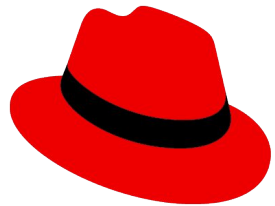


Red Hat  
**Summit**

**Connect**

# Why you want your AI to be Open Source

Business Track FSI - Financial Services and Insurances



**Red Hat**

# Armin Warda

EMEA FSI Chief Technologist  
Red Hat



# Why is NOW a good time for companies to invest in AI?

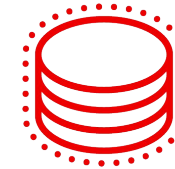
Enterprises are taking the AI leap



AI technologies are becoming **more accessible and affordable** for businesses of all sizes



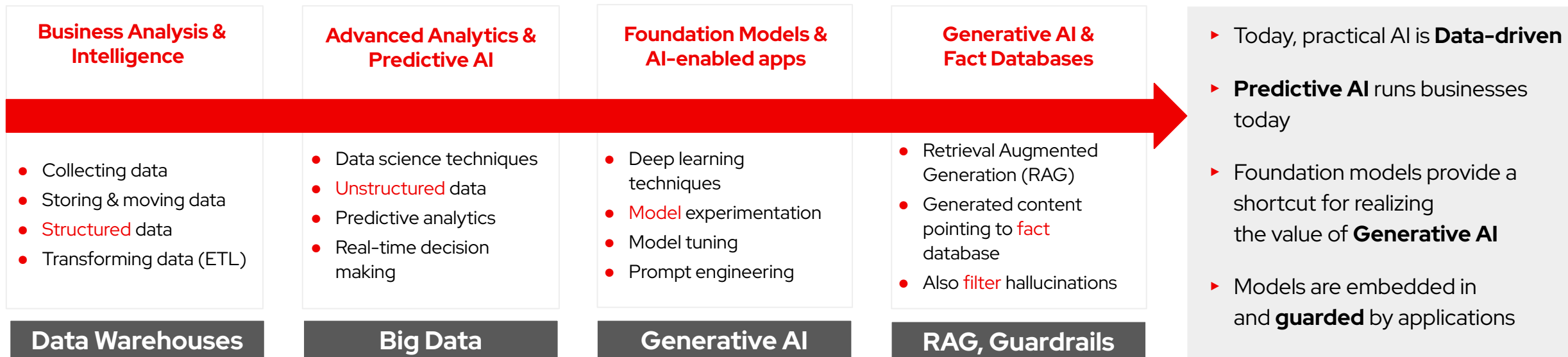
Companies can **realize the value** from AI-enabled applications and AI-support



Organizations are better prepared to manage, transform and **use their ever-increasing data**

