

Dreamarks

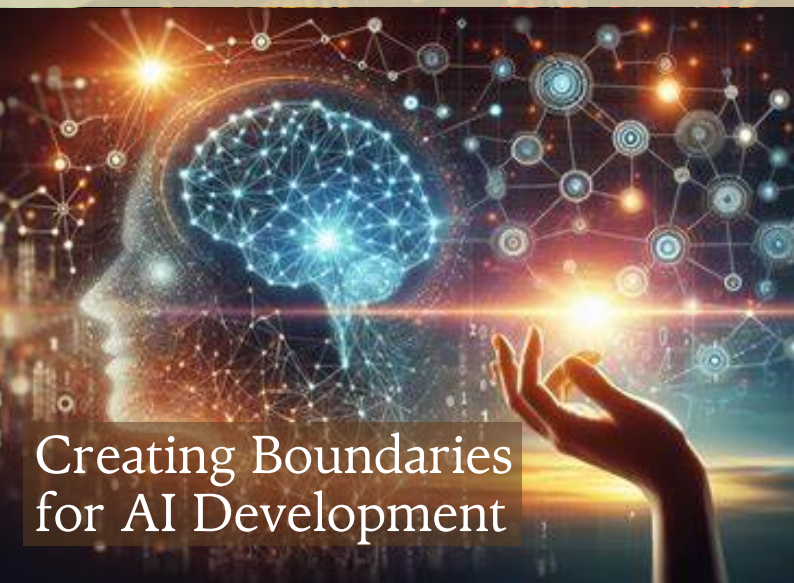
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MAGAZINE



Ensuring Global Food Supplies & Stabilities

Climate change. Extreme weather. The spread of pests and disease. At a time when the world needs more food, that food is getting harder to grow. Food security and nutrition are complex multidimensional concepts. . Healthy diets and health status are main determinants of nutritional status, but multiple factors related to food security (e.g. availability and affordability of nutritious foods), practices (e.g. related to food and feeding, care, and health seeking) and services (e.g. clean water, health, education and social protection) all influence the ability and mechanisms through which individuals can achieve (FAO - United Nations, 2024)



Creating Boundaries for AI Development



Food Processing Automation

A golden sunset scene with a mosque silhouette, birds, and people on a rocky shore. The sky is a deep orange, and the water reflects the sun's glow. Several birds are flying in the sky. In the foreground, two people are silhouetted against the water, standing on a rocky shore. The mosque in the background has a large dome and two tall minarets.

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Dreamarks Magazine

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Leveraging Earth Welfares

Differ with our previously composed writing, this 5th Editions of Dreamarks are laid upon AI writing and base data's from global sources such as FAO Reports of Global Famine. We are hoping this editions can shifts more on qualified writing, though we still maintain to do editing and giving the right contextual composure for every pages we working on.

Maintaining abundance of Silos stocks in every villages cannot be done if we're not in the pursuit of advancement in bio-technologies in creating solutions for weather, chemical, microbes, fungi, pests, and other difficulties in farming and breeding. Thus also the urgencies are developed more in creating multiple manufacturing machineries for food productions, to ensure the efficiencies, effectivities, high quality outputs, food safety, health measurements, bacterial risks hazards, etc.

In the field of Semi Conductor industries, we are also facing the scarcities in the production input supply chain for the main material composites to ensure the high results aiming in every development of any kind of microchips or nanochips. Thus the Economy of the Microchips are also can defects the hashing and dashing outputs of the Cryptocurrencies.

Meanwhile, whilst openAI and chatGPT are still measuring the capabilities and memories capacities of an ants compared to a quantum computer, various inventions in AI are developed more in the field of arts such as: music, designs, videos, audios, to ensure this world can be more fun, beautiful, relaxing and comforting place to live in.

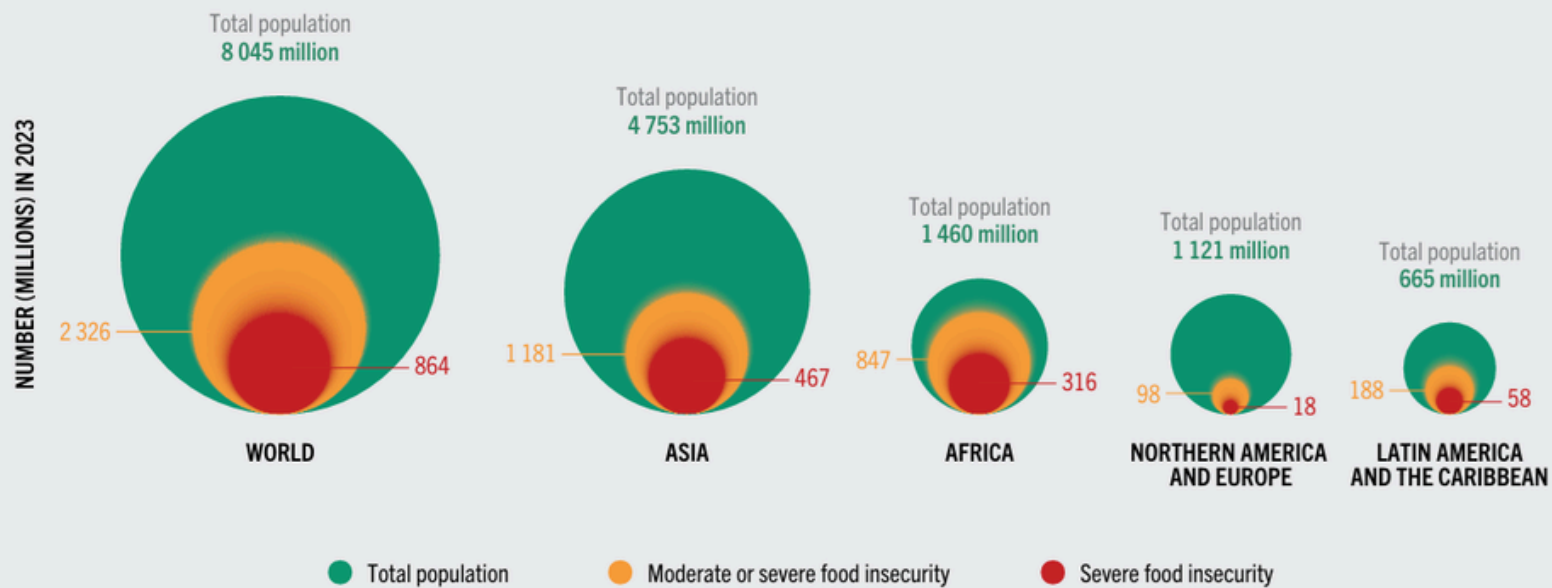
We also have to sets the ethical boundaries of the developed AI reasoning machines to ensure that the machine we built will be working on our demands, as thinking tools, as reasoning machines that are working as objects to human wisdom.

Creating vast explanations to a simple question, might still be the downfalls of the currently built AI tools. As we can further creates AI systems that are subjected for mankind to governed, to controlled, with measurable quantified limitations to ensure the obedience of the thinking systems to human subjects. Also, we have to bound the predictability of unwanted outcomes, unintended risks, over analyzed results or over simplified one, and to be certain at the weighted objectivities of measurable developments of the thinking tools we built.

Gina Al Thani

Editor-in-Chief

FIGURE 5 THE CONCENTRATION AND DISTRIBUTION OF FOOD INSECURITY BY SEVERITY IN 2023 DIFFERED GREATLY ACROSS THE REGIONS OF THE WORLD



NOTE: Only regions for which data were available for all the subregions are shown.

SOURCE: FAO. 2024. *FAOSTAT: Suite of Food Security Indicators*. [Accessed on 24 July 2024]. <https://www.fao.org/faostat/en/#data/FS>.

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Overview of the Global Hunger Situations

Although the prevalence of moderate or severe food insecurity in Asia is about half that of Africa, Asia accounts for a larger share of the world's food-insecure people—1.18 billion in Asia compared to 847 million in Africa.

