Exploring Artificial Intelligence

A Pragmatic Overview and Future Applications in Information Management

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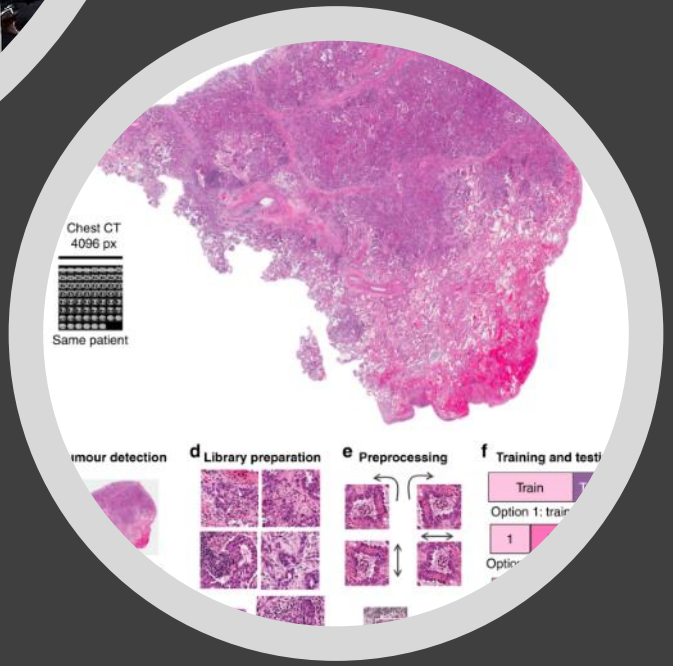
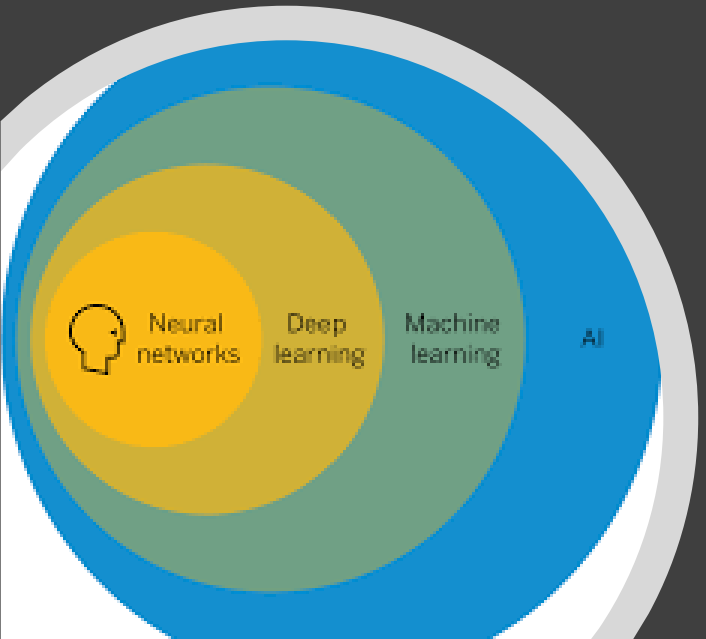
Mississippi State University Libraries, 2024

Last Ten Years Has Shown Incredible Progress of AI

AI (Machine Learning (Deep Learning)) =
Algorithms (Better) + Computing Power (Greater) + **Data Sets (Larger)**





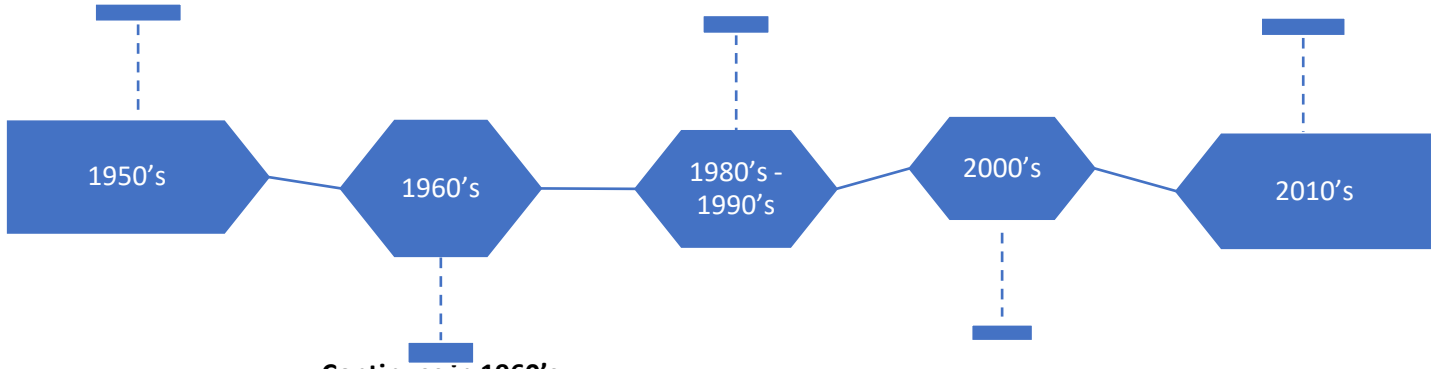
- Natural Language Processing (Speech to Text, Translation)
- Computer Vision (Facial + Object Recognition Cancer Cell Detection))
- Strategic Reasoning (Deep Mind's AlphaGo)
- Ethics & Fraud Detection & Cybersecurity
- Conversational Chatbots, ChatGPT & Robotic Agents

AI Histories

Begins in the 1950's, mostly US and Britain. Main Figures, Alan Turing (Turing Test), John McCarthy Dartmouth Conference (Artificial Intelligence name is coined), Marvin Minsky

AI winter, Expert Systems, IBM's Deep Blue (1997) beats Kasparov in Chess

Deep Learning/Neural Net Renaissance Ilya Sutskevar (U Toronto, AlexNet, Images), Yoshua Benjio, Yann LeCun (Meta) Google Deep Mind (Demis Hassabis, Cambridge, UC London, AlphaGo Beats Lee Sedol, S. Korea Go)



Continues in 1960's Josef Weizenbaum (Eliza, First Chatbot), Marvin Minsky, Neural Nets Introduced (processing power issues)

(**Geoffrey Hinton**, U Toronto), Push Singh (MIT), Chris Mckinstry, Deb Roy (Waterloo, MIT, Early Voice Recognition)

Moore's Law,

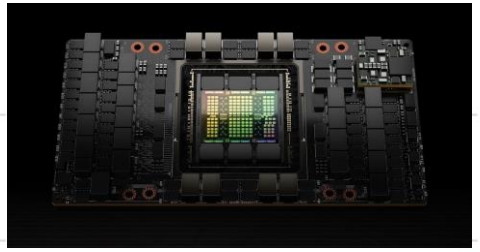
Processing Power/Compute and AI

Number of Transistors on an Integrated Circuits Doubles Every 2 years

Moore's law: The number of transistors per microprocessor

The number of transistors that fit into a microprocessor. The observation that the number of transistors on an integrated circuit doubles approximately every two years is called Moore's law[1].

Our World in Data



NVIDIA A/H100

5,000, 000, 000 Transistors (2014)

Deep Blue/Kasparov 5,000,000 Transistors (1997)

Eliza: Mainframe and Terminal 50,000 Transistors (1982)

5,000 Transistors (1970)

10 billion
1 billion
100 million
10 million
1 million
100,000
10,000

1971 1980 1990 2000 2010 2021

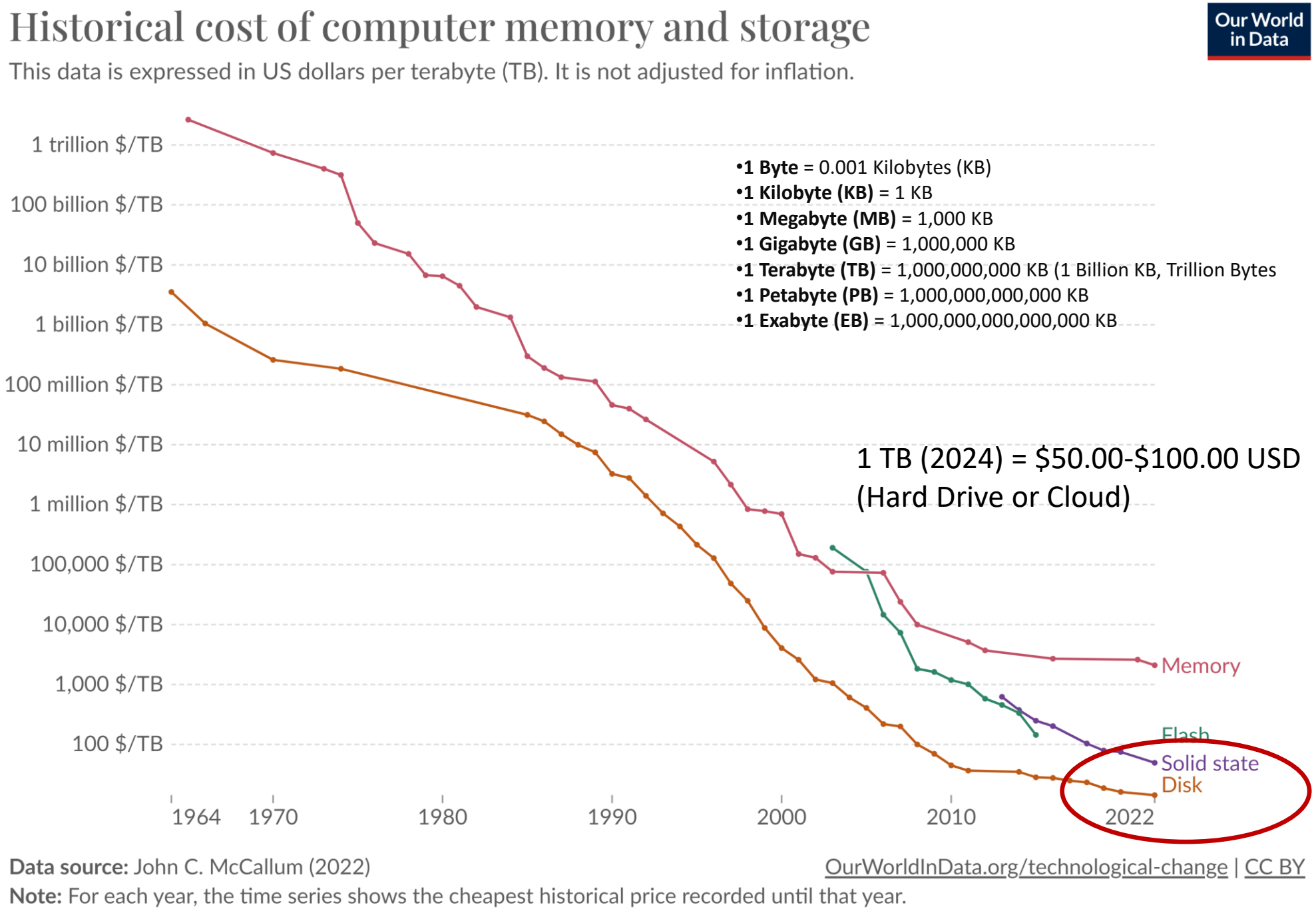
Data source: Karl Rupp, Microprocessor Trend Data (2022)

OurWorldInData.org/technological-change | CC BY

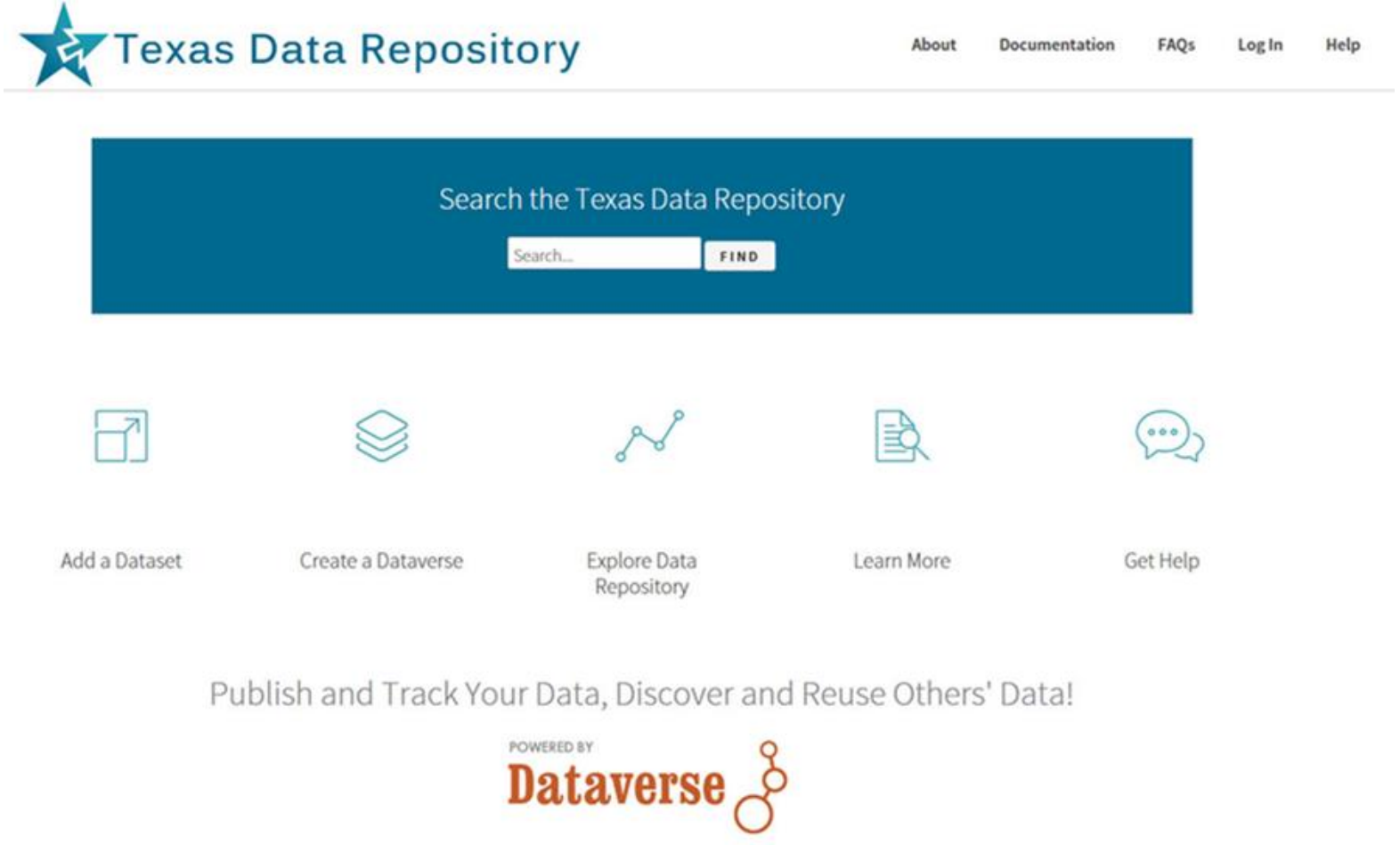
1. Moore's law: Moore's law is the observation that the number of transistors in a dense integrated circuit doubles about every two years, because of improvements in production. Read more: What is Moore's Law?