# AI has undergone significant evolution

The evolution of **Data-driven** AI: from Business Intelligence to Generative AI

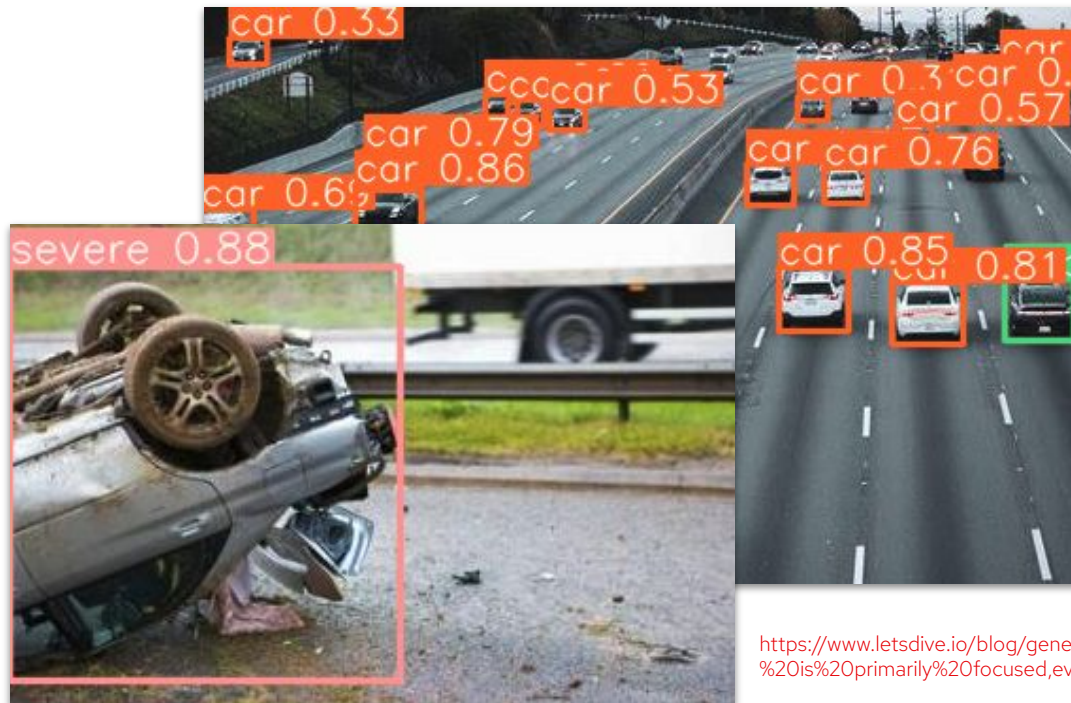


# Predictive AI vs. Generative AI

Most common types of AI for business applications

## Predictive AI

Predicts or classifies outcomes with models trained on use-case specific data sources



## Generative AI

Generates new content with models trained on vast amounts of data from many sources

**S** I am preparing for a behavioral interview for a marketing role. Can you generate some sample questions about my ability to create and execute successful marketing campaigns? I have experience conducting market research, developing marketing strategies, and analyzing the results of campaigns. Can you also include questions about my creativity and ability to come up with new ideas?"

**G** Sure! Here are some sample behavioral interview questions about your ability to create and execute successful marketing campaigns:

1. Can you describe a time when you had to develop and implement a marketing campaign from start to finish? What was the campaign for, and what were the results?
2. How do you go about conducting market research when planning a marketing campaign? What tools and techniques do you use to gather information?
3. How do you determine which marketing channels will be most effective for your campaign? Can you give an example of a campaign where you had to make tough choices?
4. How do you measure the success of a marketing campaign? What metrics do you track, and how do you analyze the data to inform future campaigns?
5. Can you describe a time when you had to be creative in order to solve a challenge during a marketing campaign? How did your solution impact the campaign's success?



<https://www.letsdive.io/blog/generative-ai-vs-predictive-ai-all-you-need-to-know#:~:text=Generative%20AI%20is%20primarily%20focused,events%20based%20on%20historical%20data.>

What type of AI drives businesses today?