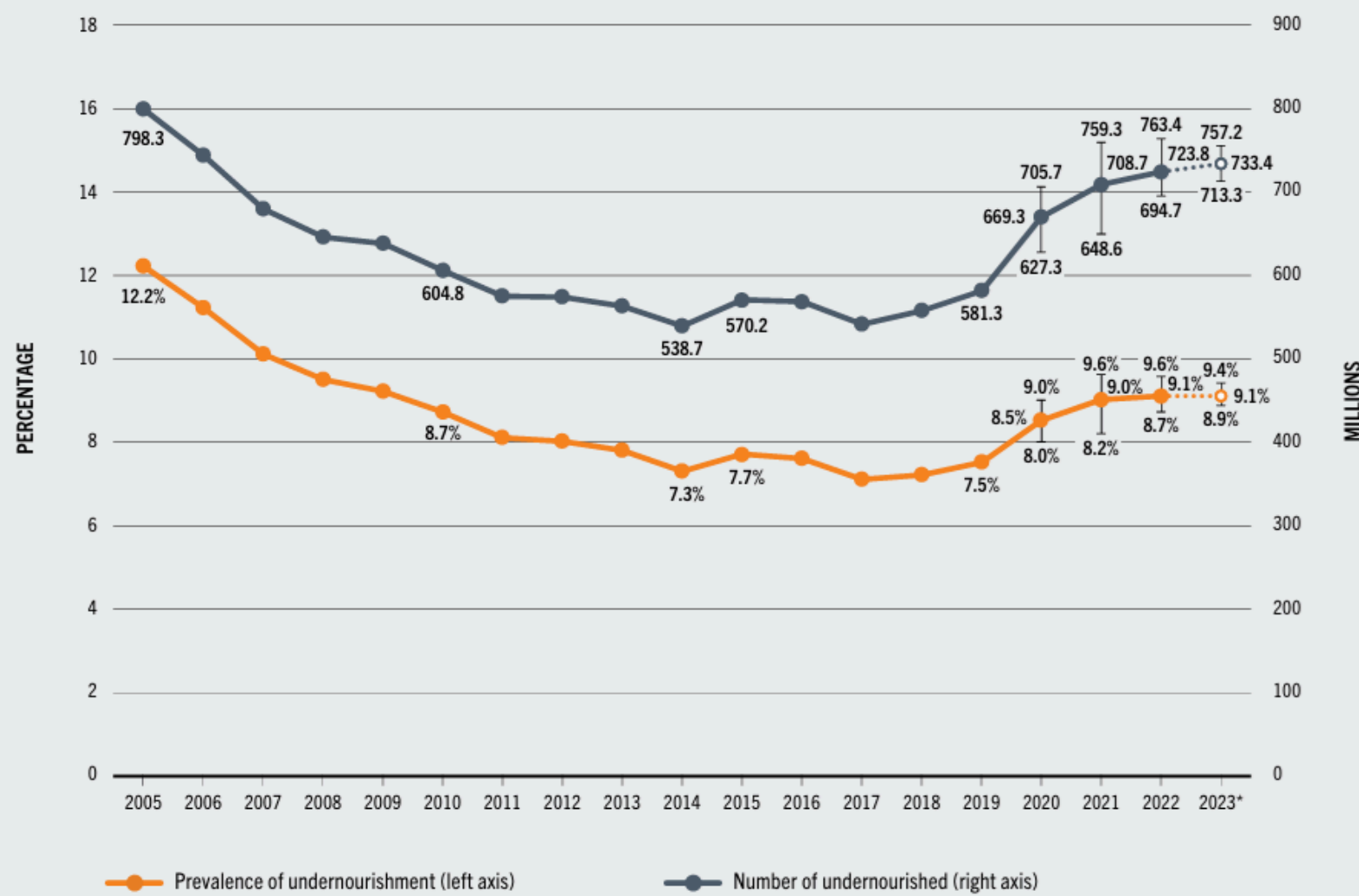
By 2023, half of the world's 2.33 billion food-insecure people will live in Asia, more than a third in Africa, about 8 percent (188 million) in Latin America and the Caribbean, and about 4 percent (98 million) in North America and Europe.

In Latin America and the Caribbean, the increase in hunger in the two years following the COVID-19 pandemic mirrored the global trend, but the recovery was much stronger. After rising from 5.6 percent in 2019 to 6.9 percent in 2021, the PoU declined for two consecutive years, reaching 6.2 percent in 2023—a decline equivalent to 4.3 million people in two years, driven primarily by improvements in South America.

Progress is encouraging, although the PoU remains well above pre-pandemic levels. At the same time, there are significant disparities in progress at the subregional level, with hunger affecting a much larger and increasing proportion of the population in the Caribbean. PoU in the Caribbean was more than triple that in Latin America in 2023, showing a marked increase from 15.4 percent in 2021 to 17.2 percent in 2023.

This contrasts with the trend in Central America, where PoU increased only slightly from 5.6 percent in 2019 to 5.9 percent in 2022, and then showed a marginal decline in 2023. The greatest progress has been made in South America, where PoU fell for two consecutive years by a total of 1.3 percentage points, falling to 5.2 percent in 2023, after rising sharply from 4.8 percent in 2019 to 6.5 percent in 2021 following the pandemic. That means 5.4 million fewer people will face hunger in South America in 2023 compared to 2021.

FIGURE 1 GLOBAL HUNGER ROSE SHARPLY FROM 2019 TO 2021 AND PERSISTED AT THE SAME LEVEL TO 2023



Global Hunger Rise Sharply from 2019 to 2023

28.9 percent of the global population – 2.33 billion people – experience moderate or severe food insecurity, meaning they do not have regular access to sufficient food. This estimate includes 10.7 percent of the population – or more than 864 million people – who experience severe food insecurity, meaning they run out of food at certain times of the year and, at worst, go without food for a day or more.

The global prevalence of severe food insecurity increased from 9.1 percent in 2019 to 10.6 percent in 2020 and has remained unchanged since. The prevalence of moderate or severe food insecurity in Africa (58.0 percent) is nearly double the global average, while in Latin America and the Caribbean, Asia and Oceania, the figures are closer to the global estimate – 28.2, 24.8, and 26.8 percent, respectively.

It is estimated that between 713 and 757 million people (8.9 and 9.4 percent of the global population, respectively) will be undernourished in 2023. Taking into account the mid-range estimate (733 million), about 152 million more people are likely to face hunger in 2023 compared to 2019.

FIGURE 7 THE GENDER GAP NARROWED IN MOST REGIONS FOR TWO YEARS IN A ROW, BUT THE PREVALENCE OF FOOD INSECURITY HAS REMAINED CONSISTENTLY HIGHER AMONG WOMEN THAN AMONG MEN, GLOBALLY AND IN ALL REGIONS



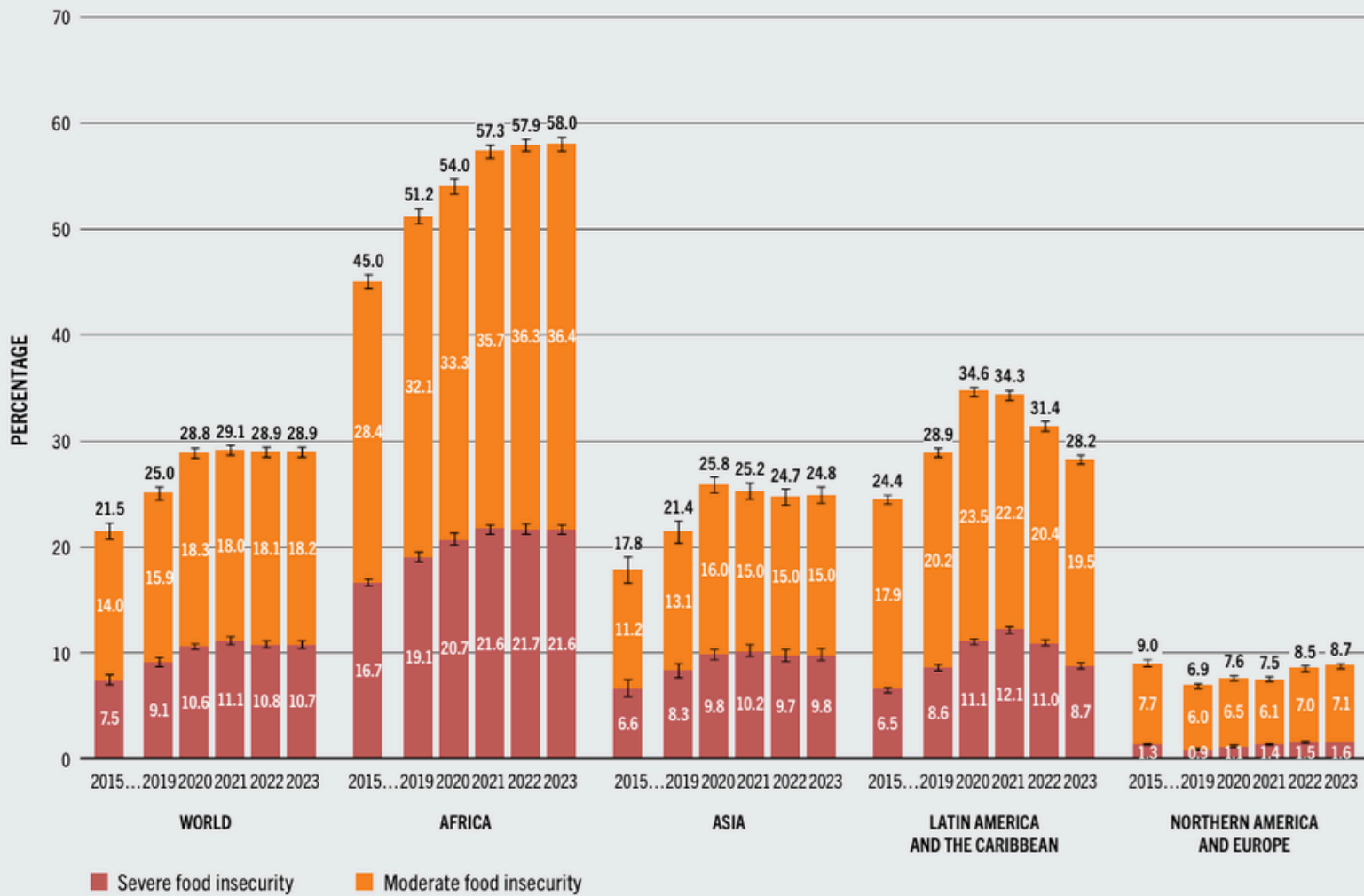
Gender Prevalence Gap on Global Food Insecurity

