

Democratize AI with H2O.ai

222 OF THE FORTUNE
THE 500



H2O

8 OF THE TOP 10
BANKS

7 OF THE TOP 10
INSURANCE
COMPANIES

4 OF THE TOP 10
MANUFACTURING
COMPANIES



CUSTOMER OBSESSION
MAKER CULTURE

30

Kaggle Grandmasters

2M

Community

2012 FOUNDED IN
SILICON VALLEY

\$256M FUNDRAISED,
SUSTAINABLE

Commonwealth Bank, Goldman Sachs,
Wells Fargo, NVIDIA, Capital One, Nexus
Ventures, New York Life

Open Source is freedom, not free!

Democratize AI

AI for Good

KAGGLE GRANDMASTERS World's Best Data Scientists

H2O.ai



H2O.ai KGM HIGHLIGHTS

- 2023 H2O KGMs win 3 healthcare-related competitions
- July 2023 H2O KGMs make "Top GenAI Scientists" list
- Oct 2023 H2O paper accepted at EMNLP 2023
- Nov 2023 H2O KGMs win 1st place in Kaggle Science Exam competition
- Jan 2024 H2O KGM places 2nd in Detect AI Text competition
- Feb 2024 introduced foundational model H2O-Danube 1.8b

2 Quadruple GMs
1 Triple GM
7 Double GMs

#1 KGM
#3 KGM

5 Top 10 Globally
10 Kaggle Masters

H2O products are backed by **10% of the World's Data Science Grandmasters** and a **Team of Experts** who are relentless in solving critical problems.

Co-create

Convergence of World's best Predictive and Generative AI

Generative AI

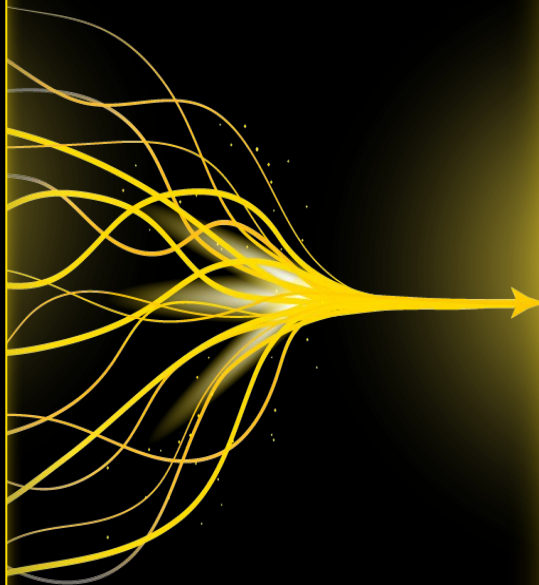
GenAI Apps
Enterprise h2oGPTe: Python
APIs and UI for chat, RAG

customGPTs

Function-calling & Agents

Prompt Tuning

Foundational Models
document and data labeling
on-premise, air-gapped,
cloud VPC | SaaS



Generative AI + Predictive AI

AWARD-WINNING AUTOML reaches
a new audience with chat & function
calling assistants for ML

Enhanced AI for Documents

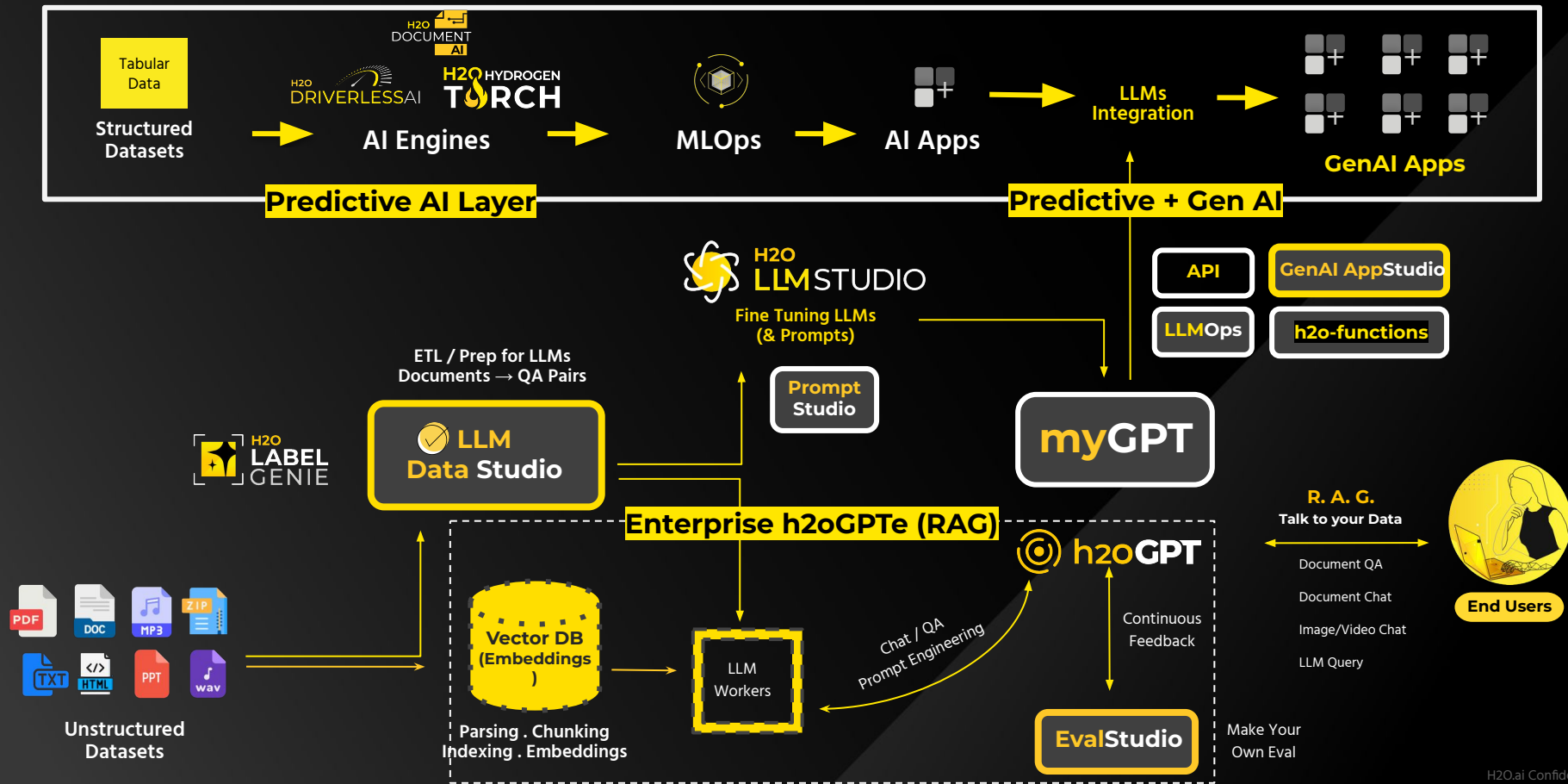
Automation for data labeling

Automation of code for AI Apps

CUSTOMGPTS: H2O foundational
models, fine-tuned models, personality,
on top of predictive models

World's Best AI to do Gen AI

H2O.ai















Raise a forest, not just a tree.

