# Learning Objectives

- Understand the motivation behind the creation of the AI Dashboard – Part of the AI Cosmology Project
- Interpret the Cosmological Model of AI and Dashboard.
- Recognize common misconceptions about AI.
- Evaluate the Role of Visualization in AI Literacy
- Discuss the Societal Implications of AI

# What is Artificial Intelligence?

"AI is a branch of computer science predicated on creating systems that exhibit some form of human intelligence, meaning it endeavors to acquire, understand, and apply knowledge with the ability to mimic some aspects of reasoning."

1. Gressling T. Data science in chemistry : artificial intelligence, big data, chemometrics and quantum computing with Jupyter. Berlin: De Gruyter; 2021.

2. Smith D, Lushetich N, Röck T, Carvalho E, Lewis KM, Schweikert G. Reimagining AI: Introduction. Journal of aesthetics and phenomenology. 2022 Jul 3;9(2):87–99.

# What is Artificial Intelligence?

- There are seven types of AI (based on capabilities and functionalities)

Based on functionalities:
1. Reactive Machines: Basic AI system with no memory and designed to perform a specific task. Example: A recommendation engine (e.g., Netflix).
2. Limited Memory AI: AI capable of retaining and using past events for output. Example: Generative AI (e.g., ChatGPT, Gemini, Claude, Perplexity, etc).
3. Theory of Mind AI *(theoretical)*: AI that simulates the understanding of human emotions, intentions, and beliefs.
4. Self-Aware AI *(theoretical)*: Advanced AI possessing human-like consciousness and self-awareness and is able to understand its own internal conditions and traits along with human emotions and thoughts.

3. "Understanding the different types of artificial intelligence." IBM Blog, October 2023. https://www.ibm.com/blog/understanding-the-different-types-of-artificial-intelligence/

# What is Artificial Intelligence?

- There are seven types of AI (based on capabilities and functionalities)

Based on capabilities:
1. Artificial Narrow AI (Weak AI): Specialized AI designed for specific tasks within a limited focus. Example: Generative AI falls under this category.
2. General AI/AGI/Strong AI *(theoretical)*: AI that can use previous learnings and skills to accomplish new tasks in a different context without requiring human beings to train the underlying models.
3. Superintelligent AI *(theoretical)*: Hypothetical AI that can surpass human intelligence.

3. "Understanding the different types of artificial intelligence." IBM Blog, October 2023. https://www.ibm.com/blog/understanding-the-different-types-of-artificial-intelligence/

# Public Understanding of AI - Challenges

- Hype and Misconceptions – The Media
- Technical Jargon – AI is already complex…why make it harder to understand
- Black Box Problem – Lack of transparency leads to mistrust
- Ethics – Bias in algorithms, privacy issues – potential for misuse
- Lack of Education – Lack of accessible material to educate the general public
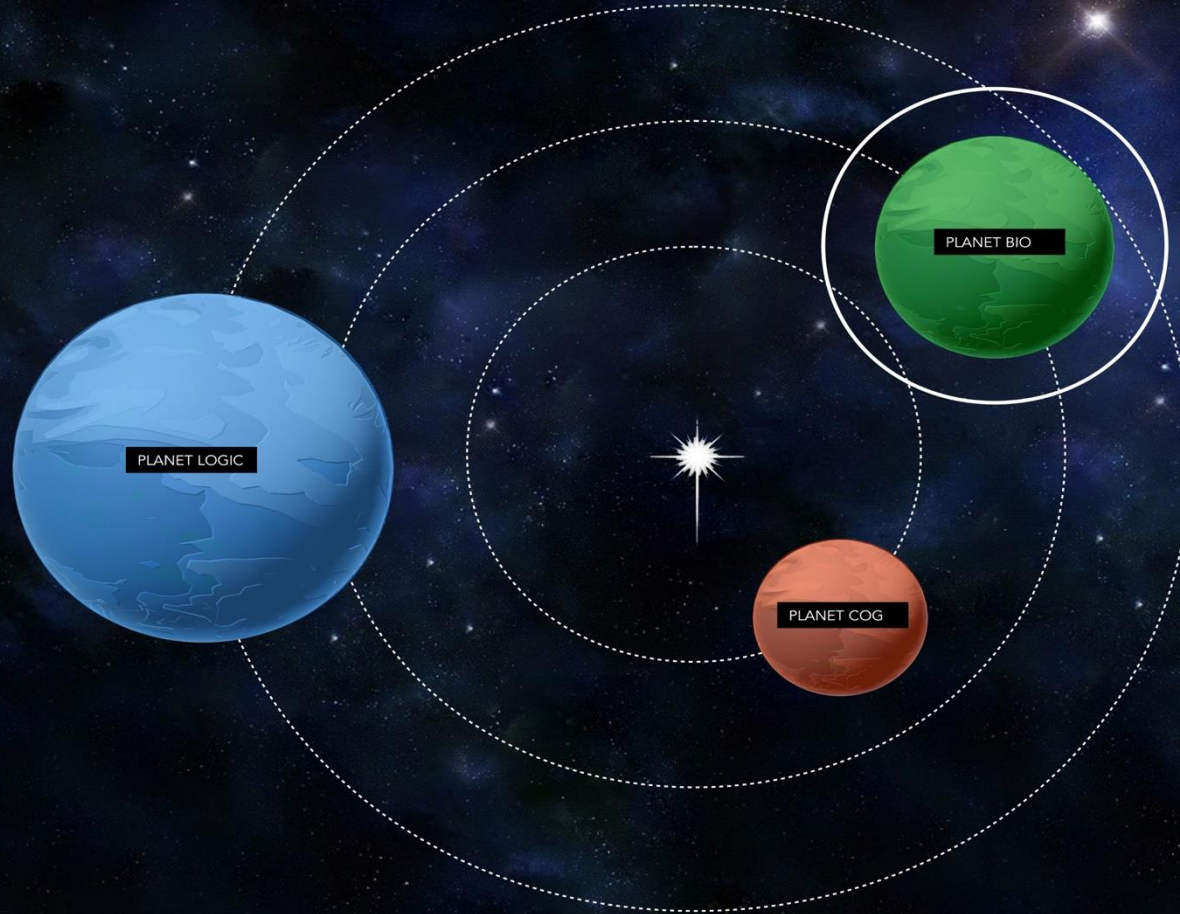
# COSMOLOGY OF AI

GALLERY

VISUALS

REFERENCES

D  H  S  D

PLANET BIO

PLANET LOGIC

PLANET COG

X  AUTO

Timeline Progress Bar

## BIO PLANET:

**Nature Planet – GREEN:**
Simulating algorithms/systems that exist in nature such as swarm and genetic algorithms, and human brain simulation (neural networks).