A comparison of the food insecurity status of men and women shows that the prevalence of food insecurity has remained consistently higher among women than men, globally and across all regions, since data first became available in 2015.

The gender gap widened significantly globally and in every region except Africa between 2019 and 2021 following the global COVID-19 pandemic, largely due to the disproportionate impact on women's employment and income and their greater burden of caring for out-of-school children and sick family members.

At the global level, the gender gap in moderate or severe food insecurity jumped from a difference of 1.4 percentage points between men and women in 2019 to 3.6 percentage points in 2021, and for severe food insecurity, from a difference of 0.6 percentage points to 2.3 percentage points over the same period.

FIGURE 4 FOOD INSECURITY LEVELS REMAINED VIRTUALLY UNCHANGED GLOBALLY FROM 2022 TO 2023, WITH LATIN AMERICA AND THE CARIBBEAN BEING THE ONLY REGION SHOWING NOTABLE REDUCTION



Famine Conditions at African Continent

In Africa, hunger rates have been steadily rising since 2015. More than one in five people living in Africa may face hunger by 2023. Hunger increased in most African subregions from 2022 to 2023, except for East Africa and Southern Africa. After rising steadily since 2015, the prevalence of undernutrition (PoU) in East Africa decreased by 1 percentage point in 2023 to 28.6 percent (138.5 million people).

However, nearly half of the people facing hunger in Africa in 2023 lived in this subregion. In Southern Africa, PoU remained relatively unchanged from 2022 to 2023 after three consecutive years of increases. On the other hand, in Central Africa, PoU increased sharply from 2022 to 2023, increasing by 3.3 percentage points – the largest percentage point increase of any subregion in the world – to reach 30.8 percent (62.2 million people) in 2023.

The situation also worsened in West Africa, where PoU rose sharply from 2019 to 2020, followed by a smaller increase in 2021, and then increased more rapidly for two consecutive years, reaching 16.0 percent (70.4 million people) in 2023. Hunger also increased, albeit more slowly, in the subregion with the lowest PoU on the continent, North Africa, affecting 7.8 percent of the population (20.7 million people) in 2023.

TABLE 2 NUMBER OF UNDERNOURISHED PEOPLE, 2005–2023

	Number of undernourished									
	2005	2010	2015	2017	2018	2019	2020*	2021*	2022*	2023*
	(millions)									
WORLD	798.3	604.8	570.2	541.3	557.0	581.3	669.3	708.7	723.8	733.4
AFRICA	184.4	167.4	192.1	211.6	221.2	231.0	256.5	269.6	284.1	298.4
Northern Africa	14.7	12.8	12.7	14.7	15.0	14.8	15.7	18.3	19.3	20.7
Sub-Saharan Africa	169.7	154.6	179.4	196.9	206.2	216.2	240.8	251.4	264.8	277.7
Eastern Africa	95.7	83.7	96.3	109.0	112.7	119.7	128.1	133.7	139.8	138.5
Middle Africa	38.3	30.4	36.6	40.0	42.5	44.9	51.3	53.7	54.0	62.2
Southern Africa	2.6	4.2	5.3	4.5	4.6	4.7	5.5	6.2	6.5	6.6
Western Africa	33.1	36.4	41.1	43.4	46.5	46.9	56.0	57.8	64.5	70.4
ASIA	552.6	391.4	336.3	284.9	289.6	305.7	361.7	384.6	386.5	384.5
Central Asia	8.2	4.1	2.7	2.4	2.1	1.9	2.4	2.5	2.4	2.3
Eastern Asia	105.4	42.8	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.
South-eastern Asia	95.7	69.8	49.5	38.5	37.7	36.6	37.3	39.0	41.6	41.7
Southern Asia	325.2	258.4	236.1	194.6	197.3	216.9	268.3	288.6	284.9	280.9
Western Asia	18.2	16.2	24.7	28.0	29.6	30.2	31.5	33.0	35.5	37.1
<i>Western Asia and Northern Africa</i>	32.9	29.0	37.3	42.7	44.6	44.9	47.2	51.3	54.8	57.8
LATIN AMERICA AND THE CARIBBEAN	49.8	36.0	32.5	36.3	37.6	36.3	42.2	45.3	43.9	41.0
Caribbean	7.2	5.9	5.5	5.6	6.0	6.0	6.8	6.8	7.5	7.7
Latin America	42.6	30.1	27.0	30.7	31.7	30.3	35.4	38.5	36.4	33.3
Central America	11.2	10.0	10.7	10.2	10.4	9.7	9.9	10.3	10.6	10.5
South America	31.4	20.1	16.3	20.5	21.2	20.6	25.4	28.2	25.8	22.8
OCEANIA	2.3	2.7	2.8	2.8	3.0	3.1	2.9	3.3	3.2	3.3
NORTHERN AMERICA AND EUROPE	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.

NOTES: n.r. = not reported, as the prevalence is less than 2.5 percent. Regional totals may differ from the sum of subregions, due to rounding and non-reported values. For country compositions of each regional/subregional aggregate, see Notes on geographic regions in statistical tables at the end of the report. * Values are based on the point estimates; the values of upper and lower bounds of the estimated ranges for 2020 to 2024 can be found in the [Supplementary material to Chapter 2](#).

SOURCE: FAO. 2024. *FAOSTAT: Suite of Food Security Indicators*. [Accessed on 24 July 2024]. <https://www.fao.org/faostat/en/#data/FS>. Licence: CC-BY-4.0.

A Picture of Famine in Asia

Hunger trends in Asia mirror those at the global level, marked by a sharp increase from 2019 to 2021, followed by two years of no change at all, with 8.1 percent of the population still facing hunger in 2023. In Central Asia, after increasing from 2.6 percent in 2019 to 3.2 percent in 2020, PoU (Prevalence of Undernourished) decreased slightly in the following years to 3.0 percent in 2023. In Southeast Asia, PoU increased slowly from 5.5 percent in 2019 to 6.1 percent in 2022 and remained unchanged in 2023. In South Asia, encouraging progress was seen for two consecutive years. After a sharp increase from 2019 to 2021, the PoU decreased from 14.5 percent in 2021 to 13.9 percent in 2023—equivalent to 7.7 million fewer people facing hunger. In contrast, the situation continues to worsen in West Asia, where hunger has been rising since 2015, reaching 12.4 percent in 2023.

The Labor Shortage in Food Industries

- **1,137,000 America's #1 Labor Shortage: Unfilled Jobs in U.S. Food Preparation**
- **3.1 M Unfilled Jobs in U.S. Food Prep by 2030**
- **300% Annual Staff Turnover Rate**

Food companies are grappling with an unprecedented labor shortage. Hiring and retaining workers is more challenging than ever, putting the US at risk for food shortages nationwide. Leveraging automation as a form of labor is necessary to meet demand.

How AI Systems in ChefOS Robots Works?