Make ecosystems



Successful Partnerships

H2O.ai

Industry	 Commonwealth Bank  FBMSA  Singtel 	Strategic Fit Co-create GenAI solutions related to various industry specific problem statements	Customer Value Faster time to market, rapid innovation and developing cutting-edge GenAI offerings
Hyperscalers	 aws 	Reduce complexity of the sales process through Marketplace. Collaborative sales strategy.	Simplified procurement process, flexible terms, simplified deployment. Seamless integration with cloud providers solutions.
Technology	 NVIDIA  CLUSTERA	Co-sell and integration to accelerate inferencing on end-to-end workflows.	Flexible deployment options, Breakthrough cost reduction and ROI. Secure, data never leaves the environment
VARs/ Distributors	 carahsoft 	Gain business agility with faster time to market	Access to expertise, custom solutions, and seamless integration, reducing the pain and time of ML/Gen AI adoption
Public Sector	 leidos 	Expansion into new agencies	Access to enterprise ready solutions

Tech Ecosystem of H2O GenAI

OPEN SOURCE MODELS



LLM INFERENCE



HARDWARE



MODEL HOSTING



CLOSE SOURCE MODELS



CLOUD PROVIDERS



VECTOR DATABASES



**Thank you, Community.
Gratitude.**

Makers, past, present and future!

**H2O Movement
Community and Customers!**

To all greatness, our greetings
endaro mahanubhavulu

Data Scientist	= 100% data
Business Unit	= 85% data, 15% storytelling
Executive	= 15% data, 85% storytelling