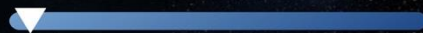PLANET LOGIC       X  BIO PLANET

PLANET COG

## SCHOOL OF THOUGHT:

At this level, "Schools of Thought" are approaches to creating thinking machines.

**Timeline Progress Bar:**

Use the timeline progress bar to see what events affects the "Schools of Thought".

# COSMOLOGY OF AI
### SCHOOLS OF THOUGHT

GALLERY

VISUALS

REFERENCES

D  H  S  D

PLANET BIO

PLANET LOGIC

PLANET COG

## PLANET COG:

**Mind Planet – ORANGE:**
Simulating the human mind by using associative theories.

PLANET LOGIC     BIO PLANET

X  PLANET COG

### SCHOOL OF THOUGHT:

At this level, "School of Thought" are approaches to creating thinking machines.

**Timeline Progress Bar:**

Use the timeline progress bar to see what events affects the "Schools of Thought".
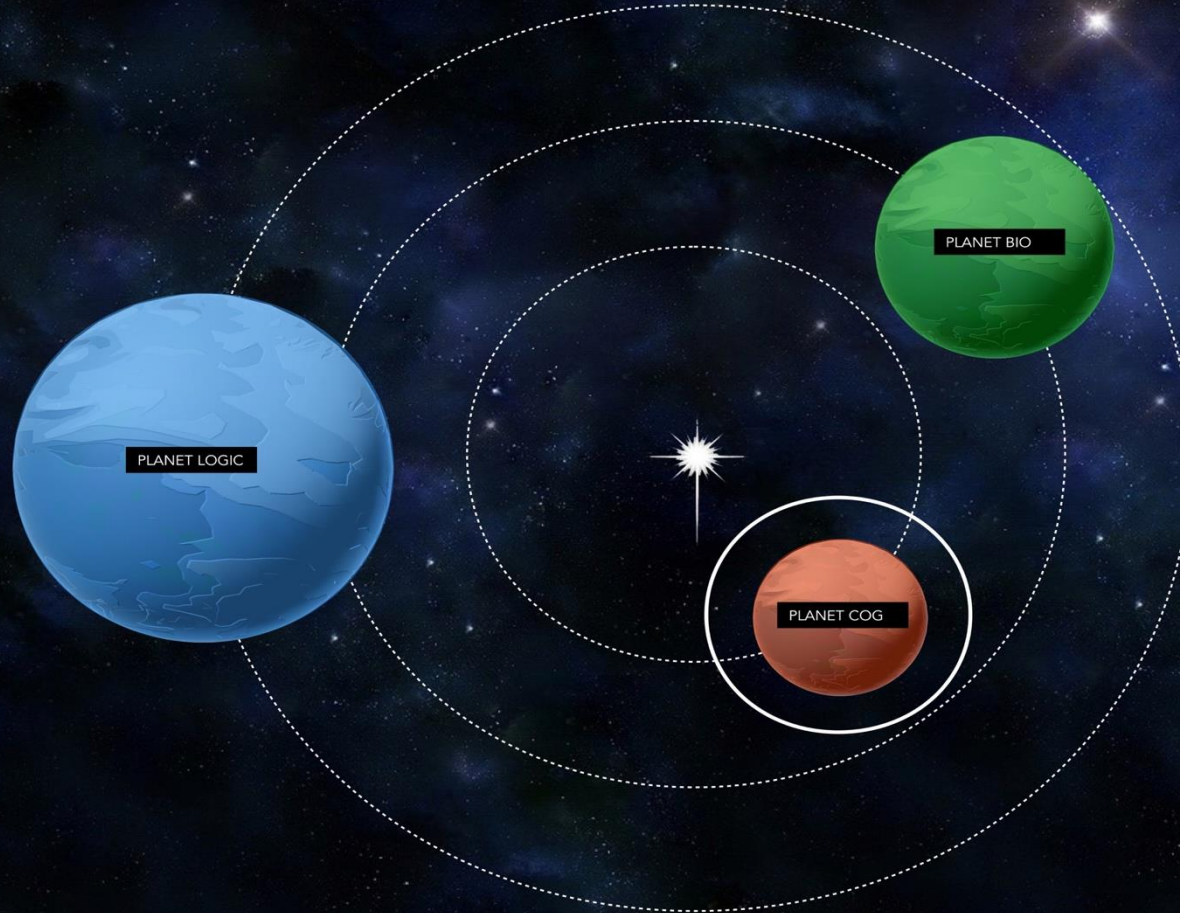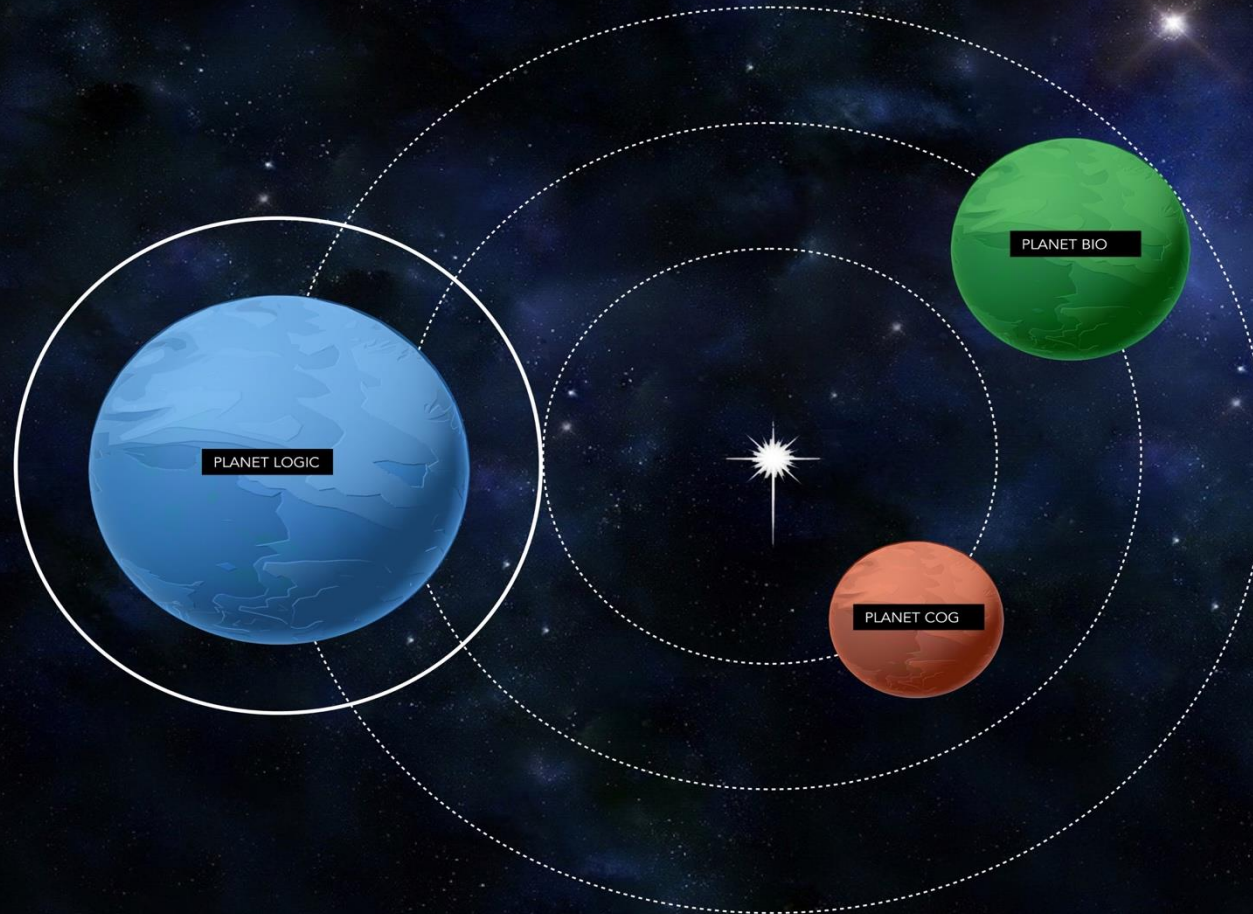
X  AUTO