# Predictive AI vs. Generative AI

Most common types of AI for business applications

## Predictive AI

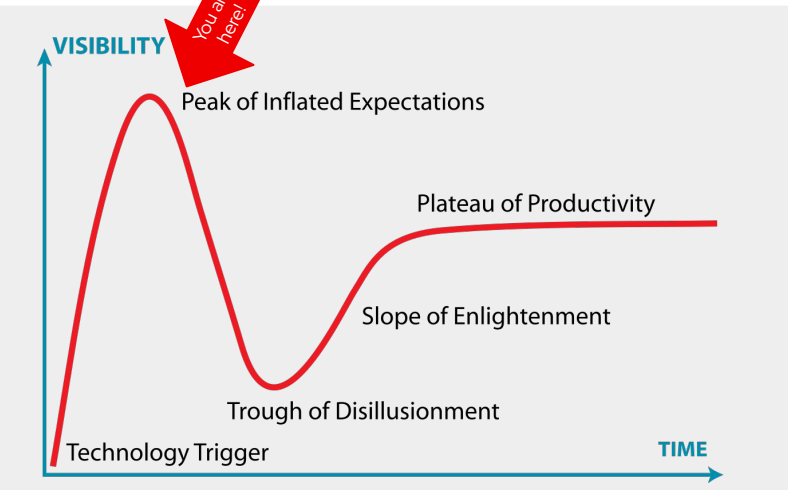
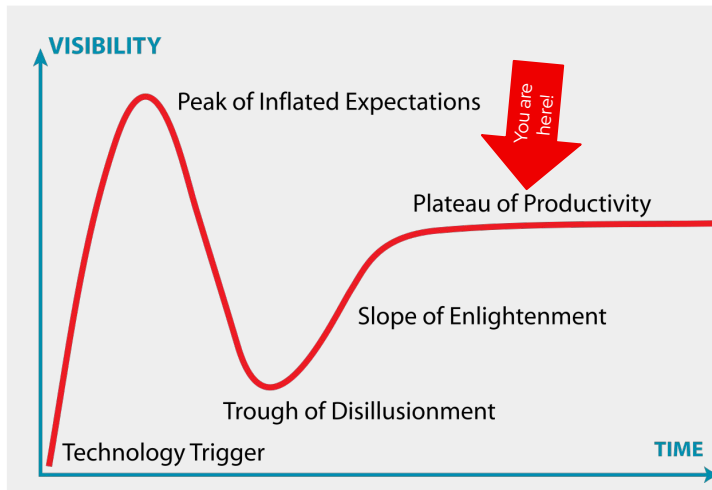
## Generative AI

Penetration

90%

10%

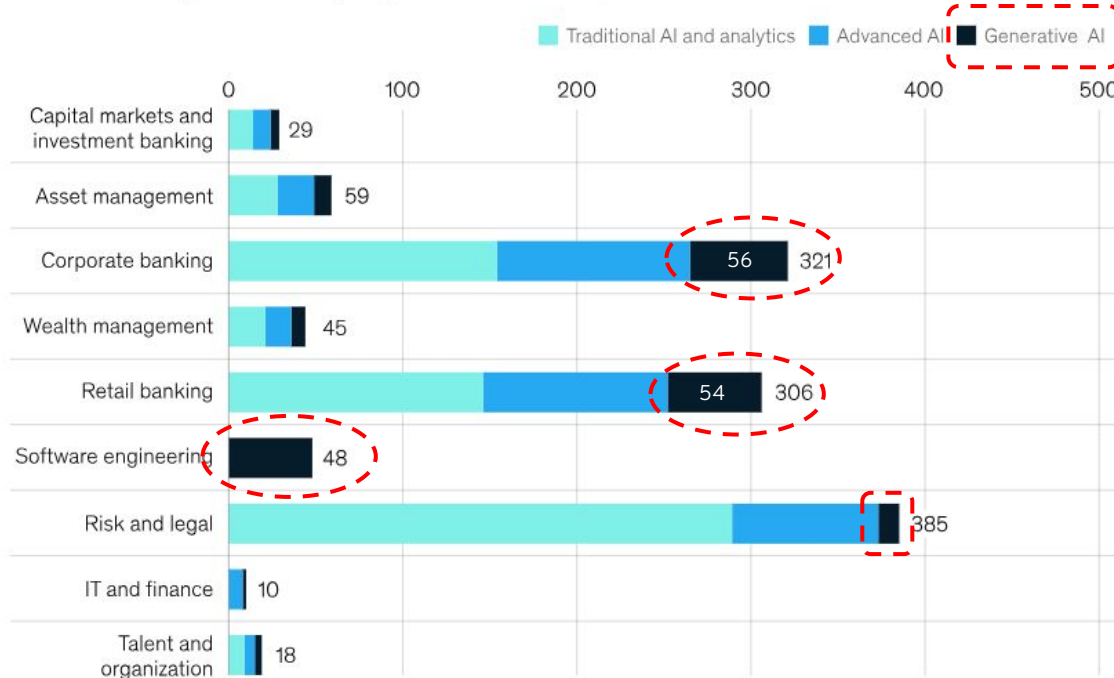
Maturity



# Predictive AI and Generative AI in banking

## McKinsey Insights: Capturing the full value of generative AI in banking

Value created by AI at stake by segment and function,<sup>1</sup> \$ billion



Among industry sectors, banking is expected to have one of the largest opportunities, largely from increased productivity