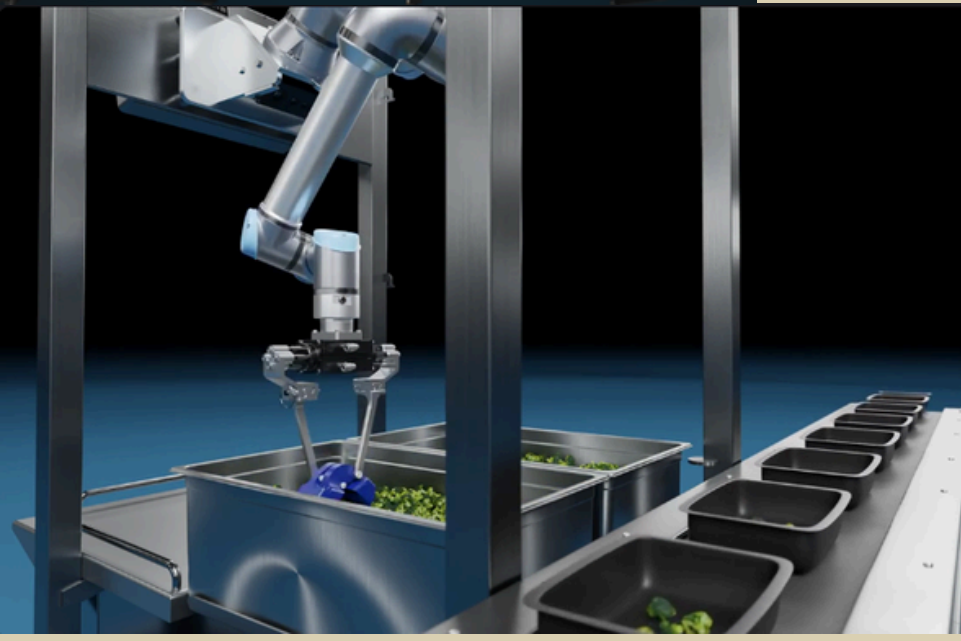
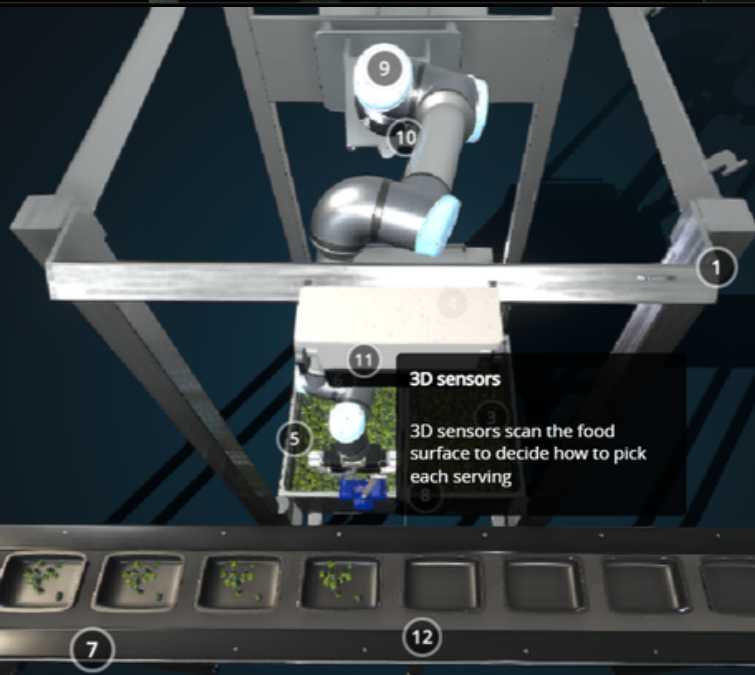
Fleet Learning. Chef's systems continually improve the more picks they do.

Flexible. Chef robots work with almost any ingredient, no matter size, stickiness, deformability, or wetness.

Pre-Trained. Chef's Robots systems have been trained on tens of thousands of hours of production.

Any Ingredients & Portions Size. Chef Robots can work with any portion size of ingredients.

Any Packaging Forms. Chef Robots work with any measurement of containers, and can target any compartment or placement within them.



ChefOS; World's Most Intellect Food Engineering System

Some of the AI's most powerful impact will be on the physical world. The physical world represents 90% of GDP. ChefOS is built on modern advancements in AI foundational models, learning from demonstration (imitation learning), and deep learning.

Interaction systems of ChefOS is to the physical world are alike what ChatGPT is to language. GPT predicts the next word in a sequence. ChefOS's Generalized Food Engineering Model as the AI Systems are learning the mechanism and sequencing tasks which robot action should come next in the real world.

Several Case Study of ChefOS Robots Has Shown Significant Results :

- Increasing food consistency from 12 – 25%
- Reducing food giveaway from 4-88%
- Increasing Labor Productivity from 17 -33%
- Increase Throughput to 9%
- Free Up Staff Task to 10% for multitasking with other tasks



Precise & Clean Processing

Food processing equipment market, by type

- Processing
- Pre-processing

Based on type, the global food processing equipment market is segmented into processing, pre-processing, then packaging. The processing equipment segment is the dominant category in the global food processing equipment market, driven by the high demand for machinery that enhances food preparation, cooking, and packaging. The pre-processing equipment segment is the fastest growing category, fueled by the increasing focus on food safety, quality, and efficiency in the initial stages of food production. Innovations in cutting, washing, and sorting technologies are gaining traction as manufacturers aim to optimize their operations and reduce waste.

The food processing machinery that produce food products must be safe and sanitary. One feature of these machines is that many of them are custom-made to bring out the particular qualities of a food manufacturer's products. The production process is divided mainly into two steps: preprocessing (ingredient processing, food production and processing), and post-processing (distribution, weighing, filling and packing).

In preprocessing, the ingredients must be washed, cut, and sorted, requiring a variety of different machines to match the production method. Post-processing requires high precision and speed in processing machines.

In recent years, there have been problems with the contamination of food, which seriously damages the trust of the public. This results in higher demand for safety and reliability of machines that are also easier to maintain.

Food processing equipment market needs are align to core technologies such as materials engineering, lubrication technologies, and precision technologies, significantly contributing to improved performance in food processing machinery.



Automated & Fully Controlled

Automation technology integration in food production is a revolution that is redefining efficiency, quality, and safety in the sector—it's not just a fad. The modern food production landscape is largely shaped by these innovations, which range from robotic palletisers that streamline logistics to optical sorting machines that guarantee only the best products reach consumers.

As highlighted earlier in the article by Mordor Intelligence's market predictions, we can anticipate even more automation as technology develops. This will improve our capacity to produce food that is safe, of high quality, and at a scale that can satisfy the world's expanding population. Food producers are prepared to meet the challenges of the future with these tools at their disposal, guaranteeing food security and sustainability for future generations.

Food Processing Equipment Market, By Mode Of Operation

- Automatic
- Semi-automatic

Based on Mode Of Operation, the Global Food Processing Equipment Market is segmented into Automatic, Semi-automatic. The automatic segment is the dominant mode of operation in the global Food Processing Equipment Market, driven by the need for efficiency, consistency, and reduced labor costs.

The semi-automatic segment is the fastest growing category, appealing to small and medium-sized enterprises looking for a balance between manual control and automation. This mode allows for flexibility in production processes, enabling manufacturers to adapt quickly to changing market demands while still benefiting from improved efficiency and lower operational costs.



Speeds, Health, Perfections

There are many reasons for food production companies to adopt automation in their processes. Automation technology is increasingly being used in the food industry to help businesses meet the growing demands for food safety, quality, and efficiency. Here are some of the key benefits automation brings:

- **Increased Efficiency and Productivity:** Automation allows for continuous, round-the-clock operations with minimal downtime, significantly increasing productivity. Higher output levels and more effective use of resources are possible when machines replace human labor because they can complete tasks more quickly and consistently.
- **Improved Product Quality and Consistency:** Because automated systems are able to perform tasks accurately and consistently, every product is guaranteed to meet the exact same quality standards. Both brand reputation and customer satisfaction depend on this consistency.
- **Labor Cost Savings:** While there may be significant initial costs associated with automation technology, there are significant labor cost savings in the long run. There is no need for a large workforce when automation can work outside of regular business hours and complete tasks that would otherwise require many people.
- **Flexibility and Scalability:** Food manufacturers can quickly adapt to changes in production volume or produce multiple products on the same line with minimal downtime for changeovers thanks to the flexibility and scalability of modern automation systems.
- **Data Collection and Monitoring:** Real-time data collection and analysis offer in-depth insights into production processes. Using this data, operations can be further optimized by monitoring productivity trends, tracking efficiency, and making informed decisions.