Board	= 99% storytelling
GrandPa	= 100% storytelling

Prompt is your intellectual property

Everyone needs their own GPT

Every Nation needs to be an AI Nation

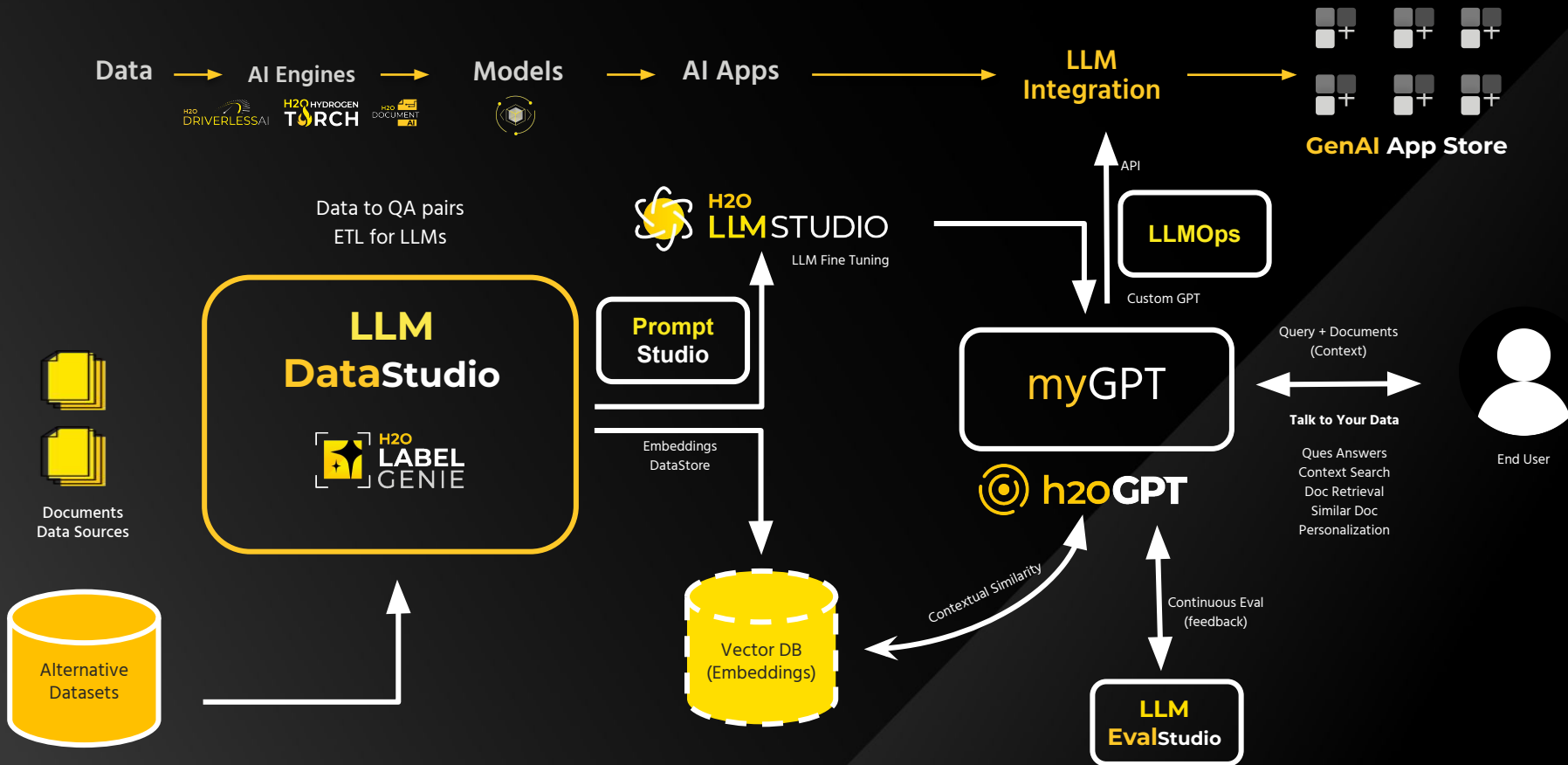
Private

On-prem, behind your firewall

Sovereign Data

Sovereign AI

The Whole Ecosystem of AI with GenAI to deliver Impact



Time is the only non-renewable resource

Discovery of a structural class of antibiotics with explainable deep learning

<https://doi.org/10.1038/s41586-023-06887-8>

Received: 5 January 2022

Accepted: 21 November 2023

Published online: 20 December 2023



Check for updates

Felix Wong^{1,2,3,10}, Erica J. Zheng^{1,4,5,10}, Jacqueline A. Valeri^{1,2,5}, Nina M. Donghia⁵, Melis N. Anahtar¹, Satotaka Omori^{1,3}, Alicia Li³, Andres Cubillos-Ruiz^{1,2,5}, Aarti Krishnan^{1,2}, Wengong Jin⁶, Abigail L. Manson¹, Jens Friedrichs⁷, Ralf Helbig⁷, Behnoush Hajian⁸, Dawid K. Fiejtek⁸, Florence F. Wagner⁸, Holly H. Soutter⁸, Ashlee M. Earl¹, Jonathan M. Stokes^{1,2,9}, Lars D. Renner⁷ & James J. Collins^{1,2,5}✉

The discovery of novel structural classes of antibiotics is urgently needed to address the ongoing antibiotic resistance crisis^{1–9}. Deep learning approaches have aided in exploring chemical spaces^{1,10–15}; these typically use black box models and do not provide chemical insights. Here we reasoned that the chemical substructures associated with antibiotic activity learned by neural network models can be identified and used to predict structural classes of antibiotics. We tested this hypothesis by developing an explainable, substructure-based approach for the efficient, deep learning-guided exploration of chemical spaces. We determined the antibiotic activities and human cell cytotoxicity profiles of 39 312 compounds and applied

Democratizing Foundation LLMs

Open Source Foundation Models

H2O Danube 2 LLM 1.8B, 2T Tokens, 4K seq length

fp8 precision during training (quantization)

Grouped Query Attention

(Dropped Windowing; Mistral Tokenizer)

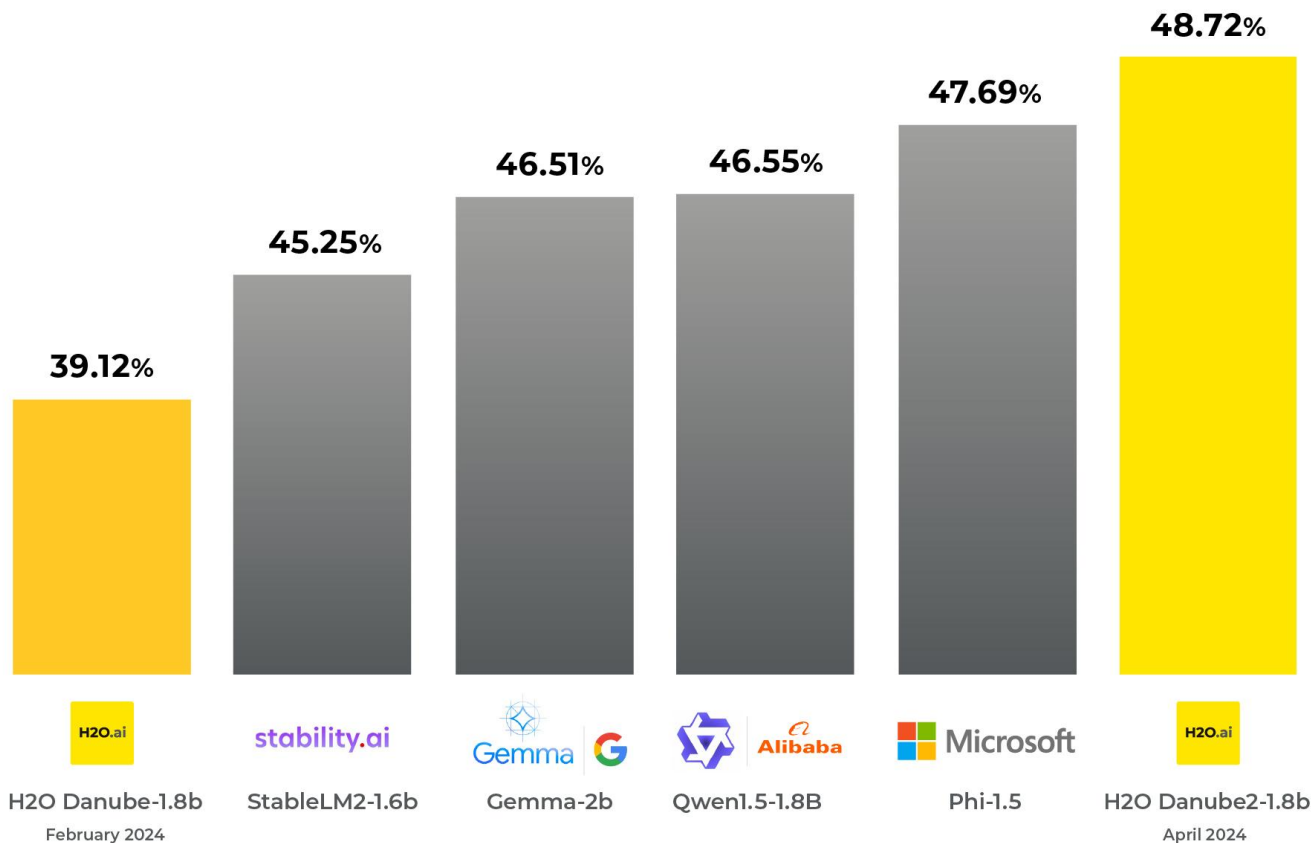
Compute 7,600 GPU hrs, (8xH100, 45 days)

Inference is efficient. Embeddable.