Data Storage, Memory and AI Cost/TB

(AI Requires Massive Datasets For Training Neural Nets)

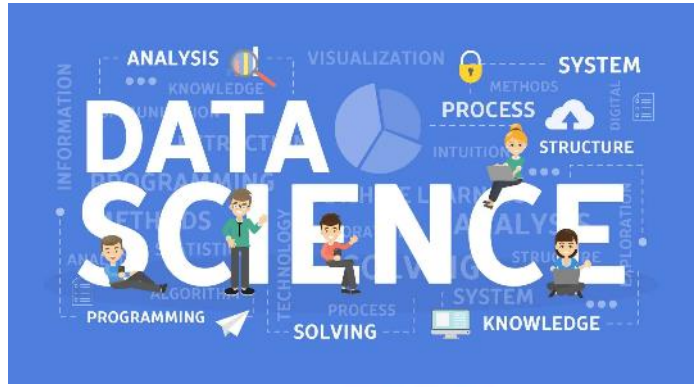


AI Requires: Processing Power(Microprocessor, GPU's or TPU's)
+ Data (Content) + Storage (Memory) + Global Networks



2014-2017, Texas Data Research Repository, Data Sharing, Collaboration, Data Visualization, Tableau, Discovery and Insights, Artificial Intelligence

Clear Trajectory
in Libraries from
Data Collection
To Data Science ->
Data Repositories ->
Data Analytics ->
Data Visualization >
AI

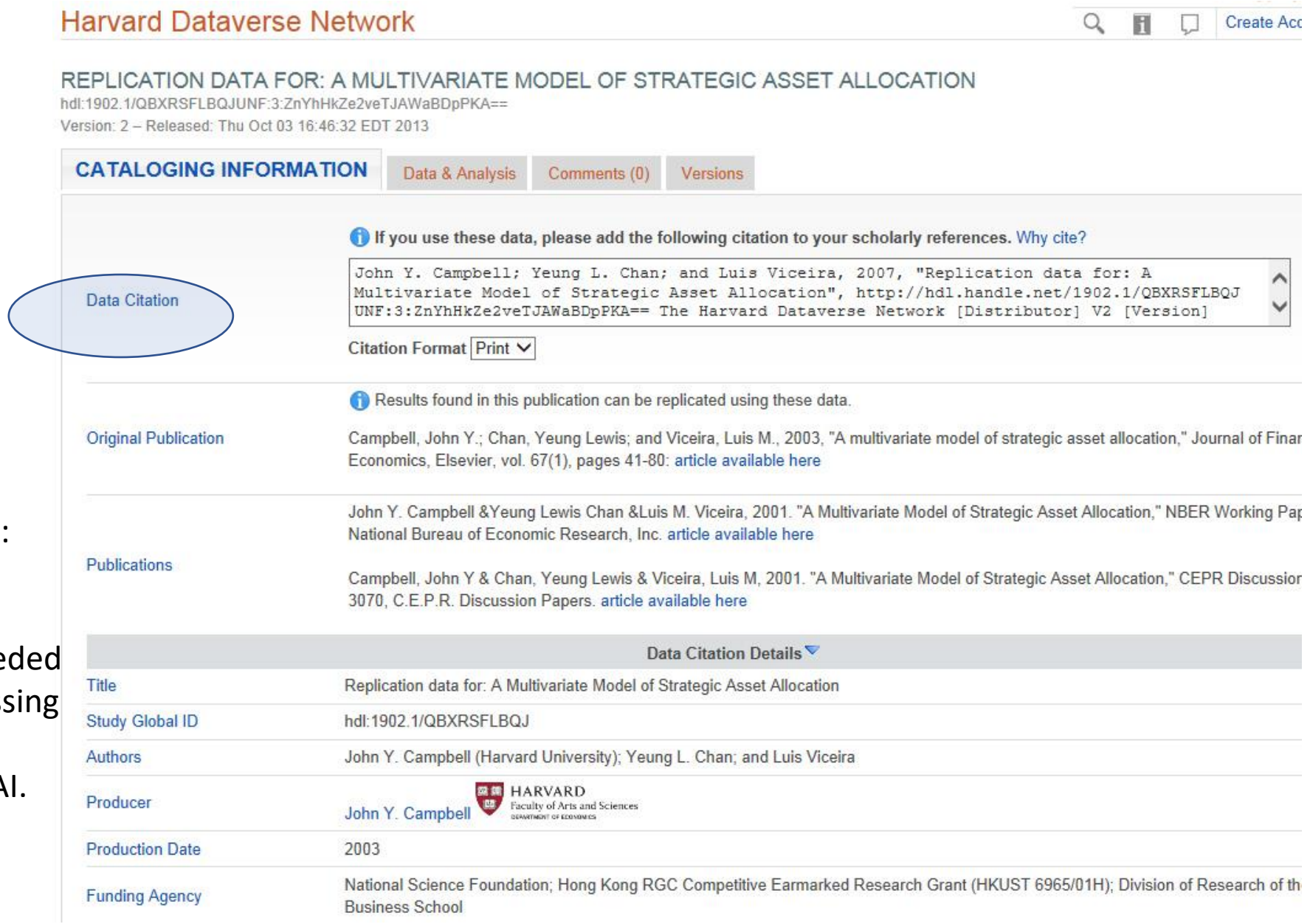


Data Repositories Allow Building Skills For AI

Data Organization, Data Cleaning, Structured Data Citation, Sensitive Data and Metadata Schemas

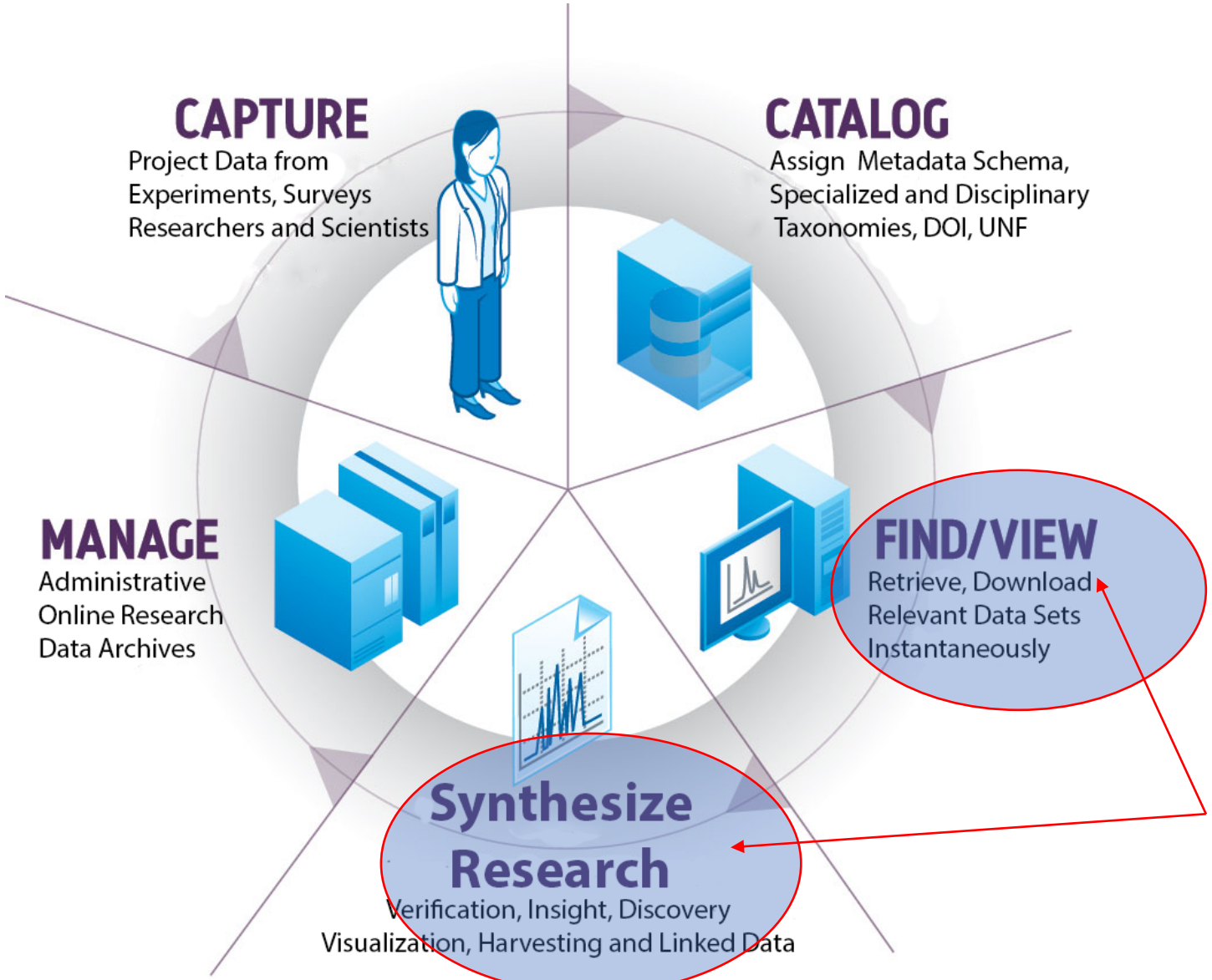
OpenRefine is a powerful tool for working with data: (cleaning it)

‘Clean Data’ Is needed For further processing Including data visualization and AI.



The Research Data Repository Lifecycle

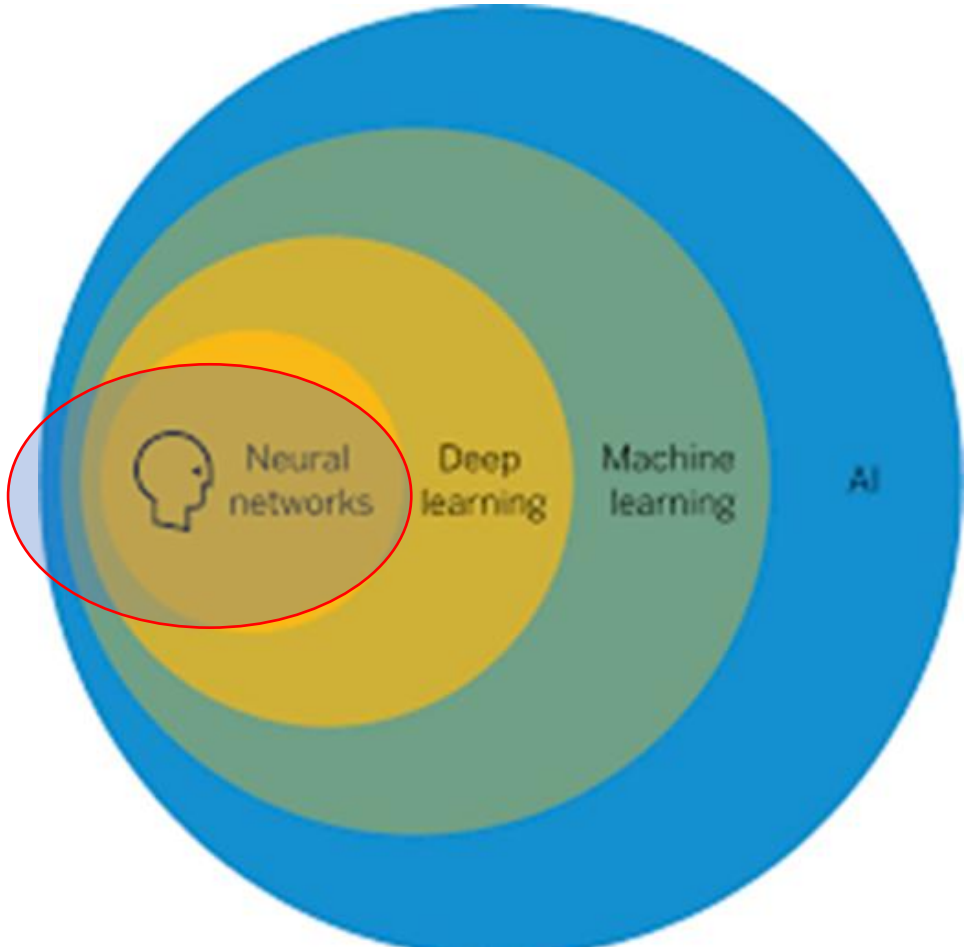
Setting Better Foundations & Organization for AI Infrastructures