Timeline Progress Bar

# COSMOLOGY OF AI

SCHOOLS OF THOUGHT

GALLERY

VISUALS

REFERENCES

D  H  S  D

PLANET BIO

PLANET LOGIC

PLANET COG

X AUTO

Timeline Progress Bar

## PLANET LOGIC:

**Mind Planet – BLUE:**
**Symbolic/Logical/Mathematical** Simulating knowledge and inferencing by using finite state automata, logic, and mathematical logic.

X PLANET LOGIC    BIO PLANET

PLANET COG

### SCHOOL OF THOUGHT:

At this level, "Schools of Thought" are approaches to creating thinking machines.

**Timeline Progress Bar:**

Use the timeline progress bar to see what events affects the "Schools of Thought".
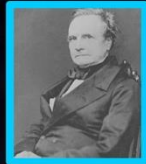
# PLANET LOGIC

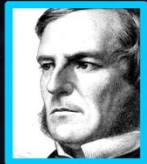D  H  S  D

GALLERY

VISUALS

REFERENCES

## CONTRIBUTORS  A  B  C  D  E  F  ▶
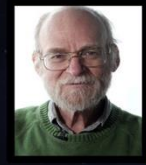
**CHARLES BABBAGE** 1822
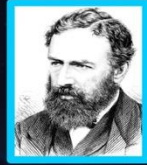
**GEORGE BOOLE** 1847

**RONALD BRACHMAN** 1977

**RONALD FAGIN** 1973

**JOSEPH Y. HALPERN** 1996

**WILLIAM STANLEY JEVON** 1870

**ROBERT KOWALSKI** 1974

**GOTTRIED LEIBNIZ** 1672

**HECTOR LEVESQUE** 1984

**RAMON LLUL** 1290
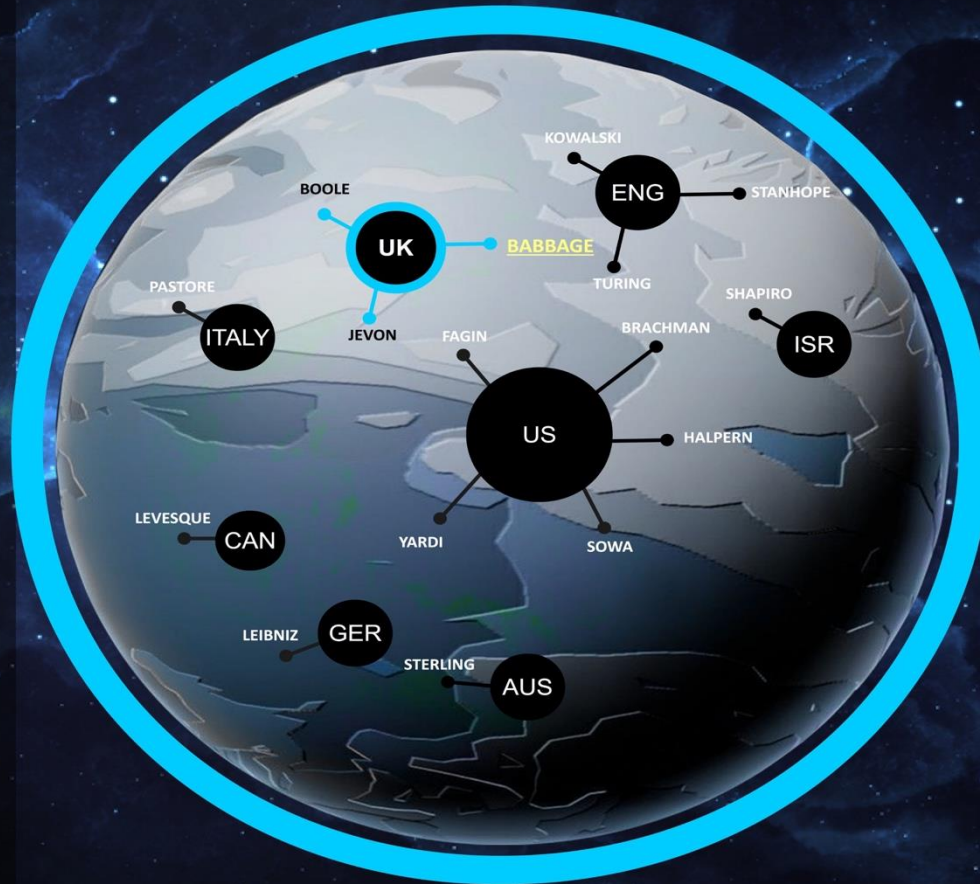
**VALENTINO PASTORE** 1903

**EHUD SHAPIRO** 1983

### CHARLES BABBAGE 1822

Charles Babbage (1791 – 1871) originated the concept of a digital programmable computer and is considered by some the be the "father of the computer". In 1822, he designed the **Difference Engine**, made to compute values of polynomial functions automatically. He also designed the Analytical Engine that was to be programmed using punched cards and perform sequential control, branching and looping.