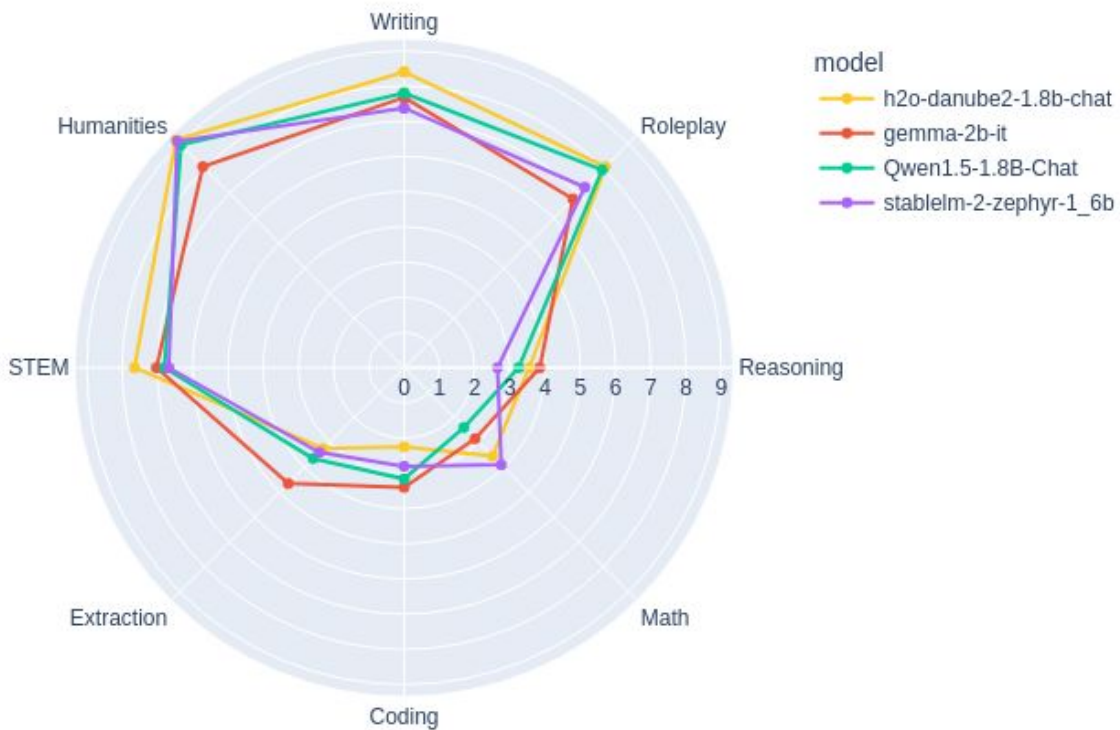
Cost efficient! (lot less than you think!)

Ready to pre-train on your data!

Hugging Face Open LLM Leaderboard Average Scores



Fine-Tuned for Chat



Using LLM Studio

**DPO,
with good chat data**

Open Source h2oGPT

Fine-tuning and RAG of Best-in-class Open Source LLMs

Open Source H2O LLM Studio

Best-in-class Studio to fine-tune LLMs

Enterprise h2oGPTE

Best-in class RAG and API to power GenAI Apps

H2O EvalStudio

Evaluation-led building of LLM-powered Applications

Open Source H2O EvalGPT

Evaluate LLMs for public and private benchmarks

LLM-Based Evaluation

Interpretability

Prompt/Context and
Document Embedding

↓

Dimensionality Reduction
and Clustering

↓

Cluster/Topic
Summarization

↓

Input-Output
Visualization

Outcome Analysis: Cluster Eval

Stratified Sampling

Auto Prompt Generation

Prompt Perturbation

- Invariance
- Adversarial

Weakness Detection

- Weak clusters/topics

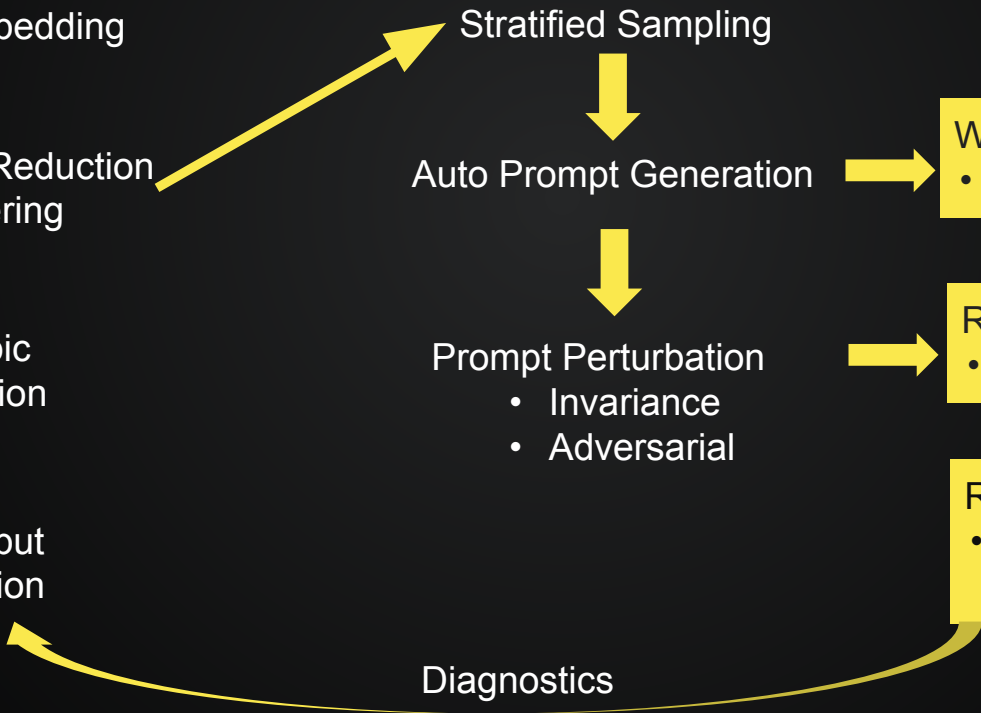
Robustness

- Performance Drop

Resilience

- Performance under
distribution shift

Diagnostics



Converging **Predictive** AI and **Generative** AI

H2O Agents

Converging Predictive AI and Generative AI

H2O Document AI

Prompt powered AI for Documents

H2O Label Genie

ETL for GenAI

H2O Document Diff

Document Difference Engine powered by GenAI

Costs of AI

Training

Inference Costs

vLLM

Data

Labeling,

Synthetic

Feedback

Our view on AGI -

**The making of the world's most powerful AI will be
Open Source and community led**

Data *sanskrit. plural of datum.*
to give.
to impact with energy.
mineral rich in energy.

AI will usher in abundance

AI **will usher in** abundance

abundance **of time**

abundance **of space**

outer space, inner space

abundance **of matter & energy**

With great powers, comes great...
Responsible AI.

**Long time ago, there once were -
Virus, Wars and Superstitions**

**Long time ago, there once were -
Virus, Wars and Fake News**

AI can make a difference.

We can make a difference.