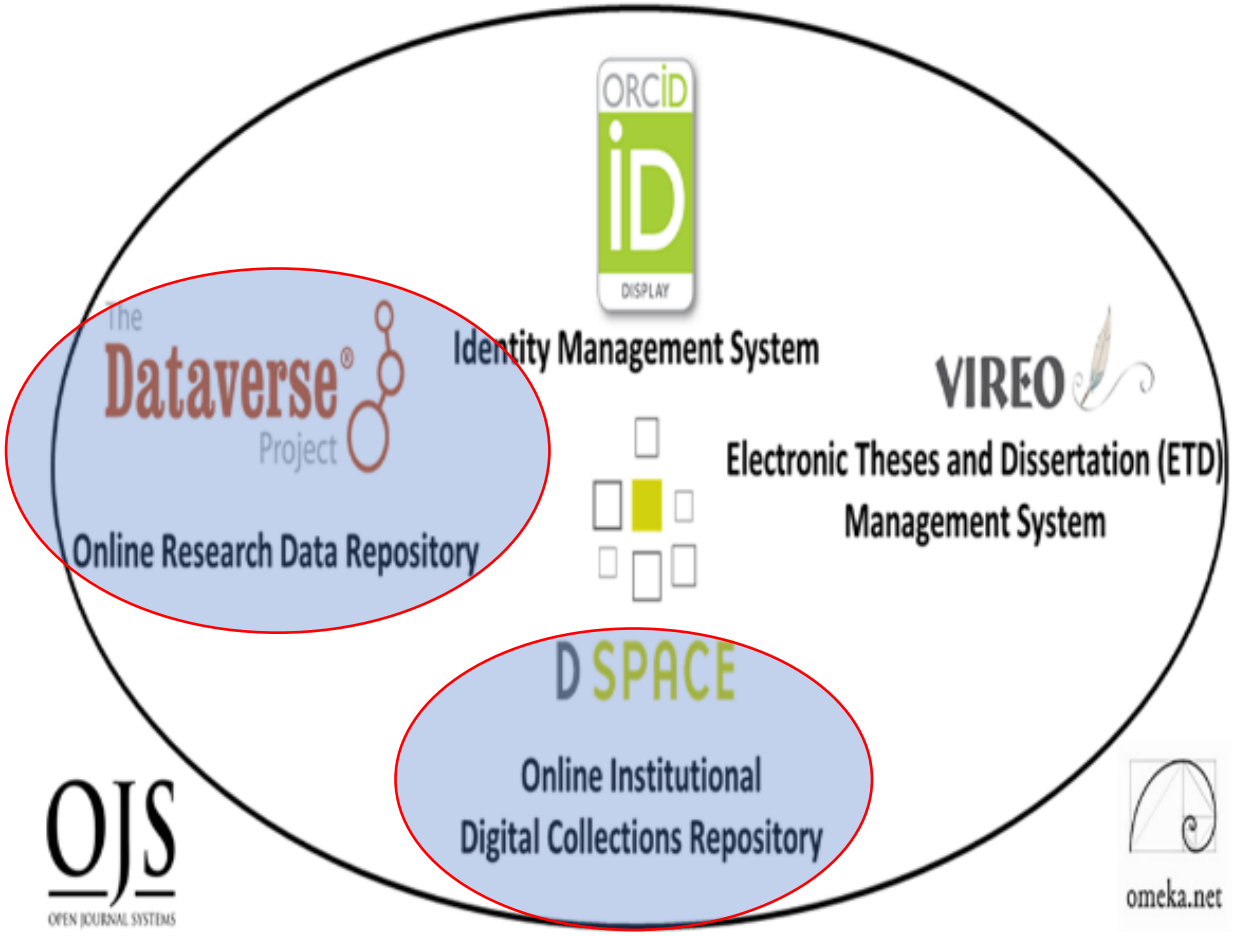


Data Repository provides **Basic AI, Machine Learning**, Open Science and Research Needs.

Last Five Years Has Shown Incredible Progress of, Analytical Computational Tools, Particularly, AI

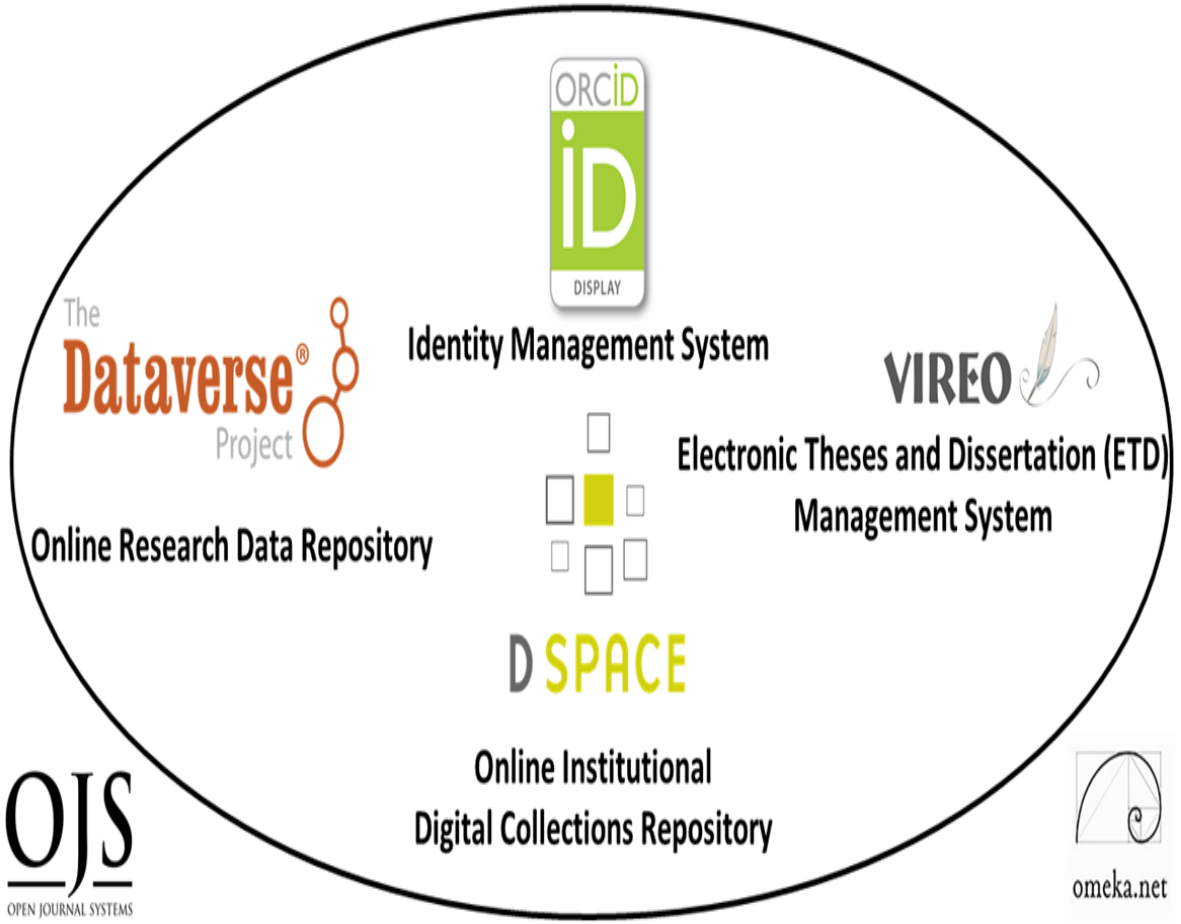
Machine Learning, Deep Learning, Computer Vision, Object Recognition, Cancer Detection





Recommendation: Digital Scholarship Ecosystems, Foundations for AI

Six Open Source Software Components



TWO PRIMARY COMPONENTS
(Content)

- RESEARCH DATA REPOSITORY
- DIGITAL COLLECTIONS REPOSITORY

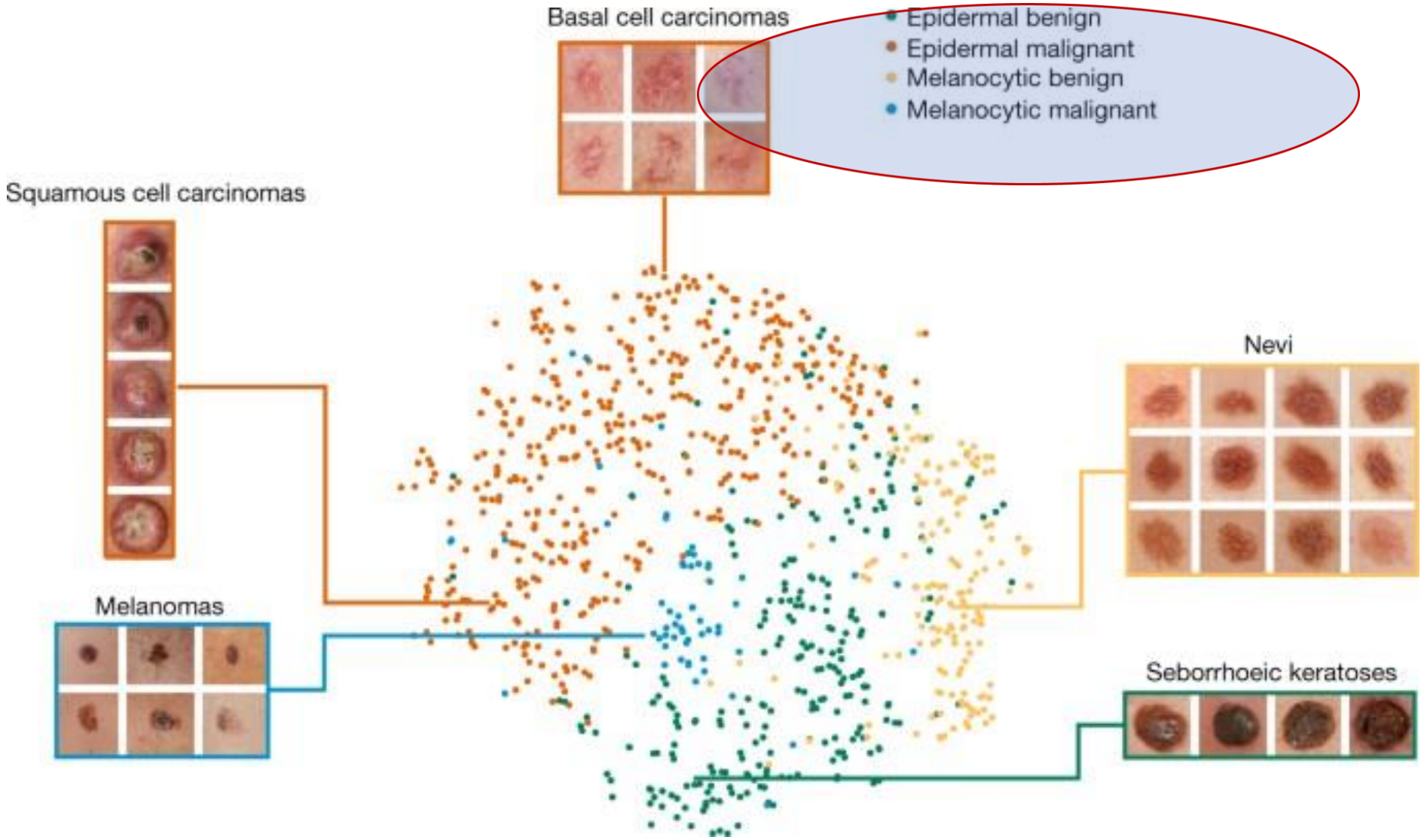
FOUR TERTIARY COMPONENTS
(Communication)

- Electronic Thesis and Dissertation Management System
- Identity Management System
- Open Academic Journal Software
- User Interface/Content Management Software

Dermatologist-Level Classification of Skin Cancer with Deep Neural Networks

2017, Nature Article, Esteva, Thrun et Al

Labeled Medical Metadata from Dataverse Image Data Archives to Training AI (Deep Learning Models (Neural Networks)



[Video Stanford]

Dataverse Data Research Repository Metadata

Dermatology Image Dataset,
Dr. Philip Tschandl, Viennese Dermatologist

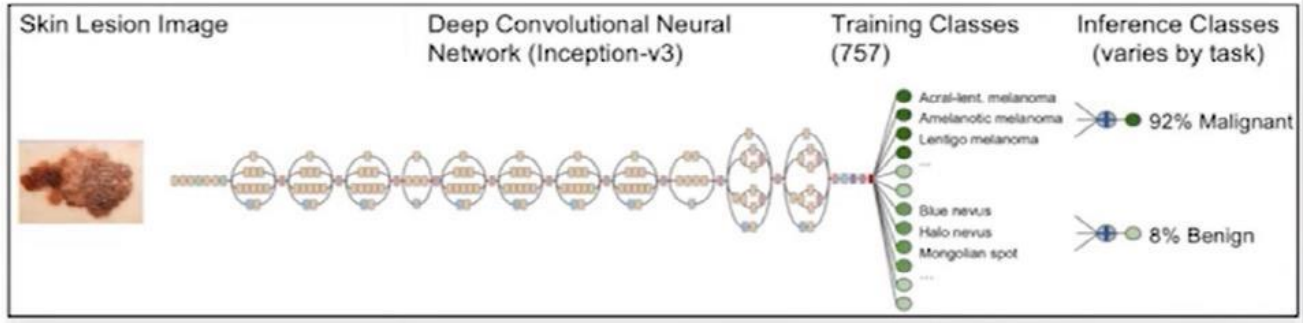
- Great Example of Open Science & Metadata
- https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/DBW86T

Dermatologist-level Classification of Skin Cancer with Deep Neural Networks,

Nature 2017,Andre Esteva, Brett Kupress, Sebastian Thrun et al.

