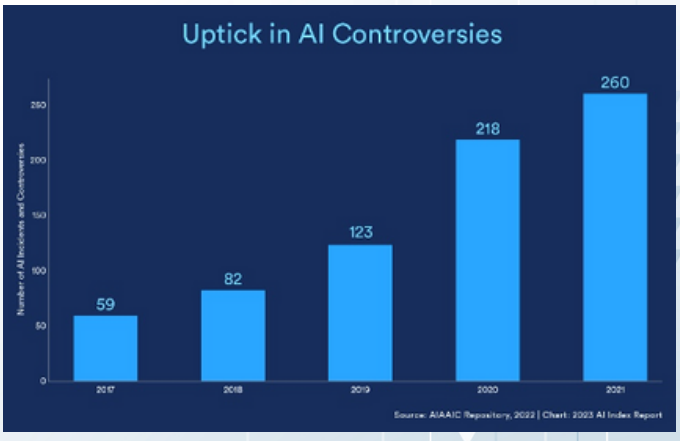


- Current AI tools consistently match or **surpass established benchmarks**.
- AI systems have notably enhanced their capabilities on existing benchmarks, signalling a need for more challenging tests to thoroughly evaluate and push the limits of these systems.

3 High Environmental Costs of Training

- Large AI models contribute significantly to **carbon emissions** (extensive number of parameters, data center power usage efficiency, and overall grid efficiency).
- **GPT-3** stands out as the most substantial carbon emitter.
- **BLOOM** used 433 MWh of power for training (equivalent to sustaining a home for 41 years).



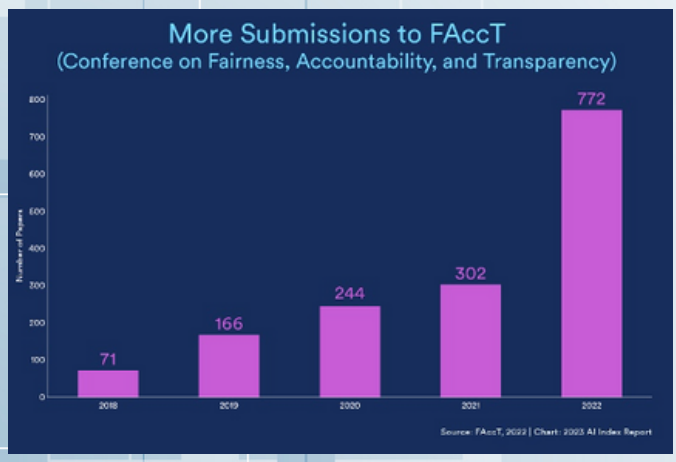


4 More AI-Related Challenges

- The AI, Algorithmic, and Automation Incidents and Controversies repository reveals a substantial increase in **misuse of AI** (i.e., 26 times increase from 2012 to 2021).
- This surge is attributed to the rise in **AI utilization** and an **expanding awareness** of its potential misuse.

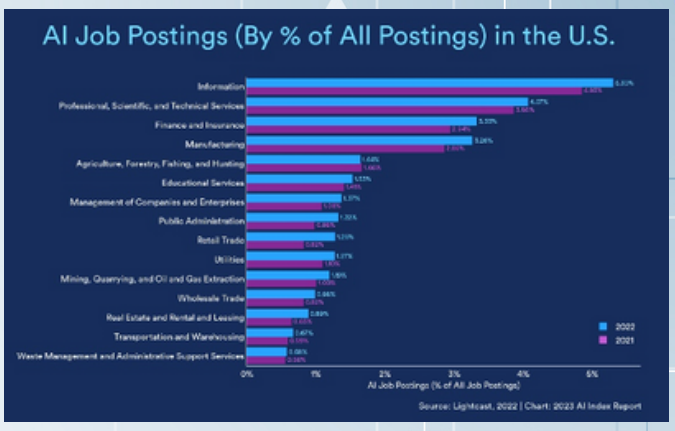
5 Increased Publication of Ethics-Related Papers

- The Conference on Fairness, Accountability, and Transparency (FAccT) experienced a **significant growth in submissions**, doubling from 2021 to 2022.
- While academic institutions dominated FAccT, a notable **increase** was noticed in contributions from **industry actors**.