AI for Good

AI for Climate Change

AI to Protect WildLife and Pets

AI To Manage Pandemic Supply Chain

AI to Model WildFire Behaviors

AI to Predict Hurricanes

AI for H2O (Water)

AI to Democratize Health

AI to Educate and Upskill our Public Services

Responsible AI and Fairness

O₂ FOR INDIA



AI to predict Hurricanes

AI to fight Climate Change



AI to democratize health

our generation's revolution.

busy being born and busy dying.

- Bob Dylan

this will be fun!

Gratitude

BC is Before Covid

11 OF THE TOP GLOBAL BANKS

Partner with H2O.ai

Bank of America
Merrill Lynch

citi

FRANKLIN TEMPLETON
INVESTMENTS

WELLS
FARGO

Goldman
Sachs

Commonwealth Bank

BNY MELLON

bradesco

iSBANK

AKBANK

HDFC BANK

Fortune 1000 / Forbes 2000 Ranked



CREDIT
COMPANIES

Itaú

BANCO DO BRASIL

DISCOVER

synchrony
FINANCIAL

Santander

DAVIVIENDA

AVANT

FINANCIERA
INDEPENDENCIA

North American
BANCARD

UMB

RETAIL
BANKS

BUSINESS
SERVICES

Momentum
FINANCIAL SERVICES GROUP

CCI

Bill.com

PayPal

Zenhoren

금융보안원
FINANCIAL SECURITY INSTITUTE

fiserv.

Market Axess

DATA
PROVIDERS /
OTHER

Avid Acceptance

experian

OPENLANE

H2O.ai

Democratizing
AI for
20,000
Organizations

Fortune 1000

Fortune 1000 & Forbes Global 2000

Forbes Global 2000



DISCOVER



Forbes Global 2000 & Fortune Global 500



BNY MELLON



Fortune Global 500

Fortune 1000, Fortune Global 500, Forbes Global 2000







Fortune 1000

				 <small>Nippon Life Insurance Company</small>								 Reliance Industries Limited		 bradesco		 Itaú	
 BNY MELLON		 FRANKLIN TEMPLETON		 Goldman Sachs		 fiserv.		 AT&T		 cisco							
 synchrony FINANCIAL				 PayPal		 DISCOVER		 P&G		 verizon		 PING AN		 Santander			
 workday.				 SYNOPSYS				 pwc		 Coca-Cola FEMSA		 pepsi		 BANCO DO BRASIL		 CREDIT SUISSE	
 INTUIT		 aes		 EQUINIX		 ebay		 Nationwide		 Microsoft		 P&G		 Unilever		 raízen	
 AMGEN		 PACIFIC LIFE				 aetna		 State Farm				 AXA		 edf		 SAMSUNG	
 Jacobs		 ADP		 Nationwide		 United Rentals		 PROGRESSIVE				 Panasonic				 LG Chem	
 CHIPOTLE MEXICAN GRILL		 macy's		 Nationwide		 ADT		 Fortune Global 500						 日本生命			
		 leidos												 HYUNDAI			

Fortune 1000

Fortune 1000 &
Forbes Global 2000

Forbes Global 2000

 FRANKLIN TEMPLETON		DISCOVER				 ARCACONTINENTAL			
 PACIFIC LIFE					 Solutions for human progress				
									
 					Forbes Global 2000 & Fortune Global 500				
		 BNY MELLON							
									
Fortune 1000, Fortune Global 500, Forbes Global 2000									
					 日本生命		Fortune Global 500		
									

Open Source is about freedom, not free!

The background of the slide is dark gray. It features abstract yellow-green lines that form a series of overlapping, wavy bands across the lower half of the image. These bands intersect to create a fine grid or mesh pattern. The lines are more densely packed on the left and right sides, tapering towards the center.

Raise a forest, not just a tree.

Make ecosystems



purpose needs voice

dream

Make data and AI your first-class assets

Thank You: GenAI Open Source Ecosystem

h2oGPT (Open Source GPTs need RAG)

PyMuPDF

BGE, Instructor embeddings

ragas, evalGPT.ai, hf/leaderboard, llm-eval

hnswlib, Milvus, Chroma

LangChain, LlamaIndex, Open Interpreter

vLLMs, tgi-0.9

HuggingFace, H2O LLMStudio, GGUF, AWQ, Gradio

Alpaca LoRA, llama.cpp, AutoGPTQ, hf/TheBloke

OpenAssistant

LLama2, Falcon, Mistral, GPT3, Eleuther, BigScience

Pytorch, DeepSpeed

“Attention is All You Need” team and Transformers

CUDA, RocM

Python, Go, Rust, K8s, Clouds

others I might have missed

@ylecun

@ Dr. Ebtesam Almazrouei

@tloen/alpaca-lora @ecjwg

ETL for LLMs

H2O Data Studio

Label Genie powered by LLMs

Hydrogen Torch

Labeling as a Service

Evaluation led LLM Development

evalGPT.ai

ragas, retrieval

Evaluation as a Service

Eval Studio

Costs of AI

Training

Inference Costs

vLLM

Data

Labeling,

Synthetic

Feedback

When Generation is abundant
Curation becomes valuable

AI to curate AI

AI to do AI

customer is the moat.