**MORE INFO**

KOWALSKI

ENG

STANHOPE

BOOLE

UK

BABBAGE

TURING

SHAPIRO

PASTORE

ITALY

JEVON

FAGIN

BRACHMAN

ISR

US

HALPERN

LEVESQUE

CAN

YARDI

SOWA

LEIBNIZ

GER

STERLING

AUS

☒ COUNTRY      ☐ PROFESSION      ☐ AFFILIATIONS

**1800S**

## PLANET LOGIC:

Mind Planet – BLUE:
**Symbolic/Logical/Mathematical** simulating knowledge and inferencing by using finite state automata, logic, and mathematical logic.

**X  SURFACE 1**      **ATMOSPHERE 1**

**ATMOSPHERE 2**      **ATMOSPHERE 3**

### SURFACE LEVEL 1:
### CONTRIBUTORS

At this level are the significant contributors to the "symbolic/logical/mathematical" approach to creating thinking machines.

**Timeline Progress Bar:**

Use the timeline progress bar to see which contributors were active at that time period. Compare the time period to see which professions provided the major contributors.

GALLERY

VISUALS

REFERENCES

D  H  S  D

## PLANET LOGIC:

**Mind Planet – BLUE:**
**Symbolic/Logical/Mathematical** simulating knowledge and inferencing by using finite state automata, logic, and mathematical logic.

## INVENTIONS - DEVICES

**ARS MAGNA**
1290

**STEP RECKONER**
1672

**DEMONSTRATOR**
1805

**DIFFERENCE ENGINE**
1822

**LOGIC PIANO**
1870

**ANALYTICAL ENGINE**
1876

**MARQUAND'S MACHINE**
1885

**CRANK EVALUATOR**
1903

$$f(1)x + f(0)(1-x) = 0; \text{ or}$$
$$\{f(1) - f(0)\}x + f(0) = 0.$$
$$\therefore x = \frac{f(0)}{f(0) - f(1)} \quad \text{and}$$
$$\frac{f(1)}{f(0) - f(1)}$$

**LISP MACHINE**
1985

## METHODS

**LAWS OF THOUGHT**
1854

### LOGIC PIANO 1870

William Stanley Jevon working at the University of Manchester, constructed his "logical piano," the first logic machine to solve complicated problems with superhuman speed. It was the first modern machine to undertake logical inference. Jevons described his machine in "On the mechanical performance of logical inference".

MORE INFO

ANALYTICAL ENGINE

DIFFERENCE ENGINE

DEVICES

DEMONSTRATOR

LOGIC PIANO

MARQUAND MACHINE

METHODS

STRUCTURES

LAWS OF THOUGHT

⊠ AUTO

**1800S**

SURFACE 1

X ATMOSPHERE 1

ATMOSPHERE 2

ATMOSPHERE 3

### ATMOSPHERE 1:
### INVENTIONS

At this level are the significant inventions which include devices, methods (math models, concepts, programs, etc.) and structures (frameworks, architectures).

**Timeline Progress Bar:**

Use the timeline progress bar to see which inventions were active at that time period. Compare the time period to see how they progressed over time. Click on the node to see the associated image and information. The year represents the *start* of the invention.

Relationship Between Inventions

Hover on the edge to understand the relationship between the inventions.

GALLERY

REFERENCES

VISUALS

D  H  S  D

## INVENTIONS - DEVICES


ARS MAGNA
1290


STEP RECKONER
1672


DEMONSTRATOR
1805


DIFFERENCE ENGINE
1822


LOGIC PIANO
1870


ANALYTICAL ENGINE
1876


MARQUAND'S MACHINE
1885


CRANK EVALUATOR
1903


LISP MACHINE
1985

$$f(1)x + f(0)(1-x) = 0; \text{ or}$$
$$\{f(1) - f(0)\}x + f(0) = 0.$$
$$\therefore x = \frac{f(0)}{f(0) - f(1)} \quad \text{and}$$
$$\frac{f(1)}{f(0) - f(1)}$$

LAWS OF THOUGHT
1854

## METHODS

### LOGIC PIANO 1870

William Stanley Jevon working at the University of Manchester, constructed his "logical piano," the first logic machine to solve complicated problems with superhuman speed. It was the first modern machine to undertake logical inference. Jevons described his machine in "On the mechanical performance of logical inference".

MORE INFO

---

ANALYTICAL
ENGINE

DIFFERENCE
ENGINE

**DEVICES**

DEMONSTRATOR

LOGIC
PIANO

Allan Marquand (inventor of Marquand Machine) performed improvements upon the Logic Piano of Jevon in 1885.

MARQUAND
MACHINE

**METHODS**

**STRUCTURES**

LAWS OF
THOUGHT

⊠ AUTO

**1800S**

---

## PLANET LOGIC:

**Mind Planet – BLUE:**
**Symbolic/Logical/Mathematical** simulating knowledge and inferencing by using finite state automata, logic, and mathematical logic.

SURFACE 1    Ⓧ ATMOSPHERE 1

ATMOSPHERE 2    ATMOSPHERE 3

### ATMOSPHERE 1:
## INVENTIONS

At this level are the significant inventions which include devices, methods (math models, concepts, programs, etc.) and structures (frameworks, architectures).

**Timeline Progress Bar:**

Use the timeline progress bar to see which inventions were active at that time period. Compare the time period to see how they progressed over time. Click on the node to see the associated image and information. The year represents the *start* of the invention.