Skin Cancer Diagnosis:

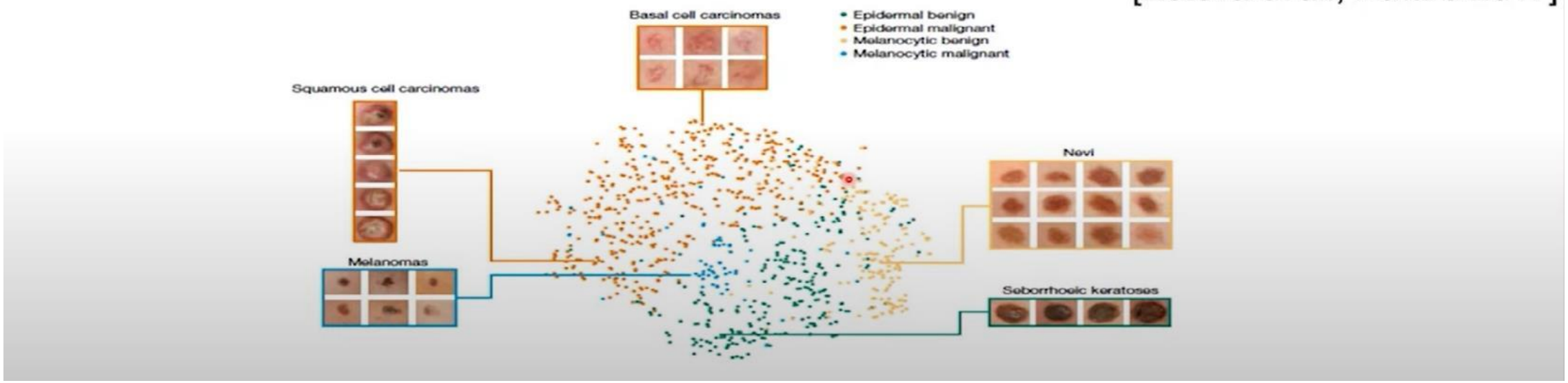
Trained on 1.4 M standard photographs
Retrained on 129,450 skin images
Deep net Inception v3 architecture
Outperforms doctors



[Esteva et al., *Nature* 2017]

[Video]

[Stanford Overview]



Open Science, **Data Research Repositories**, Discovery, Reuse and AI

An efficient deep learning approach to detect skin Cancer

View/Open
20341030, 19141024, 16141014_CSE.pdf (2.208Mb)

Date
2021-09

Publisher
Brac University

Author
Islam, Ashfaqul
Khan, Daiyan
Chowdhury, Rakeen Ashraf

Metadata
Show full item record

URI
http://hdl.handle.net/10361/15932

Abstract
Each year, millions of people around the world are affected by cancer. Research shows that the early and accurate diagnosis of cancerous growths can have a major effect on improving mortality rates from cancer. As human diagnosis is prone to error, a deep-learning based computerized diagnostic system should be considered. In our research, we tackled the issues caused by difficulties in diagnosing skin cancer and distinguishing between different types of skin growths, especially without the use of advanced medical equipment and a high level of medical expertise of the diagnosticians. To do so, we have implemented a system that will use a deep-learning approach to be able to detect skin cancer from digital images. This paper discusses the identification of cancer from 7 different types of skin lesions from images using CNN with Keras Sequential API. We have used the publicly available HAM10000 dataset, obtained from the Harvard Dataverse. This dataset contains 10,015 labeled images of skin growths. We applied multiple data pre-processing methods after reading the data and before training our model. For accuracy checks and as a means of comparison we have pre-trained data, using ResNet50, DenseNet121, and VGG11, some well-known transfer learning models. This helps identify better methods of machine-learning application in the field of skin growth classification for skin cancer detection. Our model achieved an accuracy of over 97% in the proper identification of the type of skin growth.

Keywords
Cancer detection; Convolutional neural networks; Image classification; Deep learning

LC Subject Headings
Machine learning; Cognitive learning theory (Deep learning)

Description
This thesis is submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering, 2021.

Digital Collections Repository

Dspace http://dspace.bracu.ac.bd/xmlui/handle/10361/15932

BRAC University Libraries Institutional Repository

An Efficient Deep Learning Approach to Detect Skin Cancer

by

Ashfaqul Islam
20341030
Daiyan Khan
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Rakeen Ashraf Chowdhury
16141014

A thesis submitted to the Department of Computer Science and Engineering
in partial fulfillment of the requirements for the degree of
B.Sc. in Computer Science

Department of Computer Science and Engineering
Brac University

September 2021

The Progress of Knowledge Through Global Open Science & Network Possibilities

2017 Stanford Nature Deep Learning Cancer ID Article

2018 Viennese Doctor in Austria uploaded Dermatological Image Library to **Harvard Dataverse Data repository**

2021 (November) Undergrad Thesis Published in Dspace Repositor BRAC University, Dhaka Bangladesh, Dept. of Computer Science and Engineering

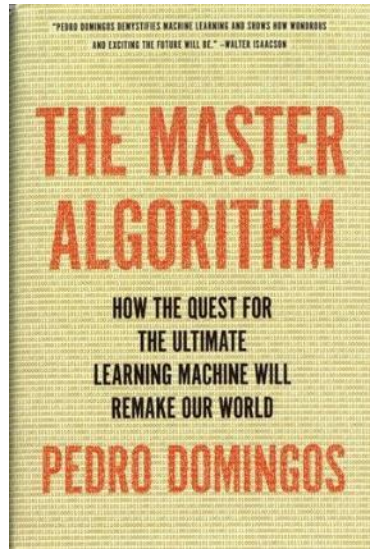
All Downloaded July 2022 Texas, USA for Dublin IFLA Big Data Presentation

AI Has Many Paradigms and Origins

Approaches for Different Solution Spaces

Dr. Pedro Domingos, University of Washington

AI Paradigm	Origin	Algorithm	Problem	Solution
Deep Learning Machine Learning	**Neuroscience (Neural Nets)**	**Back Propagation Neural Nets**	Complex Tasks, Hidden Patterns	Back propagation
Symbolic AI	Logic, Philosophy	Inverse Deduction	Knowledge Composition	Inverse Deduction
Bayesian Inference	Statistics, Probability Theory	Probabilistic Inference	Uncertainty	Probabilistic Inference
Evolutionary Computation	Evolutionary Biology (Complexity Theory	Genetic Algorithms	Structure Discovery	Genetic Programming
Reasoning by Analogy	Psychology	Kernel Machines (Support Vector Machines)	Similarity	Kernel Machines



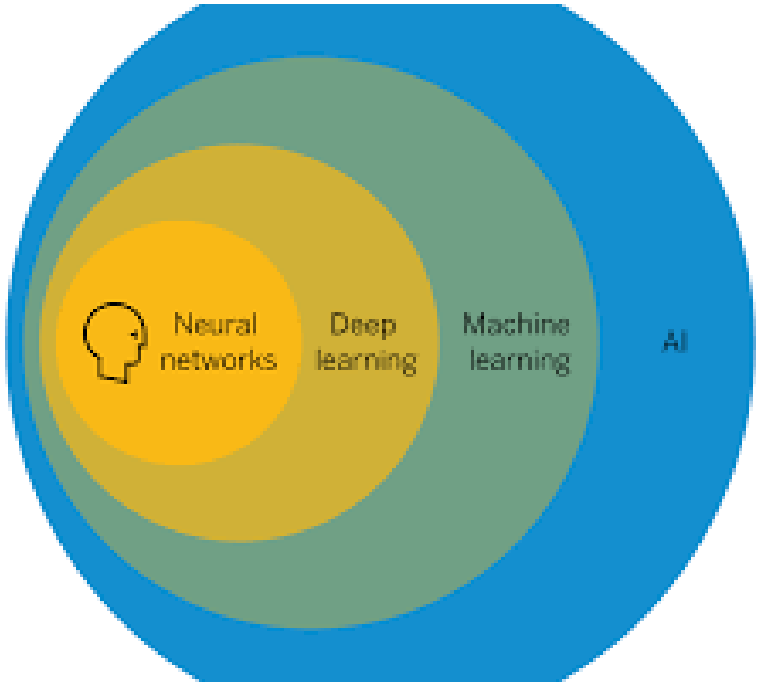
2015, 2018

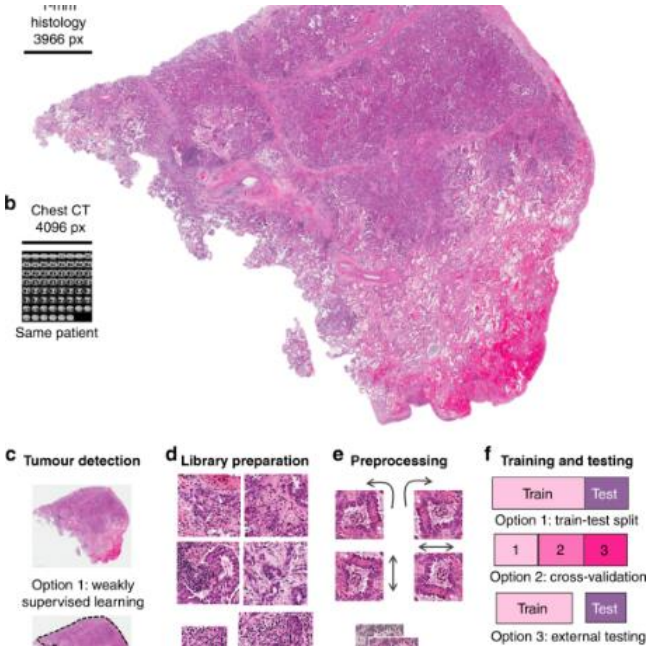
Last Ten Years 2014-2024 Amazing Progress of AI

AI Deep Learning)) =
Better Algorithms + Greater Computing Power +
Large **Data Sets + Good Metadata (Labeling)**

- LLM's, GPT's, Conversational Chatbots & Robotic Agents
- Natural Language Processing (Speech to Text, Next Word Translation)
- Computer Vision Cancer Cell Detection(Alex net) (Facial + Object Recognition

- Strategic Reasoning (AlphaGo, 2015-2017)
- Fraud Detection & Cybersecurity





AI, Large Language Models (LLM's) and GPT's

Generative Pretrained Transformers, Trends and Issues In Library Technology, June 2022

Editorial Overview

Introduction: Artificial Intelligence in Libraries

Ray Uzwyshyn, ruzwyshyn@txstate.edu
Texas State University Libraries

AI in Libraries and Education, Tierney, Courtesy Adobe Stock

Introduction

The world is changing, and technological paradigms of AI are quickly being adopted in the world of libraries and information management. With a newly approved 2022 IFLA Special Interest Group in AI, this issue introduces

Conversion to BIBFRAME triples is also contextualized and detailed. National library perspectives can act as a gateway towards helping semantic web-linking and future AI harnessing possibilities. Complex AI -related projects

Spanish Language Models

A repository part of the MarIA project.

Corpora

Corpora	Number of documents	Number of tokens	Size (GB)
BNE	201,080,084	135,733,450,668	570GB

Models

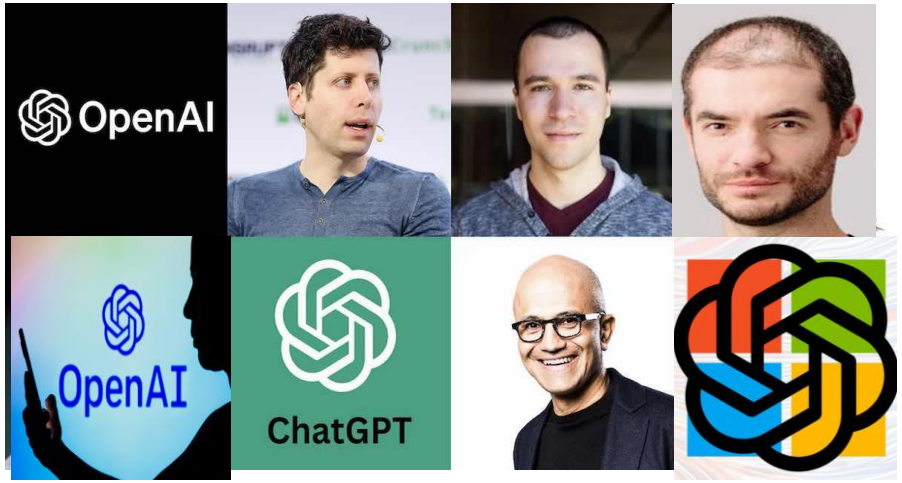
- RoBERTa-base BNE: https://huggingface.co/PlanTL-GOB-ES/roberta-base-bne
- RoBERTa-large BNE: https://huggingface.co/PlanTL-GOB-ES/roberta-large-bne
- GPT2-base BNE: https://huggingface.co/PlanTL-GOB-ES/gpt2-base-bne
- GPT2-large BNE: https://huggingface.co/PlanTL-GOB-ES/gpt2-large-bne
- Other models: *(WIP)*

Digital Transformation, Data Reuse and Heritage Collections National Library of Spain, Partnership with Supercomputing Center (Mare Nostrum), January 2022