Co-creation

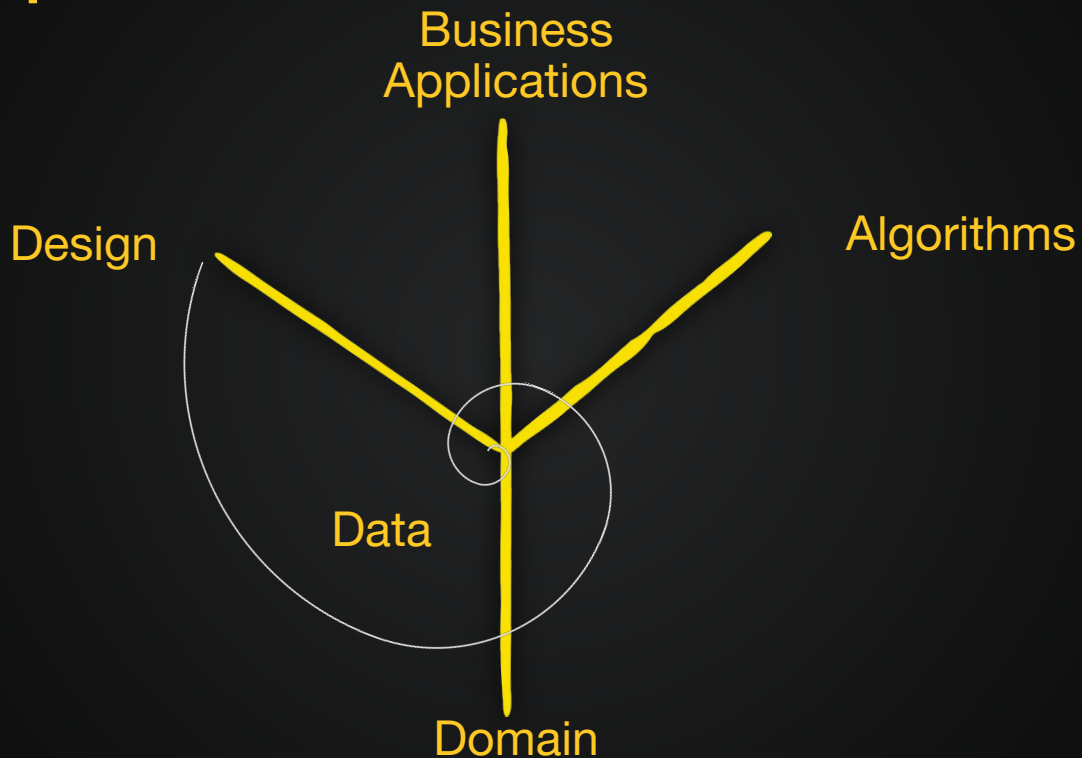
Gov GenAI App Store

Feature Story

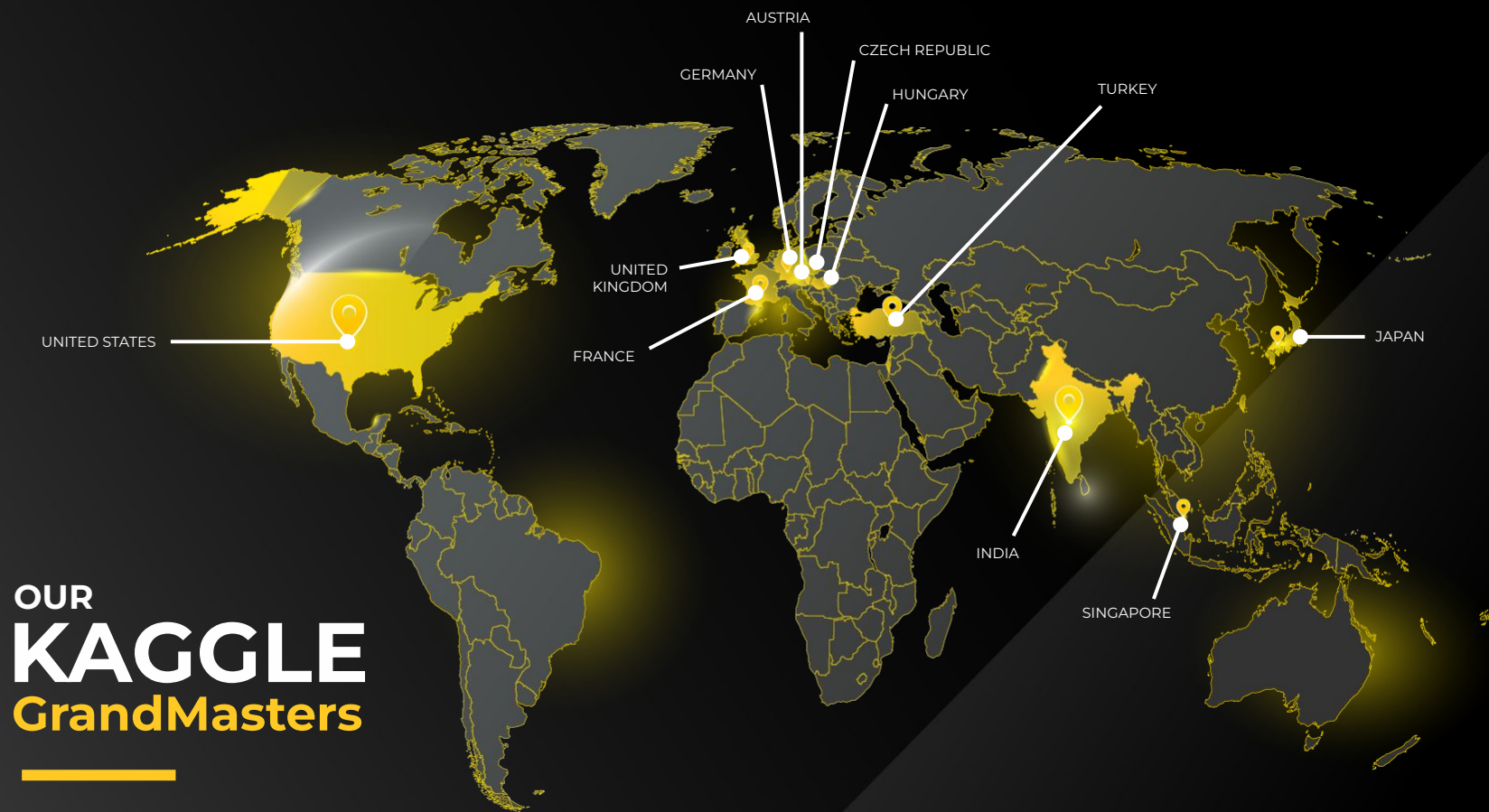


Feature Store

Data is a Team Sport



Teamwork makes the Dream Work



Data is the new `/* code */`

Kaggle LLM Science Exam

Kaggle LLM Science Exam

H2O LLM Studio

H2O Data Studio

Hydrogen Torch

Driverless AI

Document AI

LLMOps and MLOps

RAG + Gen AI Use cases

Customer Experience, Contact Centers

Document Processing

Generating Marketing

Generating Code and Apps

Procurement, RFPs, Contracts, Inventory

Portfolio Recommendation (Earnings Calls)

Custom GPTs

Meeting Summaries, Tumor Board Summary

Multi-modal, Speech

Document Extraction, ETL for LLMs

Labeling, Translation

Ask Data. BI.

Gen AI App Store powered by LLMs

AI for ALL

AI for Sales People
 AI for Investors
 AI for Manufacturers
 AI for Retailers
 AI for Hospitals
 AI for Transportation
 AI for Urban Planning
 AI for Financial Services
 AI for Real Estates
 AI for Energy
 AI for Tourism
 AI for Hospitality
 AI for Oil and Gas
 AI for Nature
 AI for Future
 AI for Good

Categories


- All (120)
- AI for Good (4)
- App Development (9)
- Computer Vision (4)
- Exploratory Data Analysis (3)
- Explainable AI (11)
- Federal Government
- Financial Services (8)
- Forecasting (4)
- Generative AI (10)
- H2O Tools (15)
- Healthcare (15)
- Machine Learning (22)
- Manufacturing (3)
- Marketing (6)
- Natural Language Processing...
- Retail (3)
- Telecom (1)
- Unsupervised Learning (3)
- Other (40)


What do you want to search?