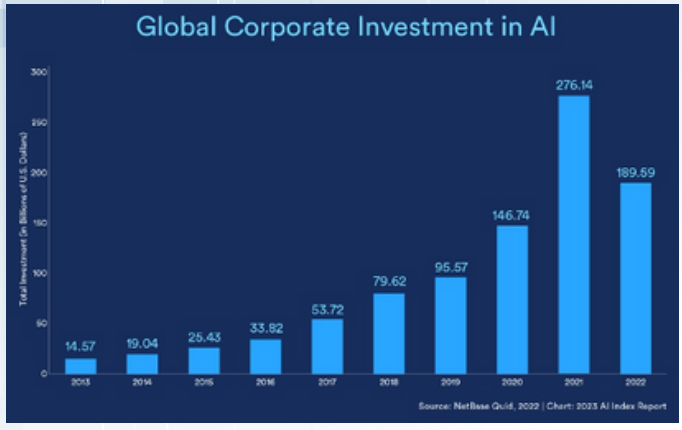
6 Increasing Demand to AI Workforce

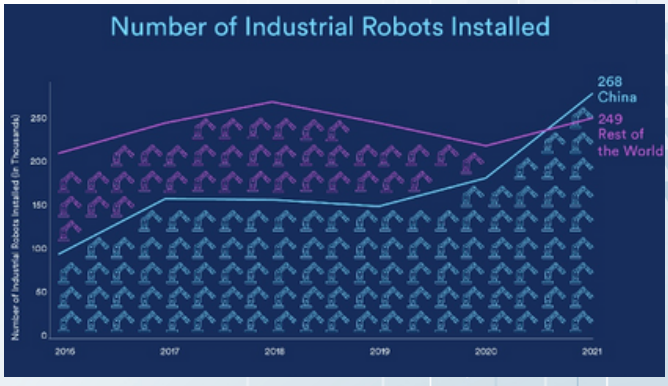
- In 2022, there was a widespread **surge in job postings** seeking **AI skills** across various sectors.
- The **information sector** particularly stood out in this trend.



7 Slight Reduce in Corporate Investment

- There is a **decrease** in corporate investment in AI sector from 2021 to 2022.
- However, the overall number has risen significantly, showing a 13-fold increase over the last decade.
- Most notable: Microsoft's acquisition of **Nuance Communications** (19.7 billion).



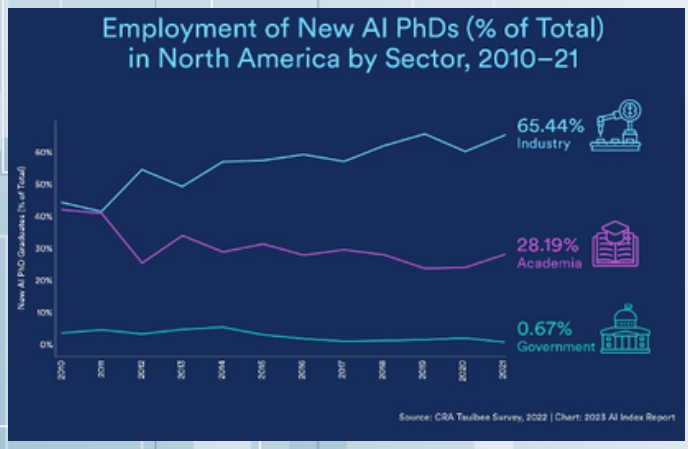


8 The Chinese's Robot Rush

- Globally, robotic installations have increased by 31%.
- **China** has surpassed Japan in robot installation in 2013.
- In 2021, China representing 51.8% of all global industrial robotic installations (more than the rest of the world).

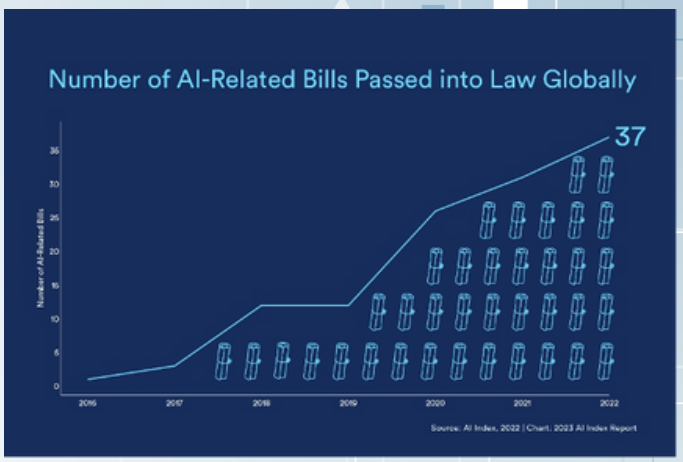
9 Influx of AI Talent to Industry

- Upon completing their AI-related PhDs, the **majority** of graduates typically enter **industry jobs**, with only a minimal **0.7%** choosing **government positions**.
- This percentage has **remained relatively stable** over the past five years.