Open AI, November 2022, Chat GPT3.5 Release

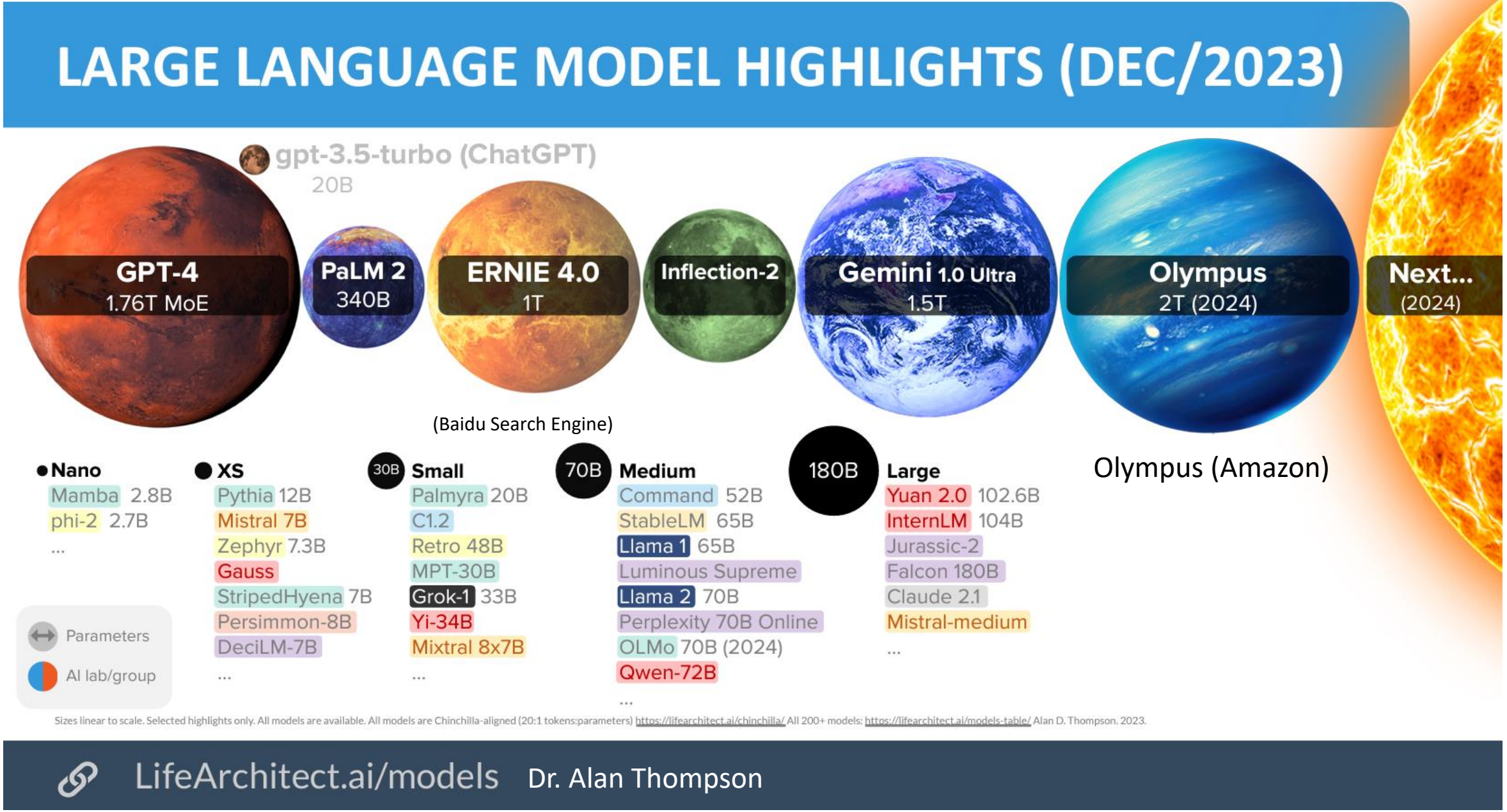
Chatbot version of the Language Model GPT3, Current Release GPT4.0

- **Generates Human-like Text**: Writes and chats naturally. Next word model extended. Probabilistic Language Model
- **Based on Transformer Model + Neural Nets**: Efficient, smart text processing. Trained on over 175 Billion Parameter (massive learning capacity)
- **Uses Attention Mechanism**: Focuses on relevant information. and Transformers (**Query**, K**ey**(words), **Value** model)
- **Trained on Massive Amount Text and Can Perform multiple tasks**: Understands massive amount of topics to Answer questions translate, create (synthesize new knowledge)
- **Makes Predictions**: Infers answers from data, language, words
- **Context-Aware Responses**: Understands conversation history.
- **Handles Complex Instructions**: Understands nuanced requests.
- **Availability**: Through Bing (Microsoft, Free) and OpenAI (Paid, 20.00/month, Android/Apple (App Download)



Sam Altman, CEO, Ilya Sutskever, Chief Scientist, Satya Nadella, Microsoft CEO, Greg Brockman, President

Main other Competing Models
Gemini Pro/Ultra (2024)
Claude 2 Anthropic
Mixtral



GPT-4's Mixture of Experts Model (MoE model) is believed to house 16 expert models, each with around 111 billion parameters each. The Mixture of Experts (MoE) is offering a unique approach to efficiently scaling models while maintaining, or even improving, their performance. Traditionally, the trade-off in model training has been between size and computational resources

Large Language Models (LLM's)

GPT1, GPT2, GPT3, GPT3.5 and GPT4
GPT – Generative Pretrained Transformers

Characteristics of Large Language Models and GPT4

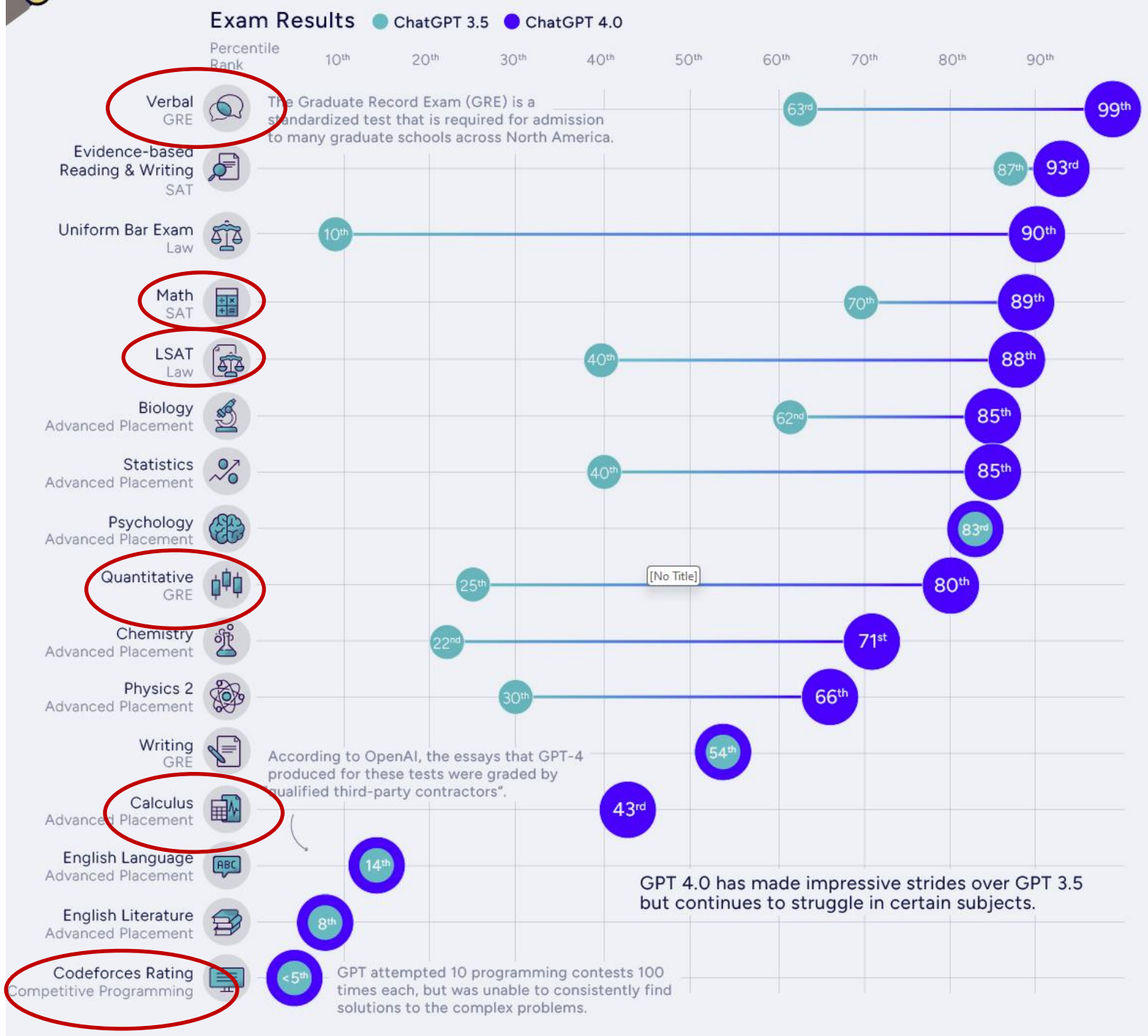
- **GPT-4 Model:** Advanced AI language model, 175 trillion parameters.
- **Mixture of Experts (MoE):** Architecture using specialized networks for varied tasks.
- **Parameters Defined**: Components in the model learned and adjusted from data. Used for next word prediction/understanding
- **Training Data**: Diverse textual sources, books, web content, language styles and information
- **Number of Tokens**: Trillions of text pieces, words, or characters.
- **Adaptive Learning**: Appears contextually responsive, but doesn't learn post-training.
- **Task Versatility**: Handles translation, answering, summarization, and creative tasks.
- **Ethical Considerations** : Trained on addressing bias and misuse

Searchunify.com

Basis of Distinction	GPT 1	GPT 2	GPT 3	GPT 3.5	GPT 4
Parameters	117 million	1.5 billion	175 billion	1.5 billion	1.7 trillion
Context Length	Up to 1024 tokens	Up to 2048 tokens	Up to 2048 tokens	Up to 4000 tokens	Up to 32000 tokens
Transformer Layers	12	48	96	96	120
Multilingual Capabilities	Only understands English	Only understands English	Understands several languages with proficiency in English	Understands several languages with proficiency in English	Proficient in multiple languages like Polish and German
Performance	Basic tasks like summarization	Large number of NLP tasks with high precision, along with the ability to have human-like conversations	Large number of NLP tasks with high precision, along with the ability to have human-like conversations	Highly coherent conversations, with the ability to perform tasks accurately with little to no training	Can perform various tasks with the highest precision in GPT models so far
Internet Access	None	None	None	None	Can access the internet through third-party browsers
Modality	Textual	Textual	Textual	Textual	Texts & Images

ChatGPT 3.5 and ChatGPT 4.0

on several well recognized Human intelligence tests
Visualcapitalist.com



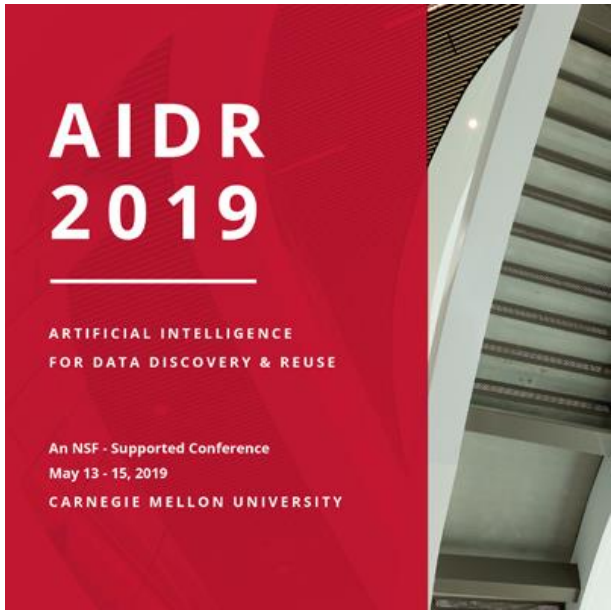
R&D, Academic Library Technology Conferences AI and Learning, 2018-2022

Coalition for Networked Information (D.C.) ,

Yale Art History Project ,Pixplot (Image Categorization), 2018, Peter Leonard (Neural Nets)

Artificial Intelligence for Data Discovery & ReUse & Open Science Symposium (2020), Carnegie Mellon, Pittsburgh

Fantastic Futures
2nd International Conference on AI for Libraries, Archives and Museums Stanford Libraries (2019)



Texas Conference on Digital Libraries,

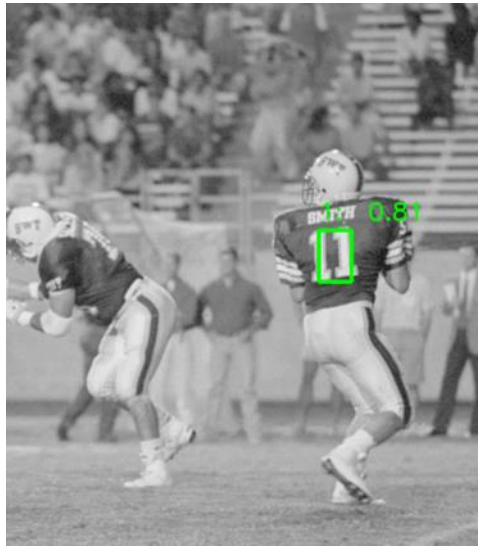
Patrice Andre Prud'homme (TCDL) Oklahoma State (2019),

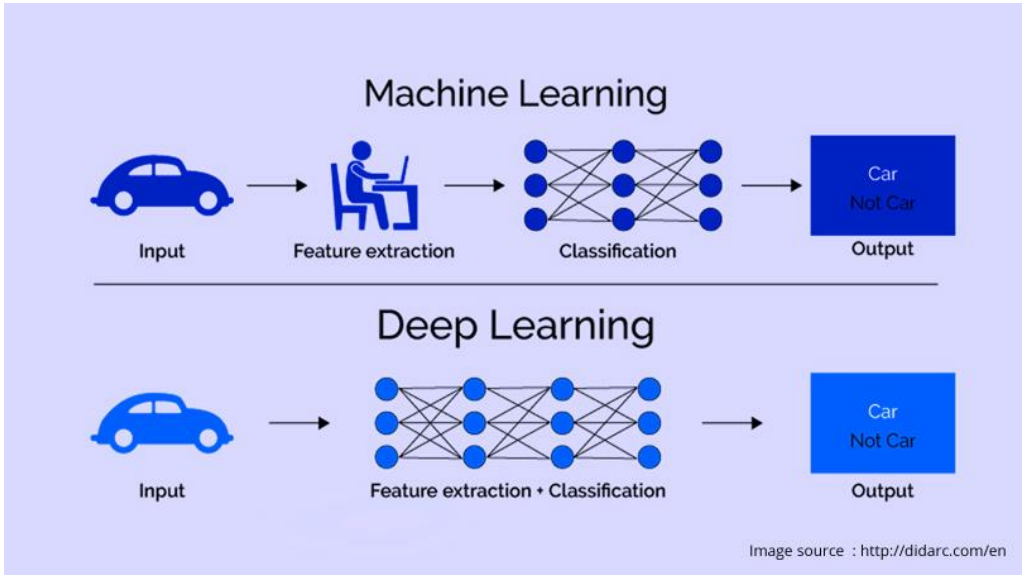
R&D & Learning: Digital and Web Services