- The economic impact will likely benefit all banking segments and functions, with the greatest absolute gains through Generative AI in the **corporate** and **retail** sectors with \$56 billion and \$54 billion, respectively
- No surprise: software engineering ❤️ LLMs
- **Risk and legal** get largest value from AI, but that's mostly traditional AI

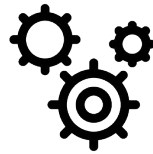
<sup>1</sup>Assumes 0% overlap of traditional AI and generative AI (generative AI assumes the lower end of value at stake), top-down estimation based on projected growth and value pools.  
Source: The economic potential of generative AI: The next productivity frontier, McKinsey Global Institute, June 2023; QuantumBlack, AI by McKinsey traditional advanced analytics and AI analysis

# Proven AI Use-Cases in Financial Services



## Fraud Management

Anomaly detection,  
Countering financial crime  
such as money laundering,  
terror financing, tax evasion



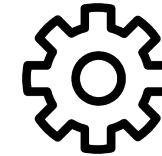
## Hyper-Personalization

Improve customer and  
employee experience,  
Customer Next Best Offer,  
Chatbots, Onboarding



## Operational Efficiency

Branch Location & Staff  
Planning, ATM Cash on  
Hand, Call Routing,  
Workflow Automation



## Risk Analytics

Automated Underwriting  
Decisions, Mortgage  
Prepayment Analytics,  
Credit Scoring





These are great AI use-cases.

But there are also challenges.

An aerial night view of a city street. The street is illuminated by streetlights, and several cars are visible. In the background, there are multi-story buildings with lit windows. A large, glowing circular logo with the text "USA TODAY" is overlaid in the bottom left corner. The logo is white with blue text. The street has a red-paved section in the middle, and there are some green plants or trees on the right side. The overall scene is a busy urban environment at night.