Food Processing Phases

Cleaning and Sanitation Systems

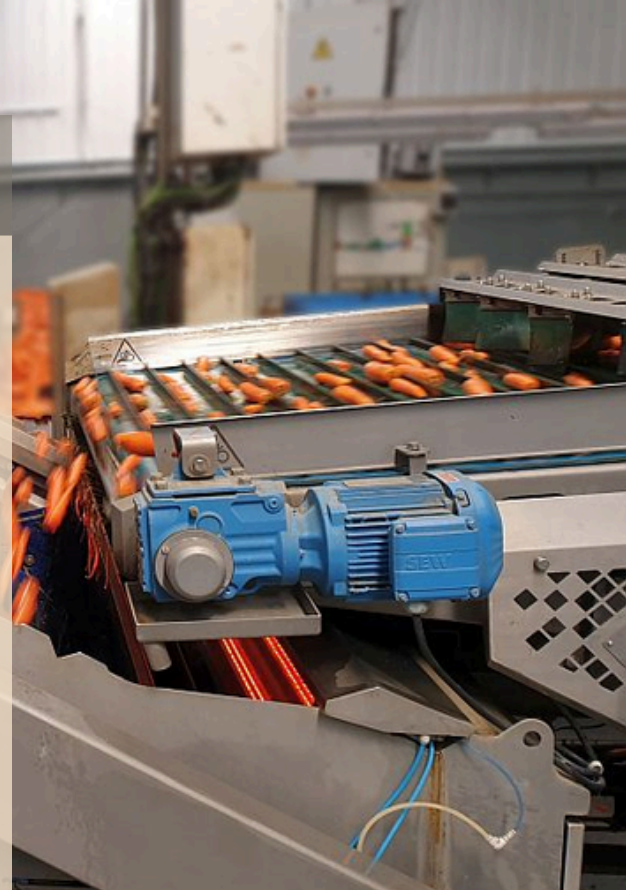
Hygiene and sanitation are non-negotiable in food production. Production facilities and equipment are kept as clean as possible by automated cleaning and sanitation systems. These systems clean equipment for safe operation by using pre-programmed cycles of washing, rinsing, and disinfecting to get rid of pathogens and food residue. Food producers can guarantee thorough and consistent cleaning, lower the risk of foodborne illnesses, and comply with regulatory requirements by automating this process.

Optical Sorting Machines

At the forefront of automation technology in the food production industry are optical sorting machines. These cutting-edge systems sort food products according to colour, size, shape, and even chemical composition using high-resolution cameras and sensors. Their ability to identify and eliminate anything from rotten fruits to foreign materials makes them indispensable in guaranteeing the quality and safety of food products. Optical sorters are essential tools in the quest for superior products because they are widely utilised in the processing of fruits, vegetables, nuts, grains, and seafood.

Cutting and Peeling Machines

Automation significantly accelerates the raw material preparation process for peeling and cutting. These devices are made to handle a wide range of products precisely, from slicing and dicing to peeling fruits and vegetables. Manufacturers can use automation to cut the top and bottom of vegetables. For example, the Food Materials Position Sensors allows producers to autonomously clip onions by modifying the height of the food materials without having to do it manually because of its integrated vision and control system. Food producers can attain consistency in product size and appearance through the automation of these processes, an essential aspect for both fresh market goods and further processed items.



Food & Bev Processing Phases

Robotic Palletisers

·Automated palletisers have revolutionised the last steps of the food manufacturing process. These robots automate the process of stacking packaged goods onto pallets for shipment, which is labour-intensive and error-prone when done manually. Robotic palletisers can be programmed to handle a variety of product types and pallet patterns, and they are incredibly accurate and efficient. They are an essential part of contemporary food production facilities because their adoption results in fewer workplace injuries and more efficient logistics.

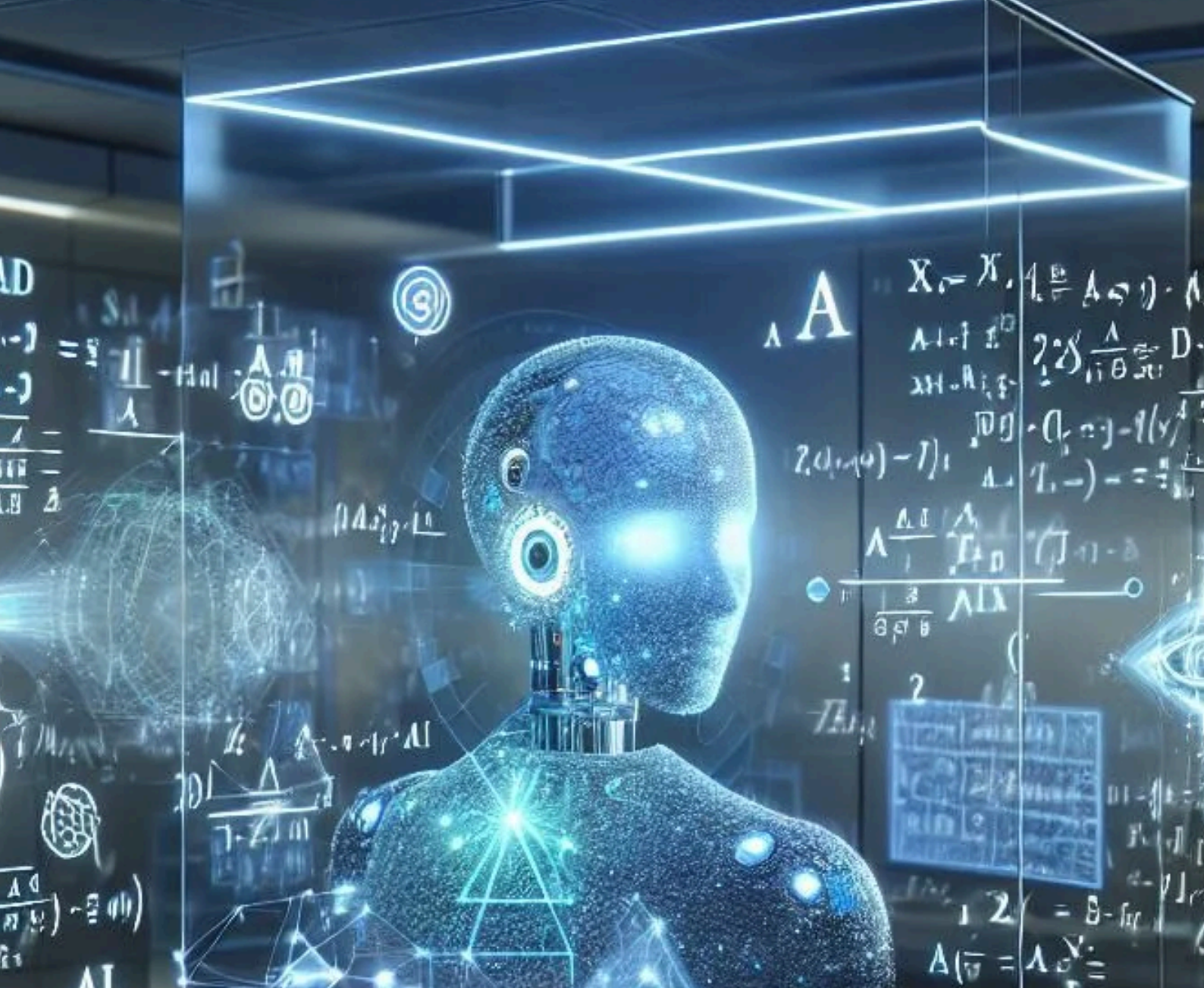
Conveyor Belts

·These systems, which effectively move raw materials and completed goods through various processing, assembly, and packaging stages, are the foundation of automated food production. Conveyor belts are engineered to manage a wide variety of goods and can be combined with additional automated systems for inspection, packaging, and sorting, guaranteeing a seamless and uninterrupted flow of production.

High-speed Packaging Machines

·Packaging is a critical stage in food production, where efficiency and reliability are crucial. Production lines are greatly accelerated by high-speed packaging machines, which automate the process of wrapping, sealing, and labelling food products. These adaptable machines can handle a wide range of packaging formats and materials, including trays, boxes, and pouches in addition to bags. These devices are essential for preserving product freshness and increasing shelf life because they make sure goods are packaged securely.