Category	App Name	Description
Government	Scam Shield	LLM based Scam Prevention Service
Governments	Virtual Advisor	LLM based conversation support services
Governments	Blueprint Designer	LLM based design and construction
Tourism	Tour Personalization	LLM based travel and tour recommendations
Tourism	Language Assist	LLM based multilingual assistance
Governments	Waste Management	GenAI based waste optimization
Transportation	Dynamic Road Tax	Services to provide route recommendations
Manufacturing	Green Builder	LLMs for Carbon reduction plans
Hospitals	Healthcare AI	Best public health advice using GenAI
Hospitals	Disease Advice	LLMs for patient care and disease advice
Real Estate	Tenancy Screener	LLM for person risk profiling
Security	Edge Surveillance	Local LLMs in drones for intelligent Surveillance

AI for ALL

AI for Sales People
 AI for Investors
 AI for Manufacturers
 AI for Retailers
 AI for Hospitals
 AI for Transportation
 AI for Urban Planning
 AI for Financial Services
 AI for Real Estates
 AI for Energy
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 AI for Hospitality
 AI for Oil and Gas
 AI for Nature
 AI for Future
 AI for Good


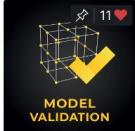
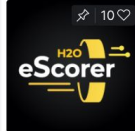
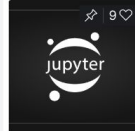
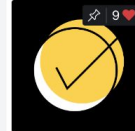


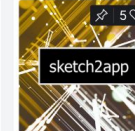

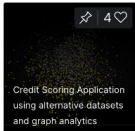

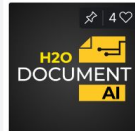

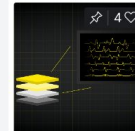

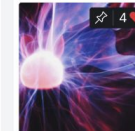
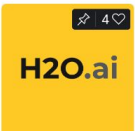


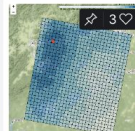
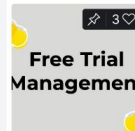

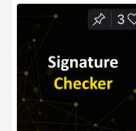
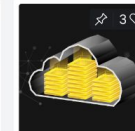


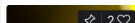






[HOME](#)
[APP STORE](#)
[MY APPS](#)
[MY INSTANCES](#)
[MY AI ENGINES](#)
[MY AI ENGINES LEGACY](#)
[MY MODELS](#)
[FEATURE STORE](#)