Relationship Between Inventions

Hover on the edge to understand the relationship between the inventions.

GALLERY

REFERENCES

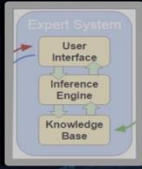VISUALS

D  H  S  D

## INVENTIONS - 5TH GENERATION PROJECTS

FGCS-JAPAN
1982-1992

SCI-US
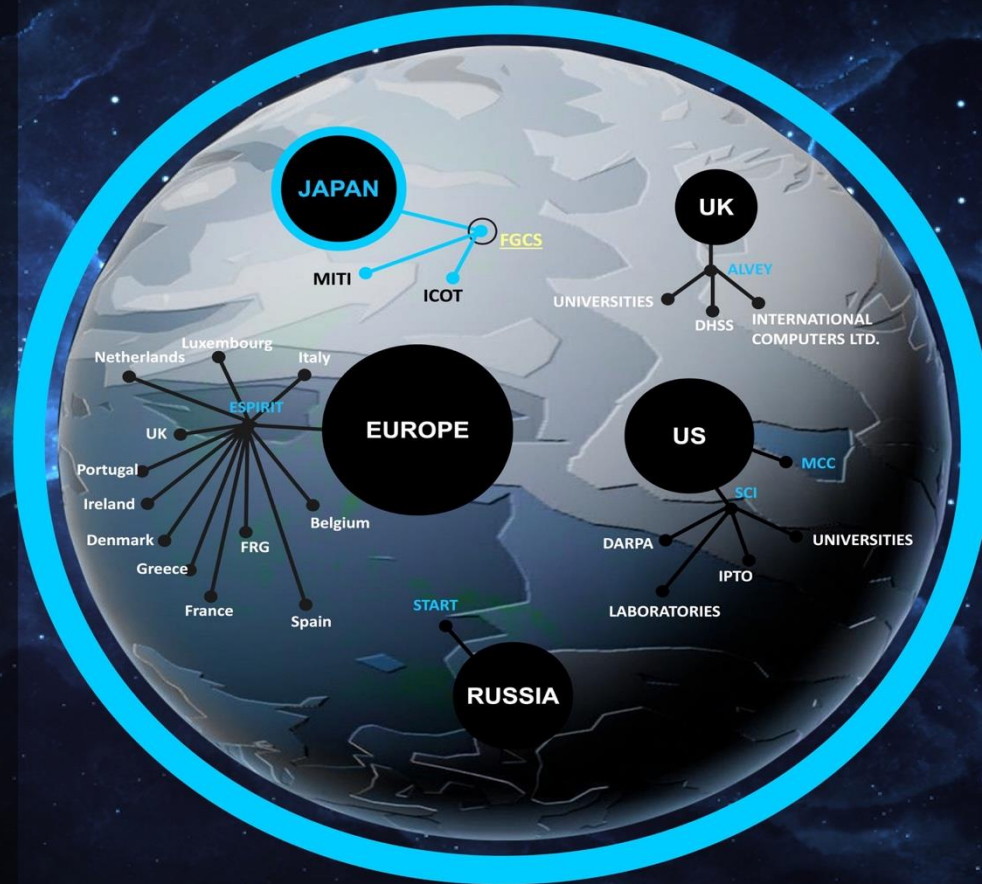1983-1993

ESPIRIT-EUROPE
1983-1999

ALVEY-UK
1984-1989

START-RUSSIA
1870

The 5th Generation Projects were initiatives aimed at advancing computing technologies. These initiatives included advancing Artificial Intelligence (AI) tools, languages, and computers during the 1980s and 1990s. Several countries launched ambitious projects to create technologies that could process information similarly to human cognition, using techniques considered innovative at the time such as logic and parallelism.

### FGCS 1982-1992

The Japanese FGCS (Fifth Generation Computer Systems) project was the most famous and influential of the 5th generation efforts. Its main objective was to develop computer systems capable of performing complex computations with AI. Technologies such as logic programming and parallel processing were central to the project. It aimed to create a new class of computers that could understand natural language and conduct reasoning and knowledge processing.

MORE INFO

### Planet Map

JAPAN

UK

FGCS

ALVEY

MITI

ICOT

UNIVERSITIES

DHSS

INTERNATIONAL COMPUTERS LTD.

Netherlands
Luxembourg
Italy

ESPIRIT

EUROPE

US

UK

MCC

Portugal

SCI

Ireland

Denmark

Belgium

DARPA

UNIVERSITIES

Greece

FRG

IPTO

France

Spain

START

LABORATORIES

RUSSIA

☒ COUNTRIES        ☐ INITIATIVES

1980S

## PLANET LOGIC:

Mind Planet – BLUE:
**Symbolic/Logical/Mathematical** simulating knowledge and inferencing by using finite state automata, logic, and mathematical logic.

SURFACE 1        ATMOSPHERE 1

Ⓧ ATMOSPHERE 2        ATMOSPHERE 3

### ATMOSPHERE 3:
## INVENTIONS

At this level are the significant inventions which include devices, methods (math models, concepts, programs, etc.) and structures (frameworks, architectures).