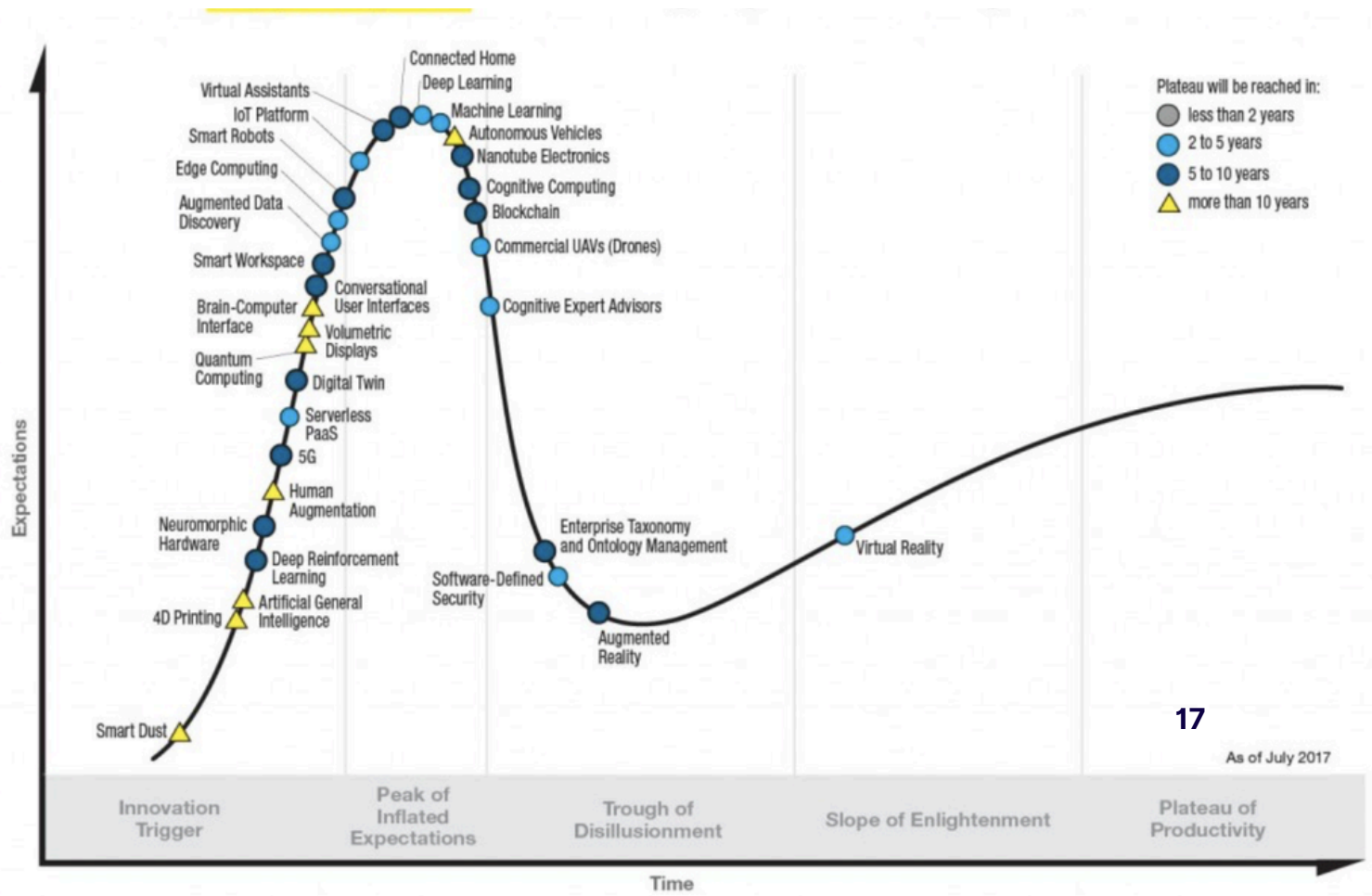
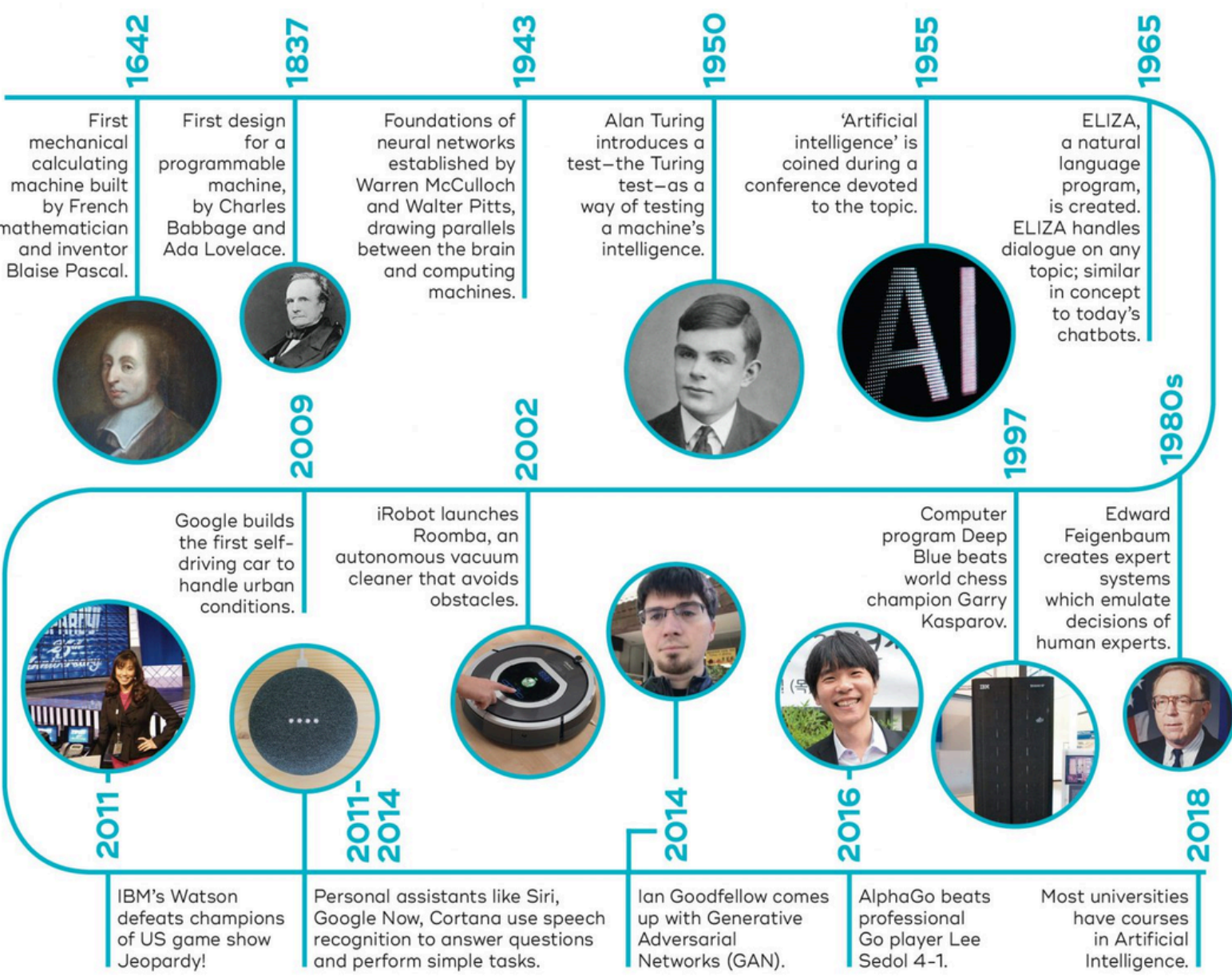


AI Vs Ants

Have you ever tried asking chatgpt or openai simple questions, like how much memory an ant has? Or how large a quantum computing machine would be needed to produce memory intelligence comparable to that of an ant?

While we might expect answers in the megabytes or so, the explanations AI provides are more based on the results of behavioral experiments involving ants as research subjects. This is, of course, because AI systems cannot answer without prior data. Meanwhile, no scientific research in the world has been able to calculate the memory capacity of an ant.

Why can't an AI chat system, for example, quantify the general capacity of the human brain and then calculate a proportion based on the surface area of the ant's memory-storing nervous system compared to the human brain? Of course, such calculations don't yet exist. Even if the data were available, these two different biological systems of thought wouldn't necessarily be comparable.



Dependabilities of AI upon its Limited Categories of Multi Variables

Human are sets as creations that never satisfied on anything. Whilst every machines are also bound to be depreciated and someday can be broken and obsolete. Biochemical conditions in human brain opening large arrays of limitless and countless outcomes on certain intended questions and imaginative answers that are hoping the AI they are using can give them the necessary results.