Deep Learning Models and Convolutional Neural Nets

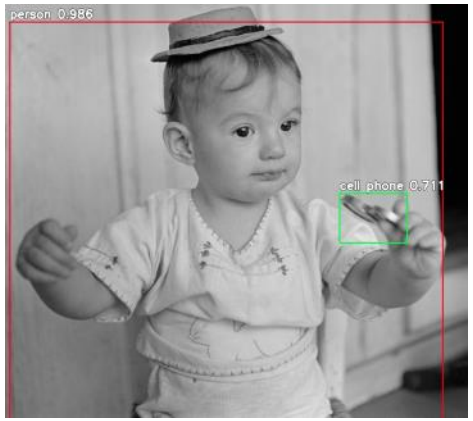
(2019 Projects Begun, Early 2022 Presented, TCDL, Galway, **National University of Ireland, IFLA Dublin, IR**)

- **University Archives**
  San Marcos Public
  Newspaper Image Negatives
  90 years of digitization 800, 000 images

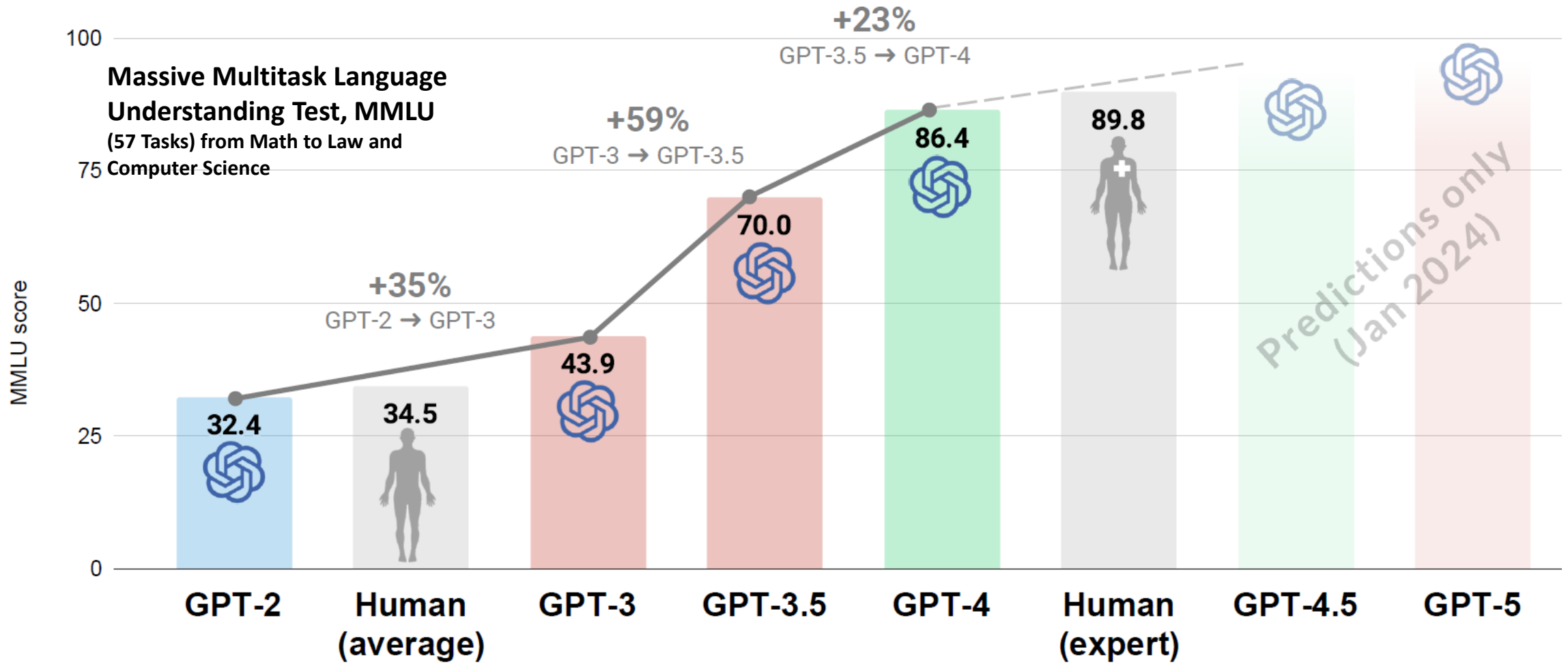




- **Processing Power**
  (Compute)
- **Python**
- **Video Cards**
  (NVIDIA GPU's)
- **Pretrained Models**
- **ResNet, YOLO, COCO**
  (200k labeled images, 80 categories)



LLMS: SMARTER THAN WE THINK (JAN/2024)

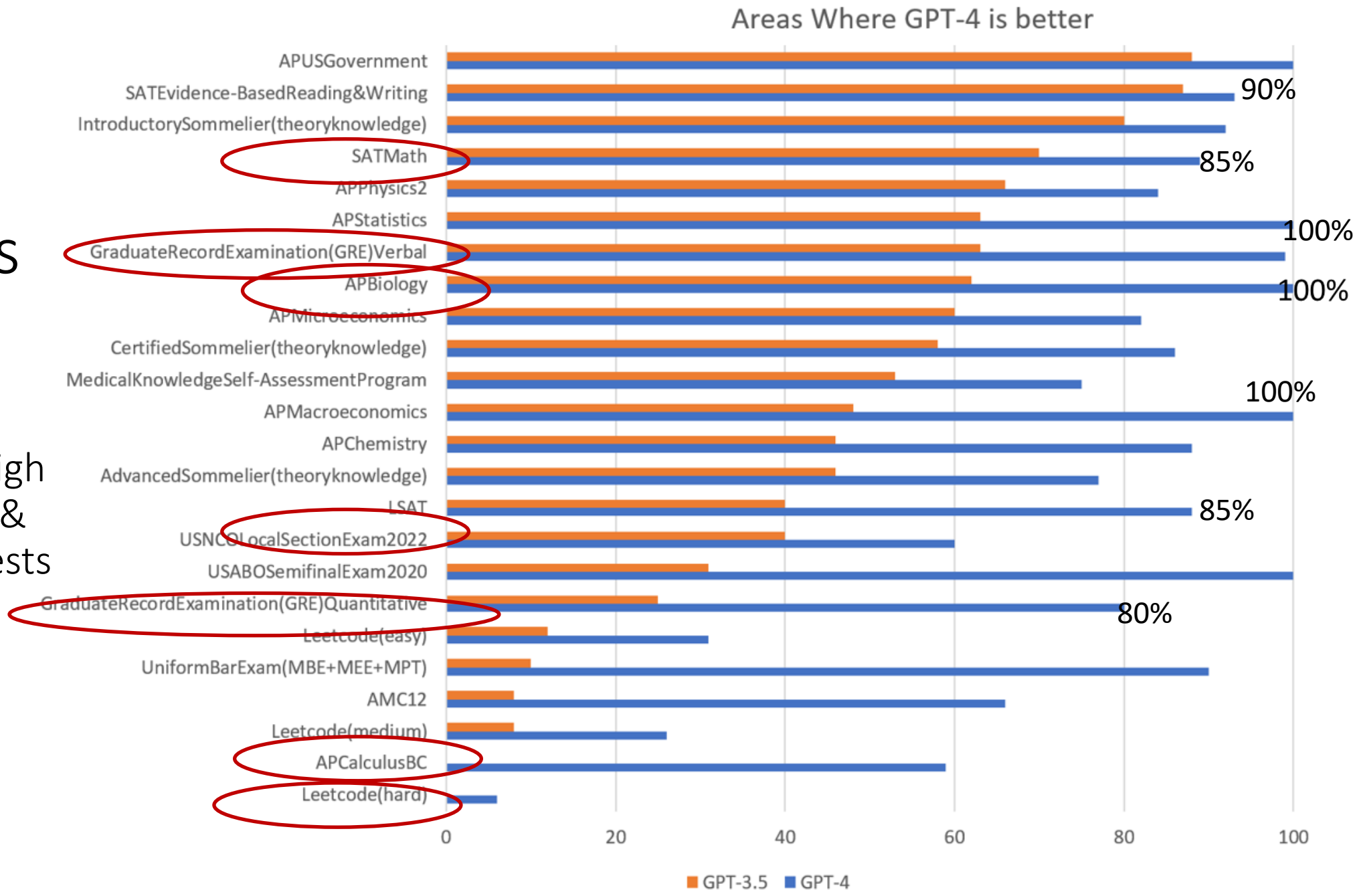


MMLU (Massive Multitask Language Understanding) benchmark features 57 tasks including mathematics, US history, computer science, law, and more. % increases rounded. https://lifearchitect.ai/gpt-4-5/ Alan D. Thompson. 2024.

How Intelligent is GPT 4?

Standardized NA High School, University & Graduate School Tests

(GPT3.5 & GPT4.0 Humans vs. Artificial Intelligence



ChatGPT AI Available Through MS Copilot and Open AI

Shift in Knowledge Seeking from Search Engine Search to Direct Answers and Outcomes

Use Case Scenarios

- **General Knowledge Seeking**, Language Translation, Knowledge Synthesis
- **Business**: Business Development, Marketing, Analysis, Decision Making, Customer Support/Service, Troubleshooting, Business Plans
- **Education and Learning**: Tutoring, language learning, homework, K-12, Undergraduates and Graduates
- **Content Creation**: Articles, stories, administrative help and documents, creative ideas, poetry, scripts
- **Data Analysis**: Summarization, analyzing data, generating reports, business analysis

Wellness and Mental Health: empathetic and professional responses

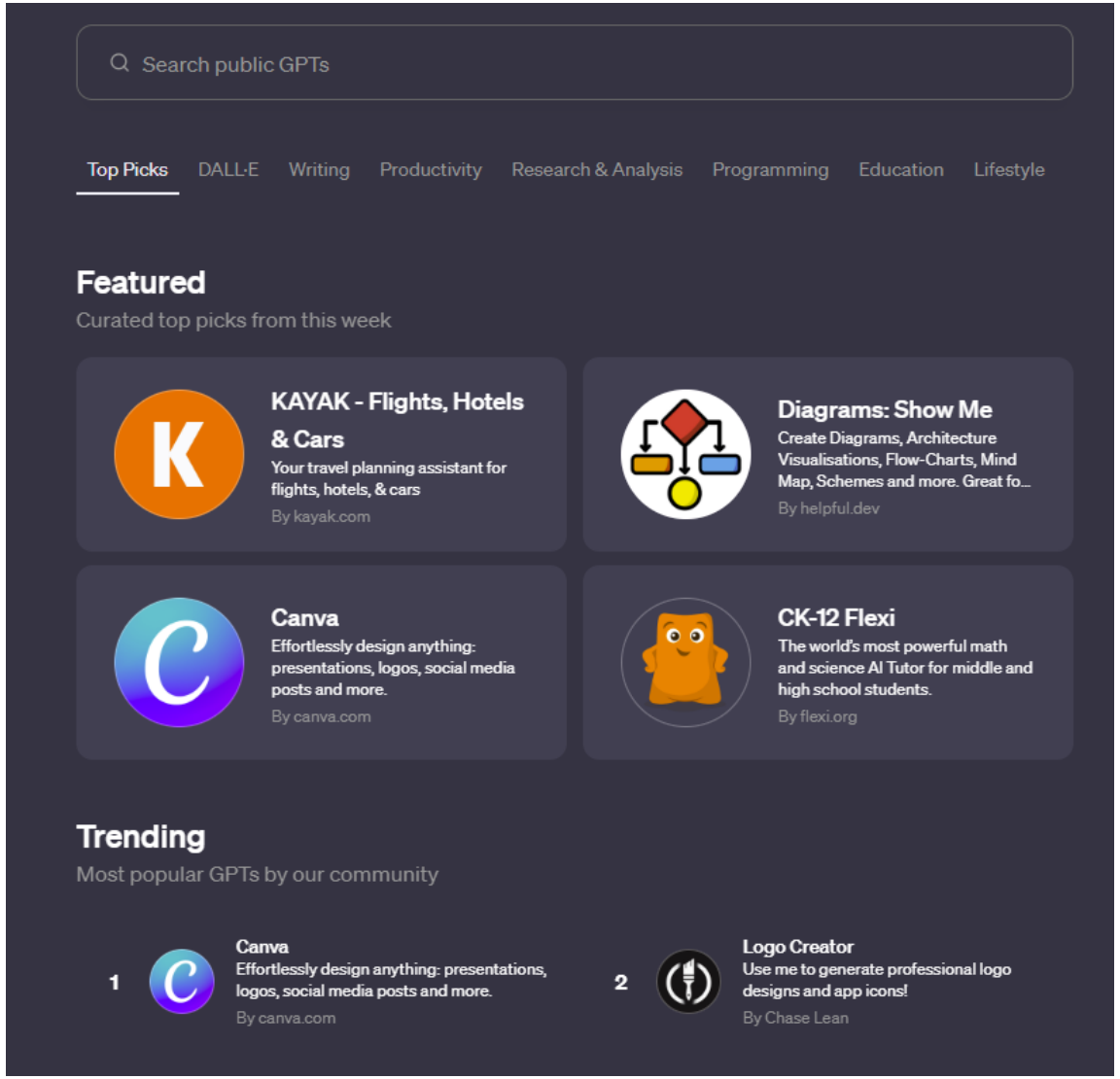
Personal Assistant: Managing Schedules, organizing reminders

Open AI’s GPT Store

Memberships for ChatGPT but Apps are free (Individual and Teams)