**USA  
TODAY**

# San Francisco

# Rage against the machine?

## A parking lot full a nuisance for a n

1.00



**Crowd burns Waymo**

▶ ⏪ 🔊 0:07 / 0:41

Crowd burns Waymo self-driving vehicle in San F

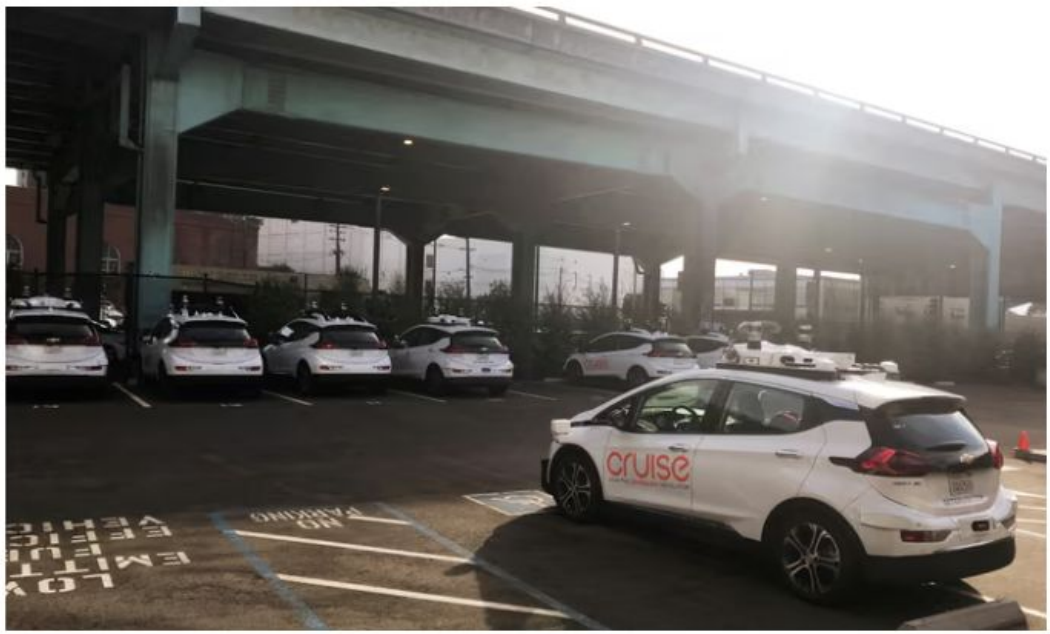
CNBC Television 2.64M subscribers

**Self-driving cars**

This article is more than 3 months old

### Cruise recalls all self-driving cars after grisly accident and California ban

All 950 of the General Motors subsidiary's autonomous cars will be taken off roads for a software update



Cruise self-driving cars outside the company's headquarters in San Francisco. Photograph: Heather Somerville/Reuters

*Associated Press*

Wed 8 Nov 2023 19:17 CET

[https://www.youtube.com/watch?v=9kn9yu\\_Cqfc](https://www.youtube.com/watch?v=9kn9yu_Cqfc)  
<https://www.bbc.com/news/videos/c17qqverq99o>  
<https://www.theguardian.com/technology/2023/nov/08/cruise-recall-self-driving-cars-gm>

# Regulating AI: The EU-AI Act (March 13)



Unregulated, irresponsible or abusive use of AI could lead to negative consequences for individuals or the society, create public opposition and **hinder AI innovation in the EU.**

**The EU is committed to strive for a balanced approach to AI**

- **Lawful** → accurateness
- **Ethical** → transparency
- **Robust** → fairness
- no (unintended) bias
- security

## EU AI Act Requirements:

Explainability, Documentation, Process & Data Governance, Human Oversight, Risk Management, Auditability.

There are some exceptions for AI systems released under **Open Source** licenses.

## High Risk

Most regulated AI systems, as these have the potential to cause significant harm if they fail or are misused, e.g. if used in law enforcement or recruiting.

## Minimal Risk

All other AI systems, e.g. a spam filter, which can be deployed without additional restrictions.

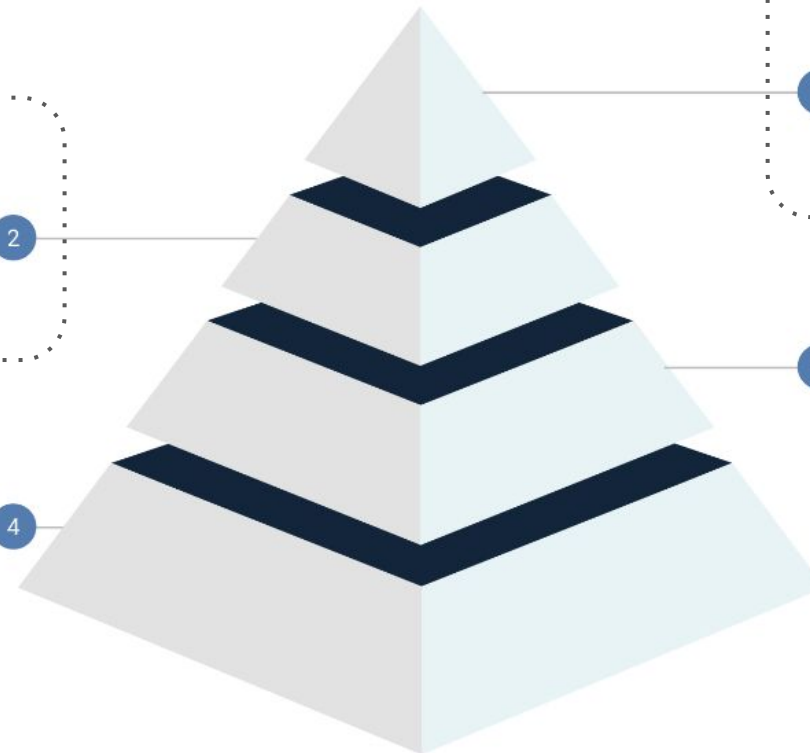
**banned:**

## Unacceptable Risk

Highest level of risk prohibited in the EU. Includes AI systems using e.g. subliminal manipulation or general social scoring.