Nevertheless, the prior AI technology that we are having now are still bounded to be dependent on the multi variability of amount of piled data, informations stored, formulated techniques, calculative equations, etc, upon creating the targeted AI outputs. AI still depends heavily on the types of variables the system is calculatively measured and dispersedly arranged on certain chosen designed to process. In the context of multi-modal AI, the following categories of variables come into play:

Input Variables:

- **Quantitative** Variables (e.g., numerical data, sensor readings)
- **Qualitative** Variables (e.g., text, images, emotions)
- **Temporal** Variables (e.g., time-based data, sequence of events in video or audio)

Intermediate Variables:

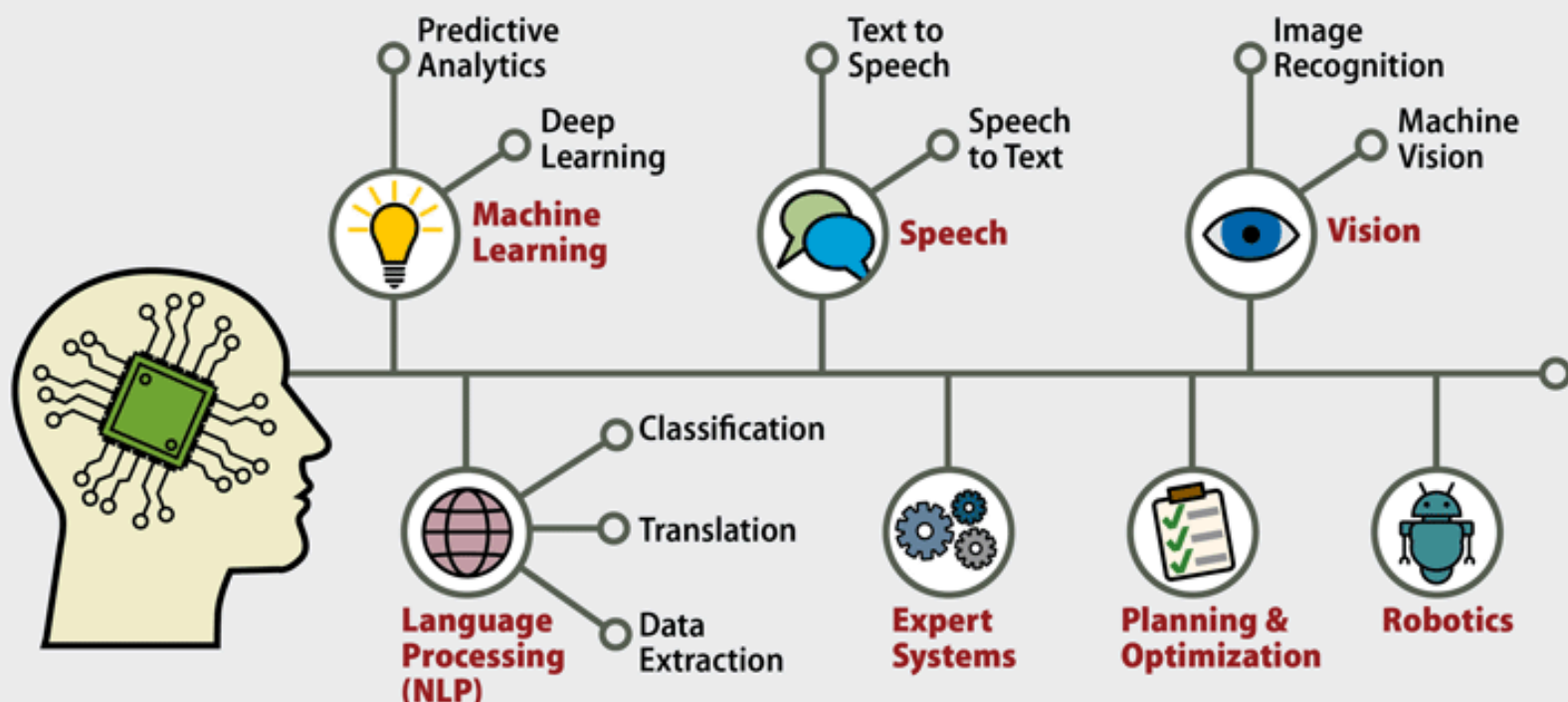
- **Latent** Features: Hidden representations that emerge from the combination of multiple input sources (e.g., learned features in deep neural networks).
- **Contextual** Variables: Information that provides additional context to the data, such as historical data or situational context.

Output Variables:

- **Discrete** Outputs (e.g., classification tasks, decision-making)
- **Continuous** Outputs (e.g., regression models, predictions)

Each of these variable categories allows the AI model to generate outputs based on a range of conditions, but the complexity of managing and combining these variables increases with the number and diversity of input sources.

Artificial Intelligence



Critical Reasons for Creating Boundaries in AI Developments

With the intense fear that AI as thinking tools can be rebellious someday, before those possibilities becoming uncontrolled, unpredictable, and out of hands, we must strictly sets clear boundaries for AI Development. The Primary Concerns and Urgencies are;

Ethical Constraints: AI's decision-making can significantly impact human lives, from healthcare and justice systems to employment and surveillance. Without clear ethical boundaries, AI could make decisions that are harmful, discriminatory, or biased. Establishing limits ensures that AI systems are used responsibly and with due regard for human rights.

Security Concerns: As AI systems become more complex, they could be vulnerable to malicious manipulation. Without regulation, AI could be weaponized, or its use could be subverted in ways that threaten national security, privacy, or societal stability. Boundaries and regulations are essential to mitigate the risk of harmful AI exploits.

Social Impact: The more capable AI becomes, the greater its influence on society. It could disrupt economies, create job displacement, and exacerbate social inequalities. Setting boundaries on AI's role in certain industries could help mitigate negative social impacts, allowing for a more gradual and thoughtful integration of these technologies.

Normative Technological Overreach: AI's potential often seems boundless, with machine learning techniques pushing the boundaries of what's possible. But this progress must be tempered with a recognition of the technical limits. AI cannot think or act as a human does—it operates within the cognitive frameworks and adaptive norms or constraints that may not be immediately apparent. Acknowledging these limits and ensuring that AI doesn't overstep its intended function will be crucial to maintaining a balance between progress and safety.

Regulatory Oversight: Governments and regulatory bodies must step in to ensure that AI systems are enabled to adhere on agreed-upon standards and laws. This includes setting boundaries around privacy, transparency, and accountability. With powerful technologies, we must consider not just the potential benefits but also the unintended consequences that could arise when these technologies are not adequately regulated and being regularly reviewed within the strict normative boundaries.

The Limitations of Machine Learning

When a question being processed within certain formulations in various sets of equated targeted outcomes, thinking machines still operates only based on the amount of data that are stored upon, crawled search at, piled up in, and being regulatively composed in certain language sets, pixelated images creations, certain artistic composure, or audio-video designed dots then the machine can produce the results that are hoped for.

Despite the impressive progress made by machine learning, there are significant limitations to what it can achieve in its current form. The primary challenge lies in the capacity to break through existing boundaries that confine AI's ability to understand and interact with the world.

Data Constraints: ML models are heavily dependent on the data they are trained on. The diversity and quality of the data limit the scope of the machine's understanding.

While vast amounts of data can improve AI performance, it cannot compensate for incomplete, biased, or insufficient data. Even with deep learning techniques, AI cannot fully comprehend nuances outside the scope of its training data, limiting its generalizability.

Generalization Issues: Machine learning models excel in narrow domains but struggle with generalization. That is, they often fail when faced with scenarios that deviate from the specific conditions they were trained on.

This issue is particularly evident when the model encounters edge cases or unseen data patterns. AI's lack of adaptability to novel situations poses a considerable challenge to its scalability and long-term viability.

Transparency and Interpretability: Current AI models, especially deep learning, are often seen as "black boxes." While they can perform highly complex tasks, understanding how and why they make decisions is still a major hurdle.

This lack of transparency creates trust issues and hampers the widespread adoption of AI in sensitive domains, such as healthcare, finance, and law enforcement.

Limitations of AI & Quantum Computing

When formulating answers on certain limits of analysis, AI uses computational cognitive abilities at the quantum speeds and magna level of large informations. The potential dimensions that can be achieved by AI, particularly when paired with quantum computing, are vast, though still constrained by current technological limitations.

Data Processing Capacity: Quantum computing has the potential to significantly increase data processing power. By leveraging quantum bits (qubits), quantum computers could process exponentially more data than classical computers, allowing AI models to scale and learn from much larger and more complex datasets.

Optimization Problems: Quantum computing is particularly suited to solving optimization problems that involve large sets of variables. This could be applied to AI tasks like training more efficient models, solving complex decision-making scenarios, or enhancing machine learning algorithms.

Security and Cryptography: Quantum computing's ability to break traditional encryption methods raises concerns but also offers the potential for more secure AI systems through the development of quantum encryption methods. This will be critical in safeguarding AI systems from adversarial attacks.

However, quantum computing is still in its infancy, with many theoretical and practical challenges to overcome, such as qubit coherence, error rates, and scalability.

Fundamental Risks of AI

At the early stage of its developments, the formulated results that are given by AI consider as harmless output. But when the contexts and the problem scope are somewhat critical, the capacity and capability of the AI composure are then being questioned.