**Timeline Progress Bar:**

Use the timeline progress bar to see which inventions were active at that time period. Compare the time period to see how they progressed over time. Click on the node to see the associated image and information. The year represents the *start* of the invention.
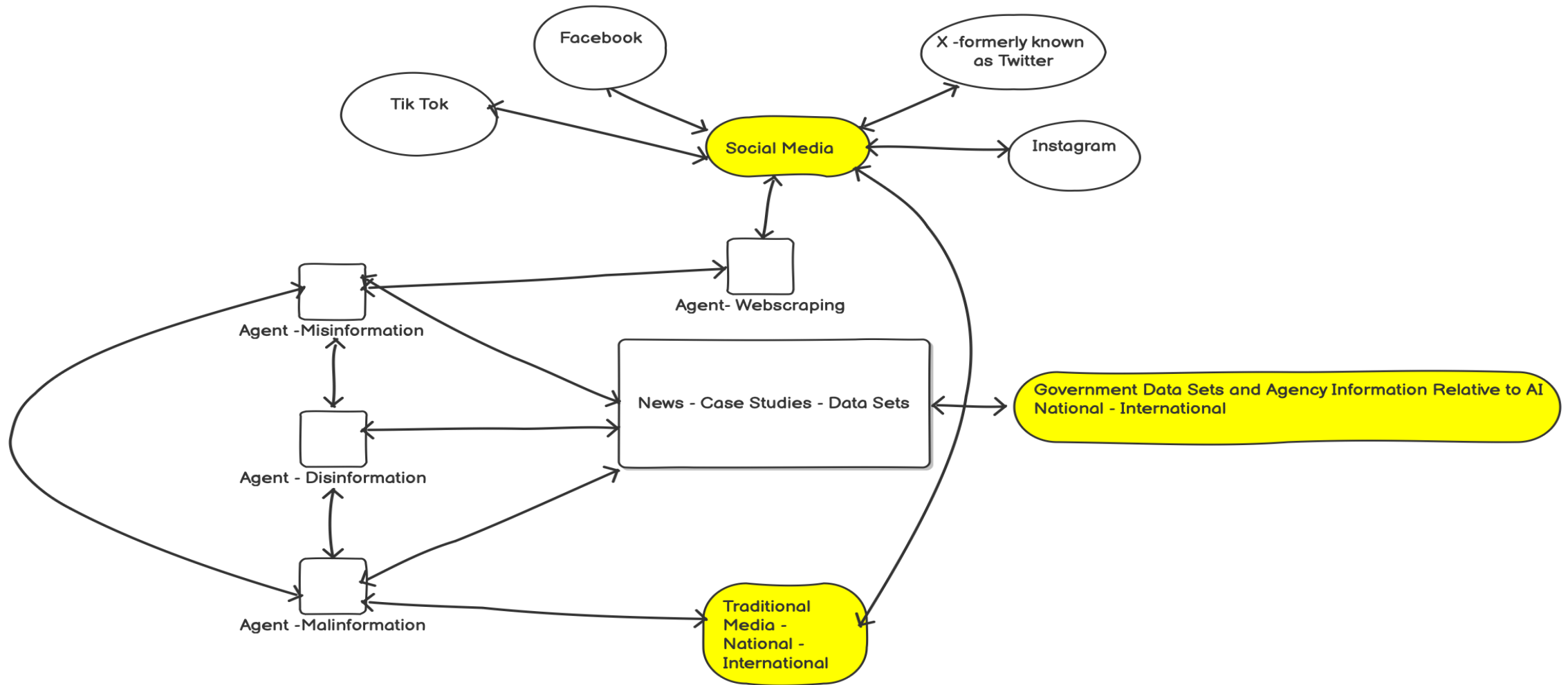
**ACRONYMS**

Hover on the acronym to reveal what is stands for.

# AI Dashboard

- Simplifies Complex Concepts
- Enhances engagement and retention

# The Backend: Multi-agent Expert System – "Partial"

## Date Published

From date
1/1/2020

to

To date
12/31/2024

## Publication titles

Publication title

- ☑ The Times of India — 6367
- ☑ New York Times — 3515
- ☑ The Washington Post — 1832
- ☑ South China Morning Post — 1654

## Source Type

- ☐ Newspapers — 13368

## Document Type

- ☐ News — 12454
- ☐ Commentary — 586
- ☐ Correspondence — 154
- ☐ Letter to the Editor — 24

# 13,368 documents

**Apple may have lost another HR executive to this investment firm, here's how the exits may be connected [TECH NEWS]**
The Times of India, Oct 19, 2024

**Former OpenAI CTO Mira Murati may be raising capital for new AI startup [TECH NEWS]**
The Times of India, Oct 19, 2024

**India will lead the world in digital age, says Dhankhar [Chandigarh]**
The Times of India, Oct 19, 2024

**'Self-Taught Evaluator': Meta releases new AI tools for autonomous AI development [Int. Business]**
The Times of India, Oct 19, 2024

**PAU receives 20 cr as first installment of grant-in-aid [Ludhiana]**
The Times of India, Oct 19, 2024

**India ranks second globally in generative AI adoption: Report [India]**
The Times of India, Oct 19, 2024

**India ranks second globally in generative AI adoption: Report [Business]**
The Times of India, Oct 19, 2024

**Elon Musk's X updates Privacy Policy on users' data usage: Read what has changed [Technology]**
The Times of India, Oct 19, 2024

**Intel does another U-turn, looking to sell a part of its chip subsidiary that it called 'core part of its future' [TECH NEWS]**
The Times of India, Oct 19, 2024

**How NASA's upcoming DAVINCI mission will investigate the possibility of oceans and continents on Venus in the 2030s? [Science]**
The Times of India, Oct 19, 2024