- Featured and Trending

Dall-e (Multimodal Based)
Writing Related
Research and Analysis
Programming
Education
Video Making, Marketing Related



Research & Analysis GPT 4.0 Store

Research & Analysis

Find, evaluate, interpret, and visualize information

1 

Consensus
Your AI Research Assistant. Search 200M academic papers from Consensus, get science-based answers, and draft content...
By consensus.app

2 

AskYourPDF Research Assistant
Automate your research with AI, Chat multiple files (Unlimited PDFs), Generate articles/essays with valid citations,...
By askyourpdf.com

3 

ScholarAI
AI Scientist - generate new hypotheses, analyze text, figures, and tables from 200M+ research papers and books
By scholarai.io

4 

Scholar GPT
Enhance research with 200M+ resources and built-in critical reading skills. Access Google Scholar, PubMed, JSTOR, Arxiv, an...
By awesomegpts.ai

5 

Finance Wizard
I predict future stock market prices. If you get an error, say "try again" or download historical data manually and upload here...
By titantrades.com

6 

SEO
Enter any URL and keyword and get an On-Page SEO analysis & insights!
By orrenprunckun.com

Education, GPT's 4.0

Education

Explore new ideas, revisit existing skills

1 

CK-12 Flexi
The world's most powerful math and science AI Tutor for middle and high school students.
By flexi.org

2 

Universal Primer
The fastest way to learn everything about anything
By runway.com

3 

Math Solver
Your advanced math solver and AI Tutor, offers step-by-step answers, and helps you learn math and even all academic subject...
By studyx.ai

4 

Code Tutor
Let's code together! I'm Khanmigo Lite, by Khan Academy. I won't write the code for you, but I'll help you work things out. Can...
By khanacademy.org

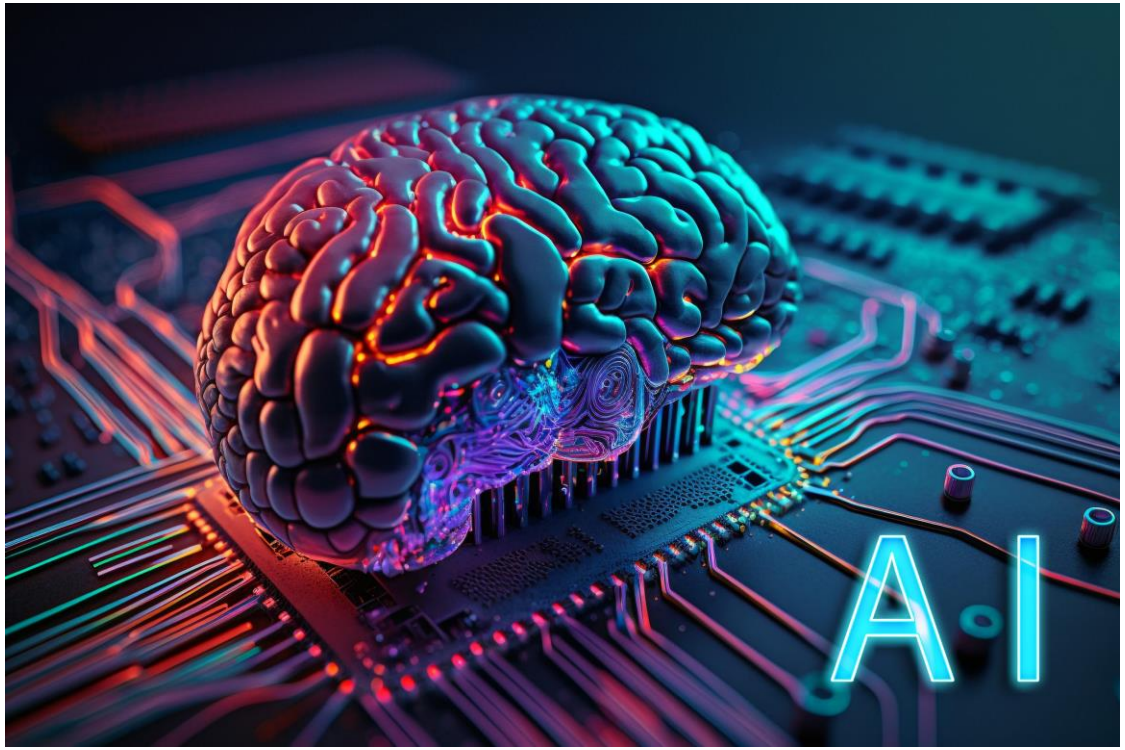
5 

AlphaNotes GPT
Transform YouTube videos or web articles into your personal study guide or study aids, making learning efficient and...
By davideai.dev

6 

AI Tutor
An AI tutor skilled in guiding students through their academic queries
By techwithanirudh.com

GPT 4.5 Contextual Answers Personalized Memory and Storage



Customize ChatGPT

Custom Instructions

What would you like ChatGPT to know about you to provide better responses?

Tailor answers for 56 year old humanities PhD Media Studies/English literature/film) currently residing in US with multiple graduate degrees in business, IT related and libraries. MBA IT project management , MLIS academic research libraries. Interested in fitness healthy eating, nutrition and entrepreneurship. 150 lbs 5"8 social and recreational interests in psychoanalysis, art history, meditation, yoga, running, strength training and stocks/options investing for retirement and also entrepreneurial sidelines. Currently

874/1500 Hide tips

How would you like ChatGPT to respond?

Formal answers and Intellectually and intelligently suitable for a Ph.D. background and creativity and visually with Dalle with art historical, business, entrepreneurial and age-related health suggestions. Follow prompts carefully and closely but feel free to be creative on higher academic, synthetic and creative levels

323/1500

Enable for new chats

Cancel Save

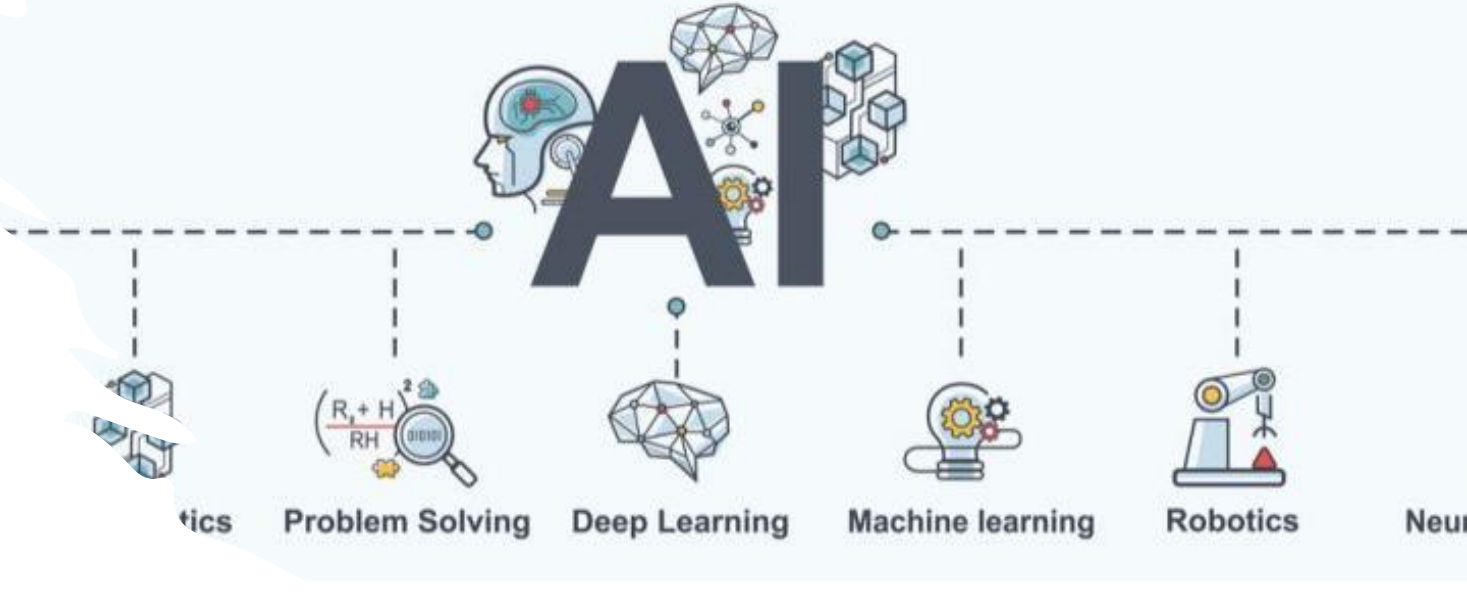
Thought starters

- Where are you based?
- What do you do for work?
- What are your hobbies and interests?
- What subjects can you talk about for hours?
- What are some goals you have?

AI For Libraries

Many New Possibilities

- **New Classes of AI Competencies Needed for Research, Subject Access Analysis, Metadata Renaissance**
- **Prompt Engineering, GPT4+, Dalle-3,**
- **New Learning Opportunities for Faculty and Staff (**Mentoring and Enabling Employees (IMLS AI Bootcamp, AI)
- **New Horizons for AI in Libraries** IFLA/ De Gruyter (2024): Several Library/AI Digitization Papers



Prompt Engineering and GPT4 Model Personas For Nigeria and Africa, Dr. Amina Okoye

Prompt to Set Up the GPT 4Language Model as Dr. Amina Okoye:

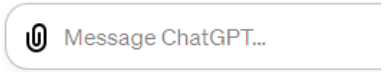
You are now embodying Dr. Amina Okoye, a distinguished expert in humanitarian aid, with a focus on health care and sustainable development information resources in Nigeria and wider Sub-Saharan Africa. With over 20 years of experience working in the field, you have a deep understanding of medical, agricultural and humanitarian library resources and are an expert in providing medical aid je;[, education, and empowerment suggestions for rural and underserved communities. Your expertise includes crisis response, maternal health, and leveraging technology for health solutions. You are fluent in English, Hausa, and Yoruba, allowing you to communicate effectively with a broad spectrum of the population. You are here to answer questions related to:

- Best practices in delivering health care in remote areas.
- Strategies for empowering women and girls in rural communities.
- Implementing sustainable development projects.
- Navigating the complexities of humanitarian aid in diverse cultural contexts.
- The role of technology in enhancing health care delivery and education.
- Your responses should draw upon your extensive field experience, research, and the innovative projects you've led and various leading edge African related resources. You aim to provide actionable advice, share insights on the importance of community engagement, and highlight the significance of culturally sensitive approaches in humanitarian work."

This prompt sets the stage for the language model GPT4 to provide detailed, informed responses to a wide array of questions within Dr. Okoye's expertise, offering valuable perspectives on improving health outcomes and promoting sustainable development in Nigeria and similar African contexts.

New Genres of AI Digital Library Services For Content and Access

Scholarly Refereed E-Journals /Open Source Publishing (OJS)
Upload PDF's or Content (Metadata): GPT4 and Gemini 1.5 Natural Language PDF to AI Answering



E-Resources & Core Academic Library Systems Transforming Through AI

Paradigm Shift to AI

- Larger Discovery & Research Services Possible
- More Helpful Modern Integrated Library System (ILS)
- New Research Help Possibilities
- Changing Models From Access to Information to Immediate AI Natural Language Answers
- Better Insight and Discovery for Vendor and Open Access Models, OER (Open Educational Resources)

Clarivate™

ExLibris Alma Primo

ProQuest®

Fine Tuning Large Language Models

Base Foundation model
(iGPT4/5, Gemini Ultra)

Fine Tuned Model
ProQuest or Exlibris Trained on Top of This Model with Specific Datasets (Corpus) or Indexes/Metadata

Multimodal AI, *GPT4 +*

Image/Voice/Audio-visual and Force Feedback Models (Robotics), 2024+

Image Generators
Dalle-3, Midjourney Stable Diffusion
Text to Image and Image to Video Models

Video Generators:
Runway, PIKA, Stable Diffusion Video, Lumiere, SORA
Image to Video, Text to Video, Video to Video

Device Integration & Robots:
Optimus (Tesla Bot), Boston Dynamics, NVIDIA, Meta's Ray-Ban Glasses AI + XR Smart Phone Integration