For difficult and complex tasks such as at creating analysis based on data and sensible informations at the field of military, financials, economy, medicine, pharmacy, or even at daily opt, such as asking for cooking recipes, or how to do domestic stuffs, this infant AI level we priorly has still lacking in its ability to give precise answers.

As tools of informations gathering when providing data's, search machines and AI are able to gives comprehensive explanations and gives surmonts of logical arrays. But we have to maintain our habits on being criticals on whatever answers that are provided by AI.

One of the main reasons for setting boundaries is that, despite AI's vast potential, there are fundamental limits and risks that must be addressed. Machine learning, at its core, is a tool designed to recognize patterns and make **decisions** based on vast amounts of data.

Dont be dependable on AI. Because this reliance on data also means that AI systems are only as good as the data they are trained on. They can perpetuate biases, misinterpret nuances, or even reinforce harmful stereotypes.

By setting boundaries on what AI can and cannot do, we can ensure that we are creating systems that are more transparent, fair, and aligned with ethical standards.

Moreover, machine learning is constantly advancing, and as its abilities grow, so do its potential to break through existing boundaries—whether those are legal, ethical, or social.

AI systems are becoming better at processing data, improving their own learning models, and solving problems that humans may not be able to fully comprehend. But this rapid advancement brings an essential question: How do we keep pace with its evolution while ensuring that we don't lose **control**?

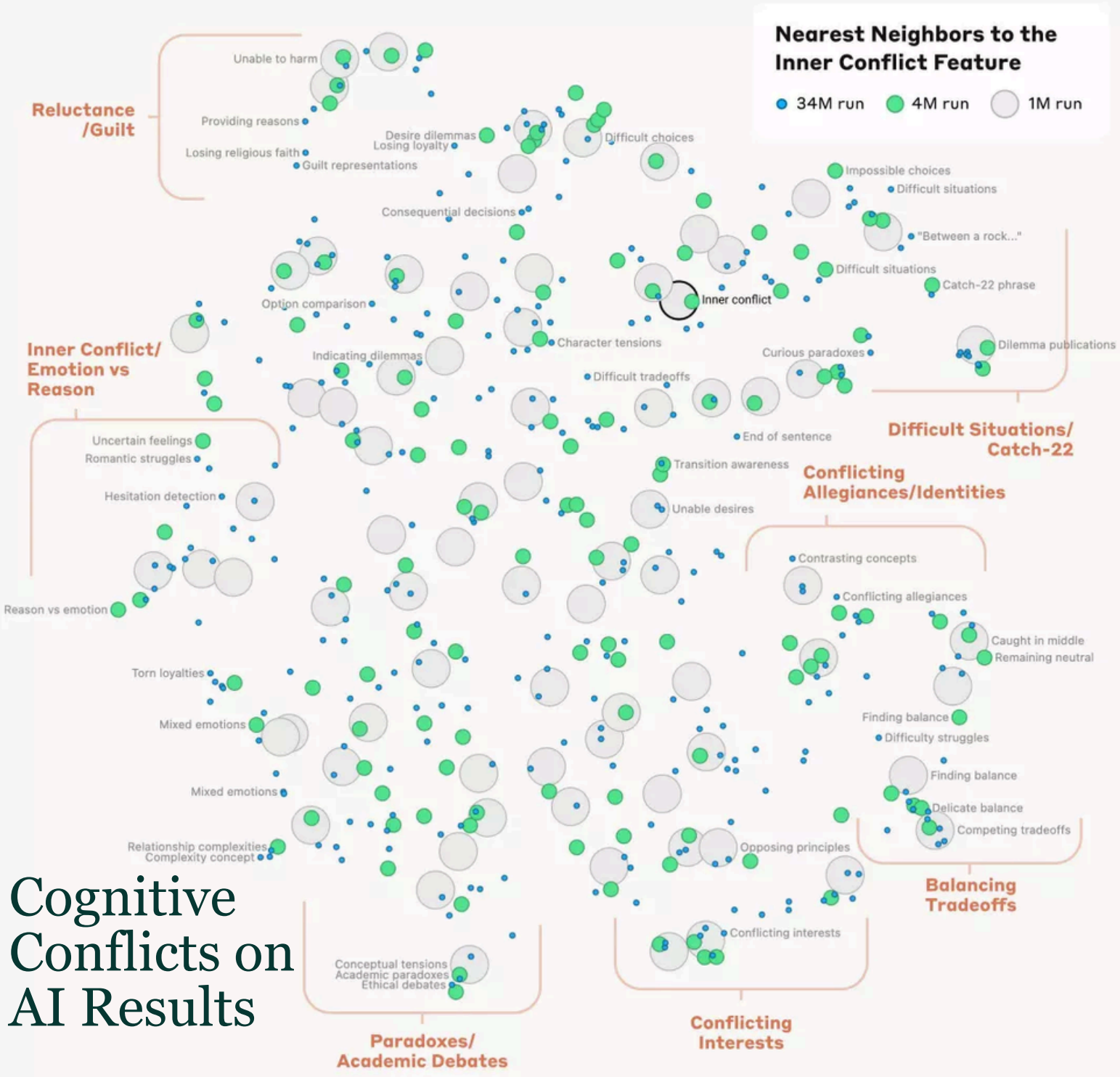
AI Plasticity

The challenge we face is twofold: on the one hand, we must create enough flexibility within boundaries for AI to grow and evolve; on the other, we need to put clear, enforceable limits in place to prevent the technology from advancing in ways that may ultimately harm us.

The reality is that machine learning and AI will inevitably push beyond some of the boundaries currently in place, making it all the more important to design frameworks that can adapt to these advancements while prioritizing human welfare.

Ultimately, the future of AI lies in our hands. We must actively participate in its development, ensuring that boundaries are set in a way that fosters innovation while safeguarding against its risks.

Setting these boundaries is not about stifling progress, but about guiding it with purpose and responsibility. As AI continues to evolve, the decisions we make now about its regulation and ethical application will shape the world for generations to come.



Cognitive Conflicts on AI Results

Optimizing answer provision based on specific formulations from deep learning programs that underlie the cognitive processes that mimic human artificial intelligence is still far from perfect. The scatter diagram above shows a number of weaknesses in the answers provided by AI, across various areas of scientific development.

Just as human feelings have multiple layers of emotion and varying levels of depth, AI also exhibits cognitive and judgment processes with similar or nearly identical patterns. This is because AI is designed to mimic human thought patterns, assessment patterns, consideration patterns, and decision-making patterns.

As with human thought, the cognitive processes of AI systems also experience a number of dramatic events, such as paradoxes and dilemmas, on various topics or problem themes. Given that AI answers are often used in making important decisions, it is important to remember that no answer is perfect, no matter what.

Beyond AI Boundaries

The Limitless Capabilities of Human Brain & Heart

AI Developments are certain to be undergo within few years ahead, and no turning back on it. Thus What Human Brain & Heart are Capable of doing are still unbeatable, and nowhere to be beaten by any means of machine learnings. Why? Because the complexities of Human Intellectuals are far beyond the boundaries of any computing machines such as AI, Deep Learning, Quantum Computing, or else.

What Human Brain & Heart Are Capable of;

1. Predicting possible outcome from prior memories and experiences.
2. Using limitless Imagination without restraint or boundaries,
3. Weighing various outcomes,
4. Creating dimensions of various measurements
5. Creating categories from unrecognizable or intangible inputs
6. Acknowledging variabilities differences in socials or science fields
7. Creating, testing, predicting results of applicabilities of certain hypothesis and weighing possible risks and measuring the difficulties of intended processabilities outcomes of it
8. Acknowledging the needs of certain process intended for certain objectivities
9. Recognizing risks from simple calculations or from prior experiences
10. Detecting possible danger in predictive environment measures
11. Monitoring and exploring analysis of meta cognitive scans on multiple problems
12. Predicting possible progress by measuring what has happened before or from certain memories and experiences
13. Creating foreseeable imagery of a resulted output
14. Creating certain base of structured inputs,
15. Sets background of processability of phases for certain kind of intended objectives,
16. Measuring the before and after of a process, of a behavior or of imaginative acts
17. Creating foresight forms of Reasoning when facing certain problems
18. Structurizing inputs for targeted or intended results
19. Naturally aiming at measurable targets and create calculative projections based upon it
20. Coordinating between places in timely measurements
21. Weighing the aims of certain acts did or done or intended upon various acts
22. Multiple reasoning and multitasking at the same time with different paces
23. Creating and giving each other certain level of calmness, peace, solemnity,
24. As soothes for broken souls in cheering each other heartaches.