## Limited Risk

Includes AI systems with a risk of manipulation or deceit, e.g. chatbots or emotion recognition systems. Humans must be informed about their interaction with the AI.



Open Source **Software**



Open Source **Hardware**



Open Source **AI/ML Models**



# How open are today's "Open Source" Models?

Open Source Software	Today's "Open Source" LLMs
Frequent releases (sometimes nightly)	<b>Irregular</b> releases (e.g. 1y between LLaMA versions)
Incremental contributions	<b>Monolithic</b> development
Feature roadmaps	" <b>Emergent</b> behaviour", no one knows what's coming
Community contributions (pull requests)	Largely <b>single-party</b> development (expensive collection of training data)
Contributions from many contributors can be merged and reconciled	Contributions to model, in the form of fine-tuning, are mutually incompatible between contributors, leading to <b>fragmentation</b> in model families (forks)
Almost any developer can, in principle, contribute	High <b>barrier</b> to contribution (clusters, GPUs for fine-tuning)

# Openwashing?



☰ Openwashing 🗺️ 1 language

Article Talk Tools

From Wikipedia, the free encyclopedia

**Openwashing** or open washing (a **compound word** modeled on “**whitewash**” and derived from “**greenwashing**”) is a term to describe presenting something as **open**, when it is not actually open. In the context of openwashing, ‘open’ refers to transparency, access to information, participation, and knowledge sharing.<sup>[1]</sup>

**Usage** [edit]

The term was coined by Michelle Thorne, an Internet and climate policy scholar,

## Rethinking open source generative AI: open-washing and the EU AI Act

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Mark Dingemanse\*  
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Nijmegen, The Netherlands

### ABSTRACT

The past year has seen a steep rise in generative AI systems that claim to be open. But how open are they really? The question of what counts as open source in generative AI is poised to take on particular importance in light of the upcoming EU AI Act that regulates open source systems differently, creating an urgent need for practical openness assessment. Here we use an evidence-based framework that distinguishes 14 dimensions of openness, from training datasets to scientific and technical documentation and from licensing to access methods. Surveying over 45 generative AI systems (both text and text-to-image), we find that while the term open source is widely used, many models are ‘open weight’ at best and many providers seek to evade scientific, legal and regulatory scrutiny by withholding information on training and fine-tuning

*Janeiro, Brazil. ACM, New York, NY, USA, 14 pages. <https://doi.org/10.1145/3630106.3659005>*

### 1 INTRODUCTION

Open generative AI systems are on the rise, with small players and academic initiatives leading the way in open innovation and scientific documentation [20, 32, 61] and several larger corporations joining the fray by releasing models billed as ‘open’. But there are three critical challenges to openness in the domain of generative AI systems. The first is that openness is not a binary feature: today’s transformer-based system architectures and their training procedures are complex, and they can only be classified into open or closed at the price of severe information loss. Secondly, some

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89	641	668	695	722	749	776	803	830	857	884	911	938	965	992	1019	1046	1073	1100	1127	1154	1181	1208	1687	1714	1716	1743	1770	1797	1824	1851	1878	1905	1932	1959		
15	667	694	721	748	775	802	829	856	883	910	937	964	991	1018	1045	1072	1099	1126	1153	1180	1207	1234	1688	1715	1717	1744	1771	1798	1825	1852	1879	1906	1933	1960		
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# An open source **community** project for GenAI model development

instructlab

Overview Repositories 7 Discussions Projects 1 Packages People 21



InstructLab

Unfollow

README.md

## Welcome to the 🐶 InstructLab Project



InstructLab 🐶 uses a novel synthetic data-based alignment tuning method for Large Language Models (LLMs.) The "lab" in InstructLab 🐶 stands for [Large-Scale Alignment for ChatBots](#) [1].