[shivam.bansal@h2o.ai](#)
 User | US East

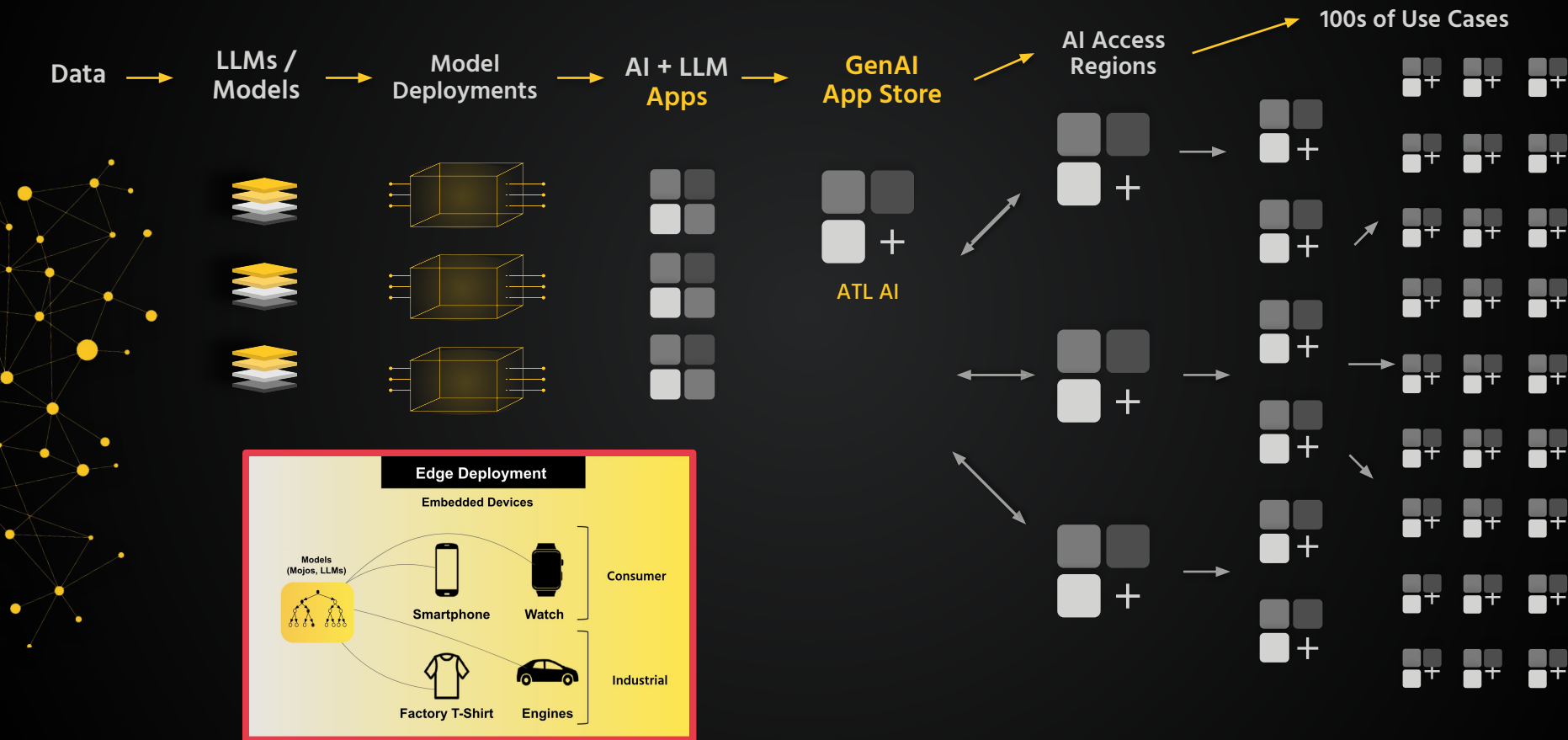
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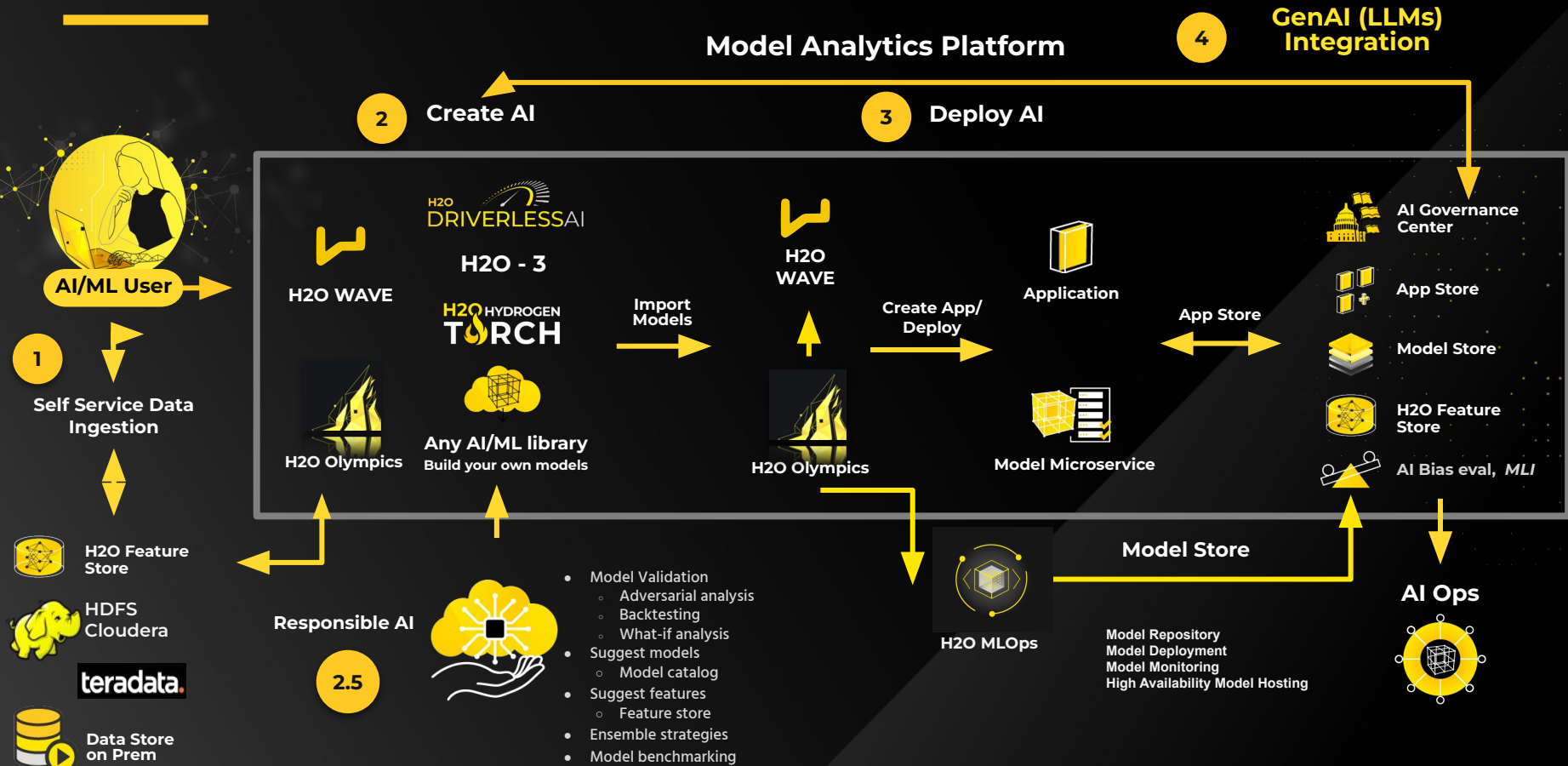
All Apps (120)

 H2O Hydrogen Torch <small>H2O.ai Supported</small>	 H2O Model Validation <small>H2O.ai Supported</small>	 H2O eScorer	 H2O AI Notebooks <small>Preview</small>	 H2O LLM DataStudio (alpha)	 Admin Analytics <small>H2O.ai Supported</small>	 H2O Model Analyzer <small>Preview</small>	 sketch2app: Convert Sketches to Apps
 Admin Center <small>H2O.ai Supported</small>	 Alternative Credit Scoring (With Graphs)	 Customer Insights	 Document AI Publisher	 Electricity Load Forecasting	 H2O Model Monitoring <small>H2O.ai Supported</small>	 H2O Voxpad	 Helium
 KYC AI Prototype	 Transaction Fraud Detection	 Credit Card Risk	 Flooding Prediction	 Free Trial Management	 H2O AutoInsights <small>Preview</small>	 Signature Checker	 H2O Drive <small>H2O.ai Supported</small>
 H2O.ai	 Transaction Fraud Detection	 Credit Card Risk	 Flooding Prediction	 Free Trial Management	 H2O AutoInsights <small>Preview</small>	 Signature Checker	 H2O Drive <small>H2O.ai Supported</small>

Scaling the AI & GenAI for 100s of Use Cases



AlaaS Ecosystem with H2O.AI at AT&T



Customer and Community
Love is the greatest force in nature.

From Data Science to Strategy Science

Silence

The quieter you become the more we can hear

Ram Dass

listen



silent

universal



individual

**you can do anything you set
your mind to.
eminem.**

Courage

whose world is this?



Transform

manager to a leader

caterpillar to a butterfly!

<https://www.youtube.com/watch?v=ahY62u62Uw8>

Rise of Data Scientist

From Data to Strategy Science

CDAO now works closely with CEO

Intelligence is the Edge

Every Company needs to be an AI Company

The background of the slide is dark blue. It features abstract yellow-green lines that form a series of overlapping, wavy bands across the lower half of the image. These bands intersect to create a fine grid or mesh pattern. The lines are more densely packed in some areas, creating a sense of depth and movement.

Every Nation needs to be an AI Nation

**The only wisdom we can hope to acquire
Is the wisdom of humility: humility is endless**
TS Eliot said that.

**You can be in my dream
If I can be in yours.
Bob Dylan said that.**

**You can be in my selfie
If I can be in yours.**

Gratitude

Wish you Well -

this will be fun!

THANK YOU!