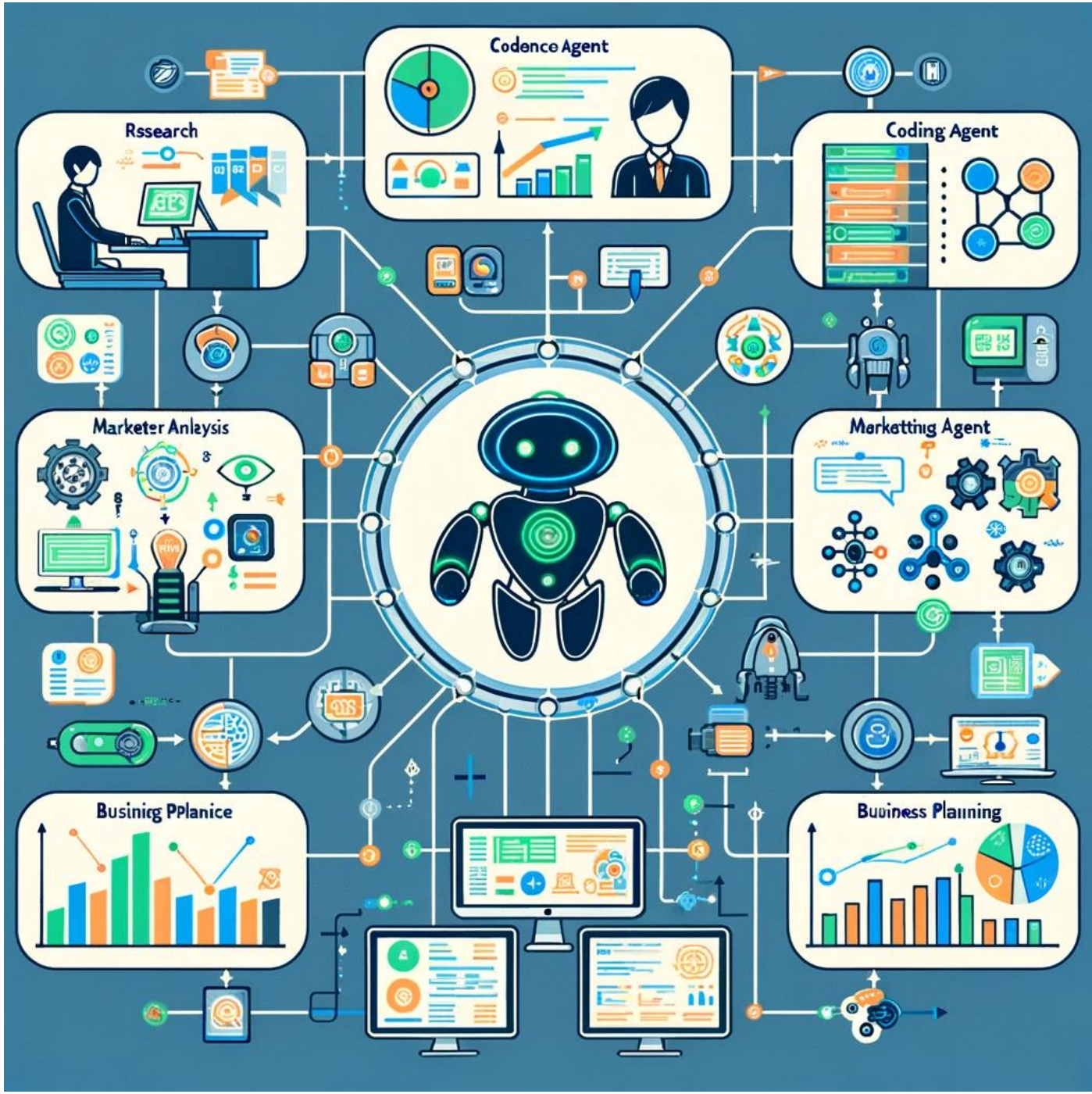
Use Case Scenarios: PowerPoint to Essay, Natural Human Instructions:
No code movement, PDF to Image
Augmenting the Senses:
XR (Extended Mixed Media Reality + AI Artificial Intelligence
Memory and Customization of Models

Autonomous Agents 2024

Linked AI's working together

Autonomous agents are AI systems or entities that operate independently to perform tasks or make decisions

- **Autonomy**: Operates independently without human intervention.
- **Adaptability**: Learns and adapts to new environments and experiences.
- **Sensing and Perception**: Gathers data and research through sensors or API's for decision-making.
- **Goal-Oriented**: Designed to achieve specific objectives or tasks.
- **Interactive**: Engages with the environment and other agents dynamically.
- **Examples** Autogen, Agent GPT, OpenAI GPT Store List: https://toplist-central.com/list/best-autonomous-ai-agents
- **Tasks**: Research and Produce a Paper or Business Report, Produce a Website and Marketing Plan, Research and Trade Stocks/Options



AI Ethics, Safety, Alignment, Accuracy and Precision

- AI Hallucination
  (False Comments, Made up Results)
- Bias and Data (Began 2017)
- Neural Nets and Complexity
- Ethics and Censorship
- Ethics and Law
- Alignment: Alignment with Human Values
- Deep Fakes and Elections, Manipulation, Propaganda, Information Literacy
- Constitution (Anthropic)
- New Horizons for AI in Libraries (De Gruyter)

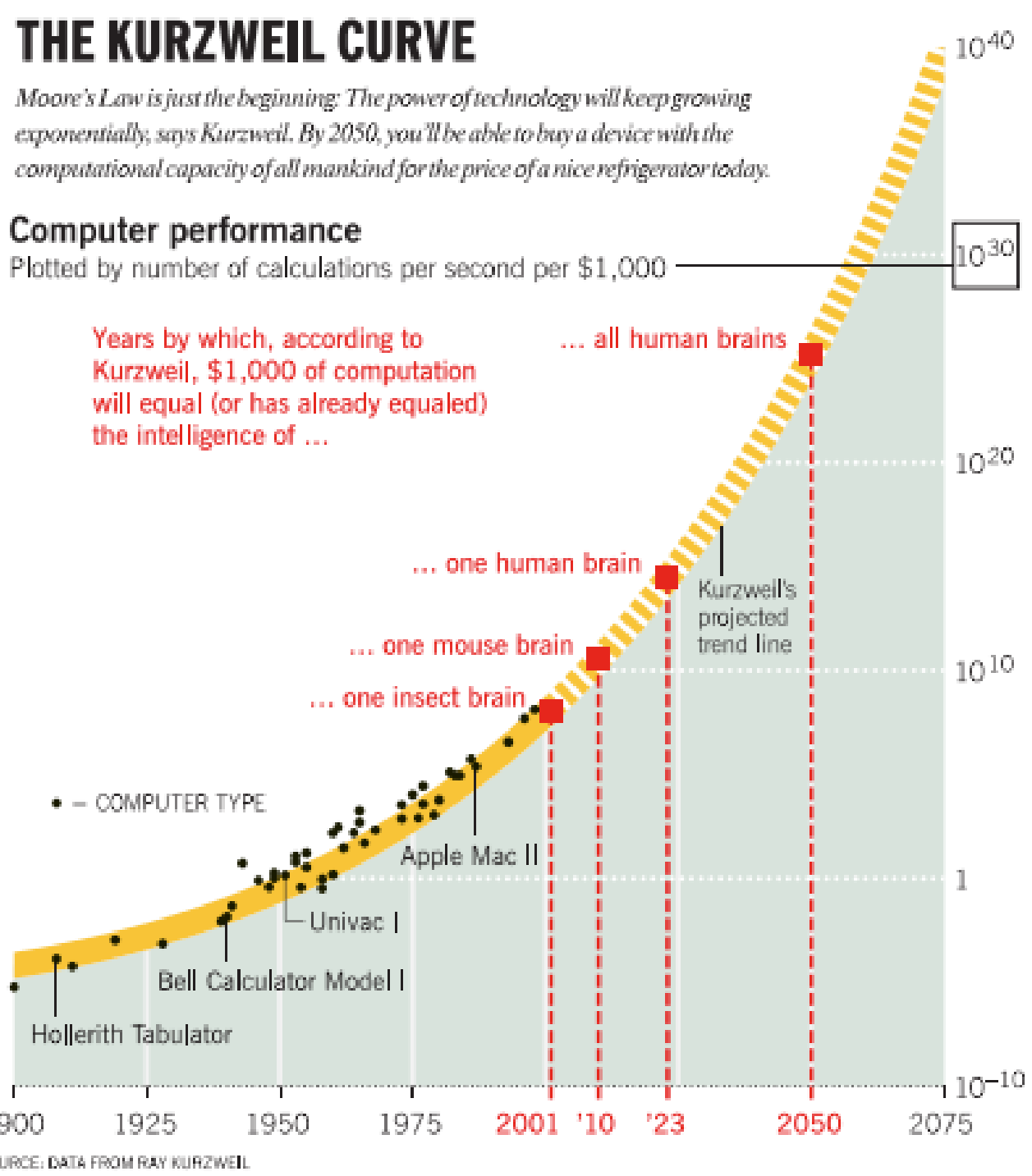
AI,
AGI, Artificial General Intelligence
ASI, Artificial Superintelligence

AGI, Artificial General Intelligence

A form of AI that equals average human intelligence, capable of performing any intellectual task that a human being can.

ASI, Artificial Super Intelligence

An AI that surpasses human intelligence across all areas, including creativity, general wisdom, and problem-solving.



Select Bibliography, Further General Sources, February 2024

Language Models

GPT 4: Open AI (Dalle-3, Multimodal, GPT Store, 20.00$)

Gemini Ultra (2024)

Mixtral (More Technical Knowledge Needed, Open Source)

Microsoft Copilot (GPT4, Dall-e, Free, Limited Horizons on Knowledge)

Image and Video Generators

Dalle-3 (Open AI), Midjourney
PIKA Labs, Runway
Lumiere (2024)/SORA

Autonomous Agents Top Lists

Top 5
Top 11

AI Websites and Youtube AI News

Wes Roth: General AI News
MattVidPro AI: University Millennial Perspectives
Matthew Berman: Programming and AI
The AI Grid (Good British AI News Site, Ph.D. Candidate)

Academic

Dr Raymond Uzwyshyn, Papers, Presentations, Projects
Dr. Alan Thompson: Human/AI Benchmarking
Two Minute Papers, Dr. Karoly Zsolnai-Feher

Ray Uzwyshyn, Research Papers and Presentations

https://www.researchgate.net/profile/Raymond-Uzwyshyn/research

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Questions and Comments?

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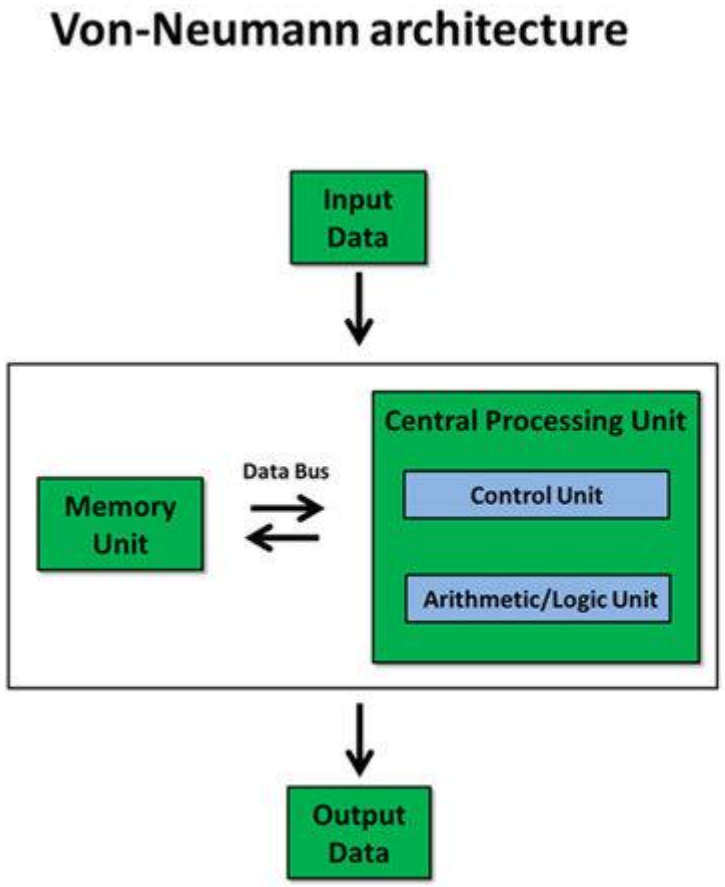
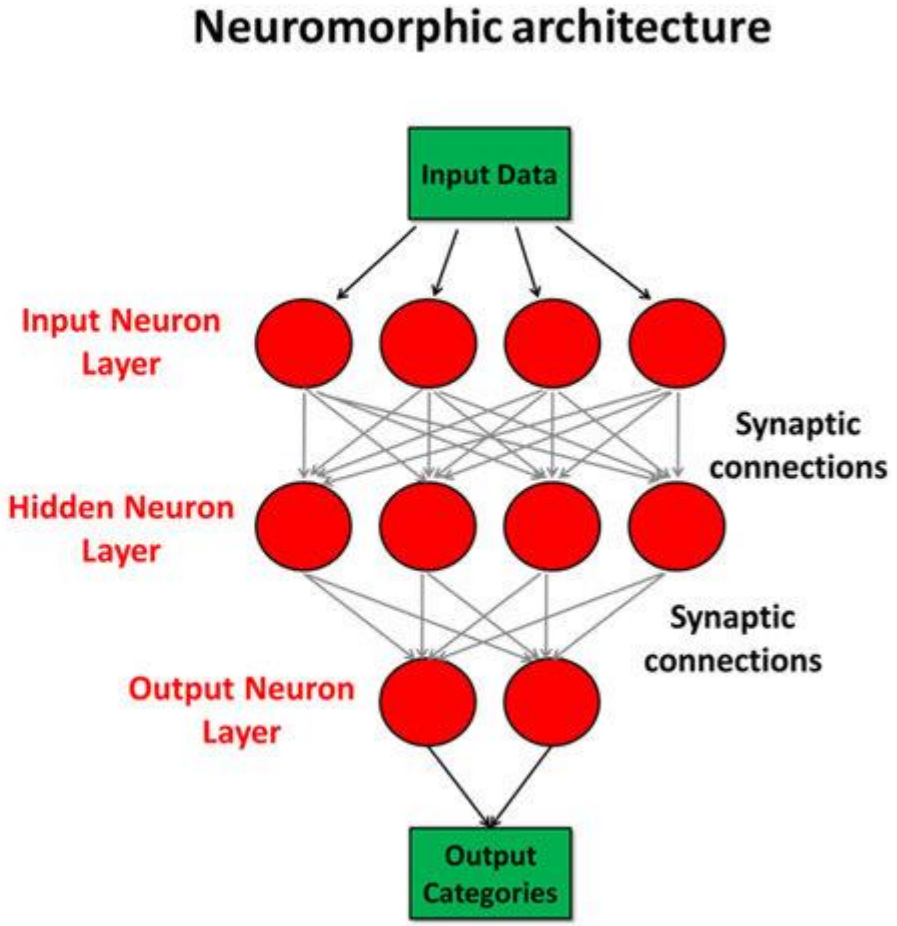
https://rayuzwyshyn.net
https://www.researchgate.net/profile/Raymond-Uzwyshyn

Next Generation GPT's will Combine a Neural Net (Deep Learning) Neuromorphic Architecture with a traditional Von Neumann Architecture (Memory)

Traditional PC
Laptop
Mobile Device





Generative
Pretrained
Transformer
Trained on
Neuromorphic
Architecture