**IIITH develops AI tool to mine info from docus [Hyderabad]**

## Project Summary

**Document Count:** 9,507

**Publications:** The Times of India, New York Times, The Washington Post, South China Morning Post

**Selected Visualization:** Geographic Analysis, Topic Modeling, Sentiment Analysis

## Project Details

Name *
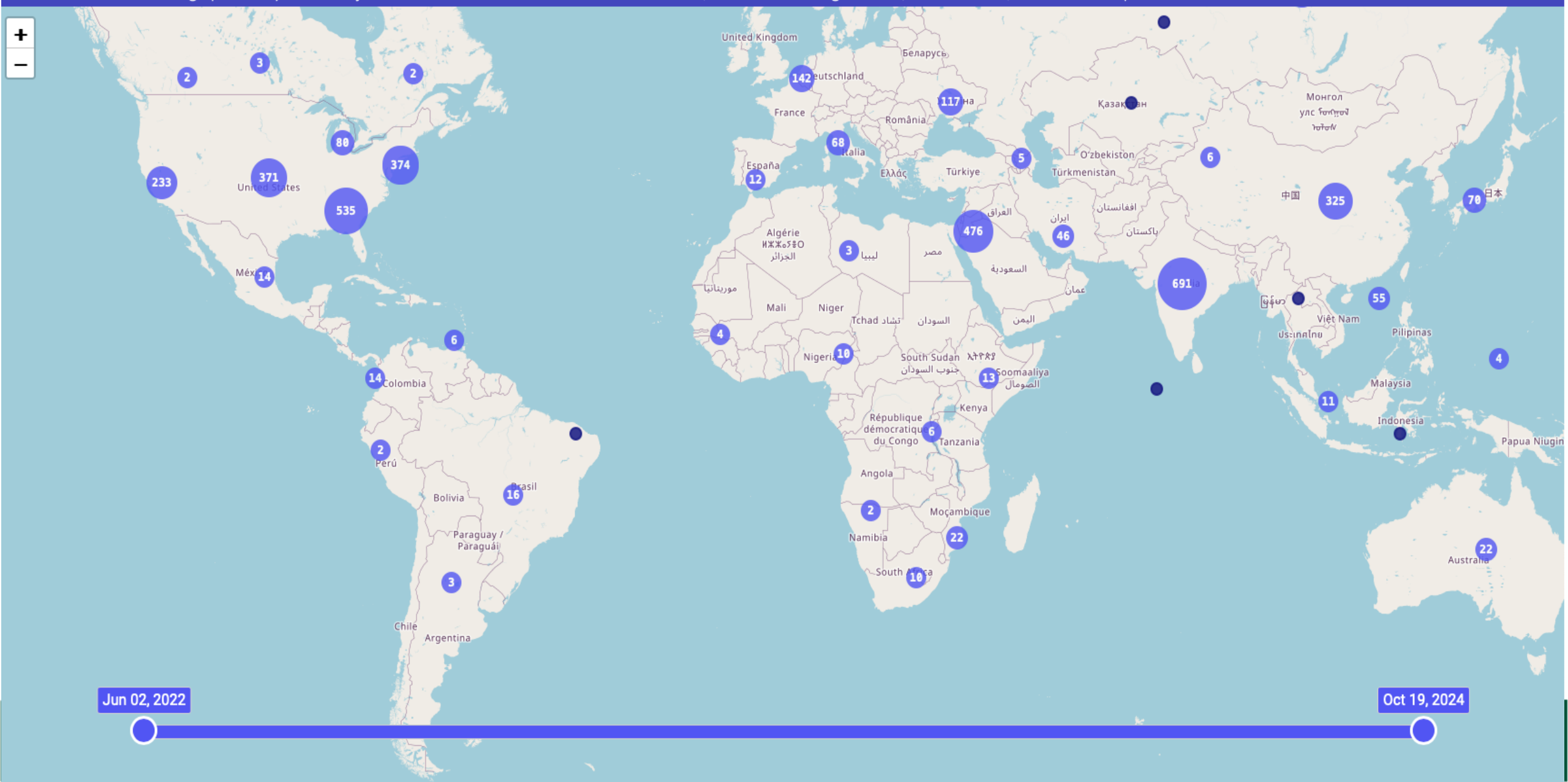
AI in the News

**Create Project**

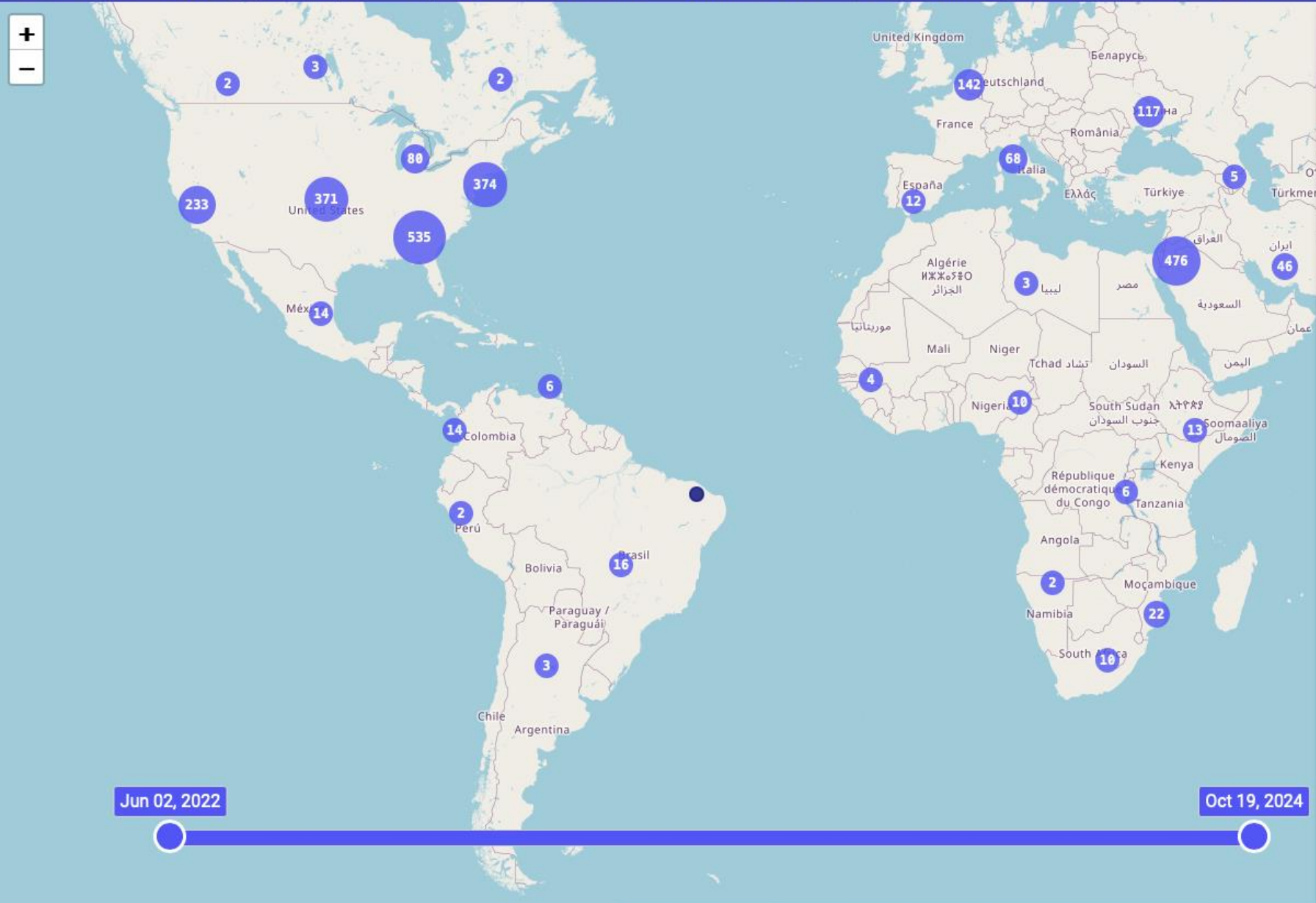Visualization Method: Geographic Analysis    Project Name: AI in the News    Document Count: 9,507    Date Range: Jun 01, 2022 - Oct 19, 2024    ⬇ Export Data ▾