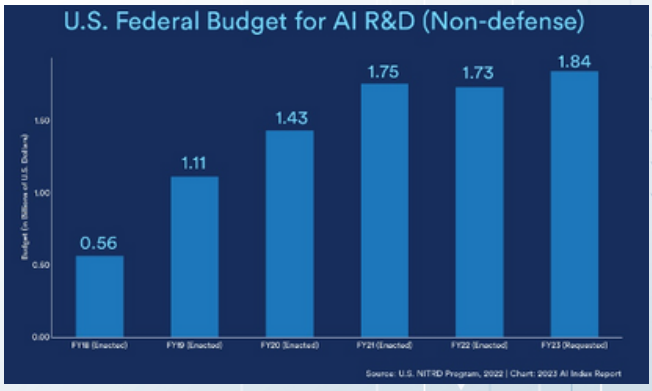


10 Increase in AI-Related Legislation

- In the past year, legislative bodies in 127 countries enacted **37 laws** incorporating the term "**artificial intelligence**".
- The U.S. led with 9 laws, followed by Spain (5) and the Philippines (4).
- Examples include a Philippine law addressing education reforms related to AI challenges, a Spanish bill focusing on non-discrimination and accountability in AI algorithms, and a U.S. act establishing an AI training program through the Office of Management and Budget.



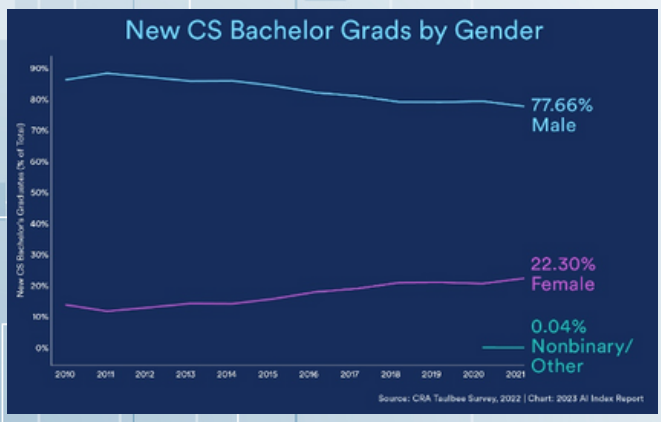
11 INCREASE OF US FEDERAL BUDGET ON AI



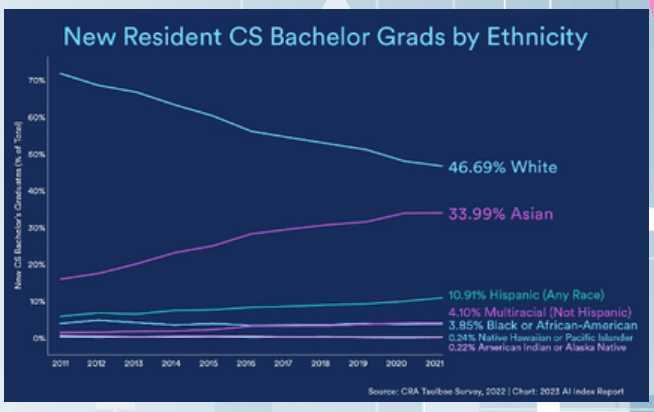
- In 2022, U.S. government agencies increased their allocation for AI research and development (R&D) to $1.7 billion.
- This marking a **13% rise from 2021** and a significant **209% increase from 2018.**

12 More Women Graduate with Computer Science Degrees

- There is an increase in the number of **women** entering the field of AI.
- The percentage of women with computer science bachelor's degree graduates has risen to 22.3% in 2021.



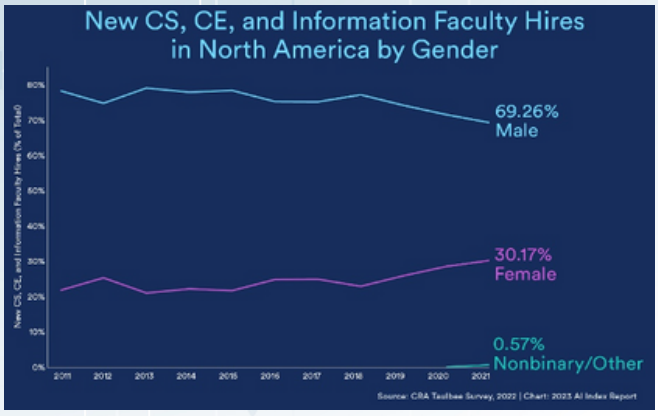
13 Broader Ethnic Diversity in AI



- There is a **notable increase in ethnic diversity** in computer science bachelor's programs.
- Although **white students** still constitute the **majority** of new graduates, there has been **a steady rise** in the proportion of new graduates who are **Asian, Hispanic, or multiracial** over the past decade.

14 More Women Academicians in AI

- More women are being employed in computer science (CS), computer engineering (CE), and information faculty positions.
- While the overall faculty in North American universities remains predominantly male, the **proportion of women** in these roles has reached a new high of **30.2%**, indicating an increase of 8.5% since 2015.



Reference: https://stanford.io/4auofyS