+
−

United Kingdom
Deutschland — 142
117
France
España — 68 Italia
12
Ελλάς   Türkiye   5
2   3   2
80
371
374
233
United States
535
Méx — 14
Беларусь
Română
Қазақстан
O'zbekiston
Türkmenistan
Монгол улс ᠮᠣᠩᠭᠣᠯ ᠤᠯᠤᠰ
6
中国 — 325
日本 — 70
العراق   ایران   افغانستان   پاکستان
476
46
691
55
Algérie ⵣⵣⴰⵢⴻⵔ الجزائر
3
Líbya
مصر
السعودية
عمان
اليمن
4
4
6
14   Colombia
2   Perú
Bolivia
Brasil — 16
Paraguay / Paraguái
3
Chile
Argentina
موريتانيا
Mali   Niger
Tchad تشاد
السودان
Nigeria — 10
South Sudan جنوب السودان
ኢትዮጵያ
13   Soomaaliya الصومال
République démocratique du Congo — 6   Kenya
Tanzania
Angola
Moçambique
Namibia
2
22
South Africa — 10
Việt Nam
Pilipinas
Malaysia
11
Indonesia
4
Papua Niugini
22
Australia

Jun 02, 2022      Oct 19, 2024

Visualization Method: Geographic Analysis     Project Name: AI in the News     Document Count: 9,507     Date Range: Jun 01, 2022 - Oct 19, 2024     📥 Export Data ▾     **Hide**



## Showing 9 Articles For Selected Cluster

**Confronting Our New Reality**
New York Times | Sep 25, 2024
Most Frequent Location: Republic of Chad

**To save the planet, do we have to shrink humanity's ambitions?**
The Washington Post | Jul 02, 2024
Most Frequent Location: Federal Republic of Nigeria

**She helped OpenAI win over world leaders. Can she keep the peace?**
The Washington Post | Jan 14, 2024
Most Frequent Location: Makanju

**Disinformation-for-hire campaigns helped oust governments in Africa**
The Washington Post | Oct 22, 2023
Most Frequent Location: Sahel

**Crooks gain access to pharmacist's phone, rob Rs 1L [Pune]**
The Times of India | Oct 17, 2023
Most Frequent Location: Sharada

**In key Wagner outpost, Moscow steps into breach**
The Washington Post | Sep 19, 2023
Most Frequent Location: Central African Republic

**Microsoft's Bing Is China's Most Diligent Censor, Report Says**
New York Times | Apr 26, 2023
Most Frequent Location: Bilibili

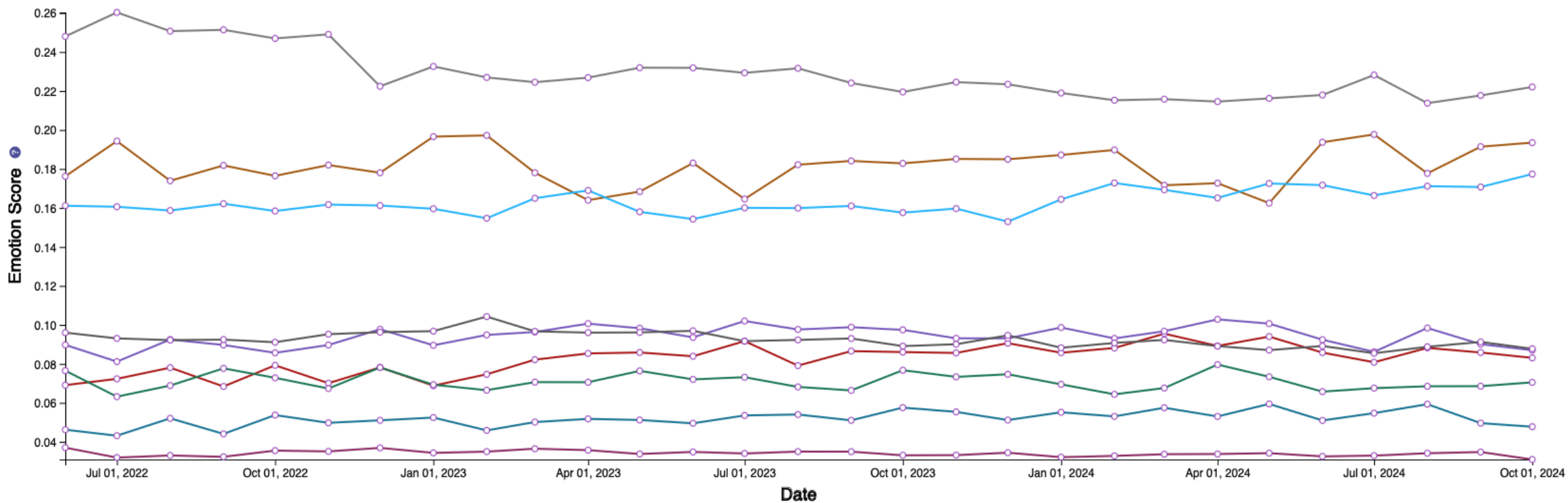Jun 02, 2022      Oct 19, 2024

# Analyze Emotions Over Time

Sentiment Analysis extracts the emotions or affective states from the documents in your project. These emotions are then plotted over time which is valuable for tracking changes and trends.

## Select Emotions

☑ Anger   ☑ Disgust   ☑ Fear   ☑ Sadness   ☑ Happiness   ☑ Love   ☑ Surprise   ☑ Neutral   ☑ Other

# Filters and Search in the Dashboard

- Sectors – education, healthcare, cybersecurity, surveillance,
- AI Technique – Filtering by specific AI techniques: Machine Learning, Deep Learning, NLP, Computer Vision, Expert Systems, Genetic algorithms, Swarm Intelligence, LLMs
- Location – Continent, Region, Country, Province, State, City
- Application/Invention – Specific applications or inventions
- Time – When the application/invention was implemented (What is possibly coming in the future)
- Keyword search
- News feeds – recent articles and publications
- Policies – Federal, State, Local
- Laws –Federal, State, Local

# KOS

- Taxonomies
- Ontologies
- Thesauri
- Controlled Vocabulary
- Folksonomies
- Semantic Network