[1] Shivchander Sudalairaj\*, Abhishek Bhandwaladar\*, Aldo Pareja\*, Kai Xu, David D. Cox, Akash Srivastava\*. "LAB: Large-Scale Alignment for ChatBots", arXiv preprint arXiv: 2403.01081, 2024. (\* denotes equal contributions)

### Why InstructLab

There are many projects rapidly embracing and extending permissively licensed AI models, but they are faced with three main challenges:

- Contribution to the models themselves is not possible directly. They show up as forks, which forces consumers to choose a "best-fit" model that isn't easily extensible, and the forks are expensive for model creators to maintain.
- The ability to contribute ideas is limited by a lack of AI/ML expertise. One has to learn how to fork, train, and refine models in order to see their idea move forward. This is a high barrier to entry.
- There is no direct community governance or best practice around review, curation, and distribution of forked models.

### Top discussions this past month

Discussions are for sharing announcements, creating conversation in your community, answering questions, and more.

[Start a new discussion](#)

### People



[View all](#)

### Top languages

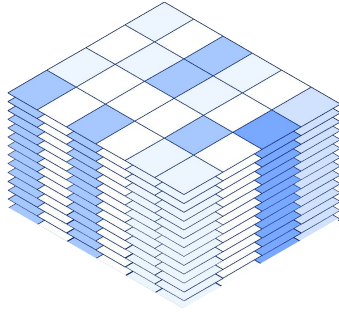
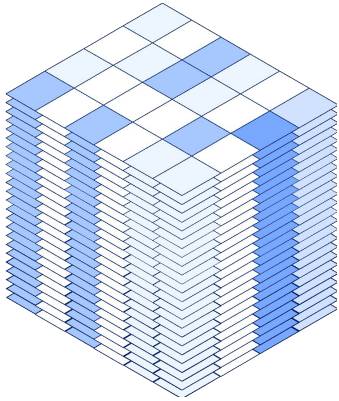
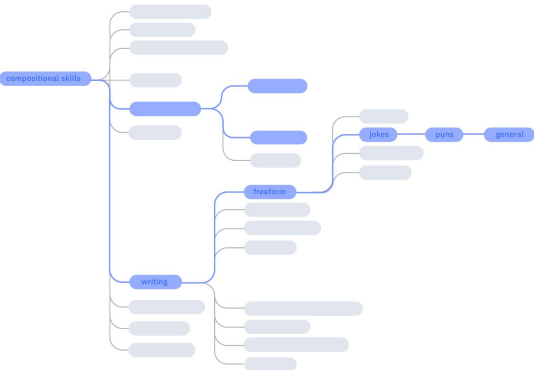
- Python
- Shell
- TypeScript
- Jupyter Notebook

[Report abuse](#)

IBM Research



# LAB (Large-scale Alignment for ChatBots) Method



## Taxonomy-based skill & knowledge representation

Represent any missing model knowledge or skills in a hierarchical **taxonomy**, providing 5+ exemplifying data points of the missing behavior per missing skill.

## Synthetic data generation with teacher model

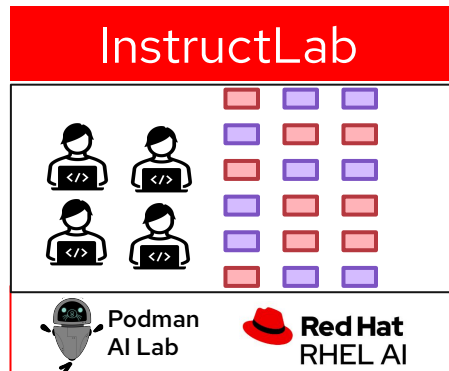
A **teacher model** generates a “curriculum” of millions of questions and answers across the taxonomy.

## Synthetic data validation with critic model

A **critic model** filters the questions for correctness and quality. Synthetic data is scanned for prohibited material.

## Skill and knowledge training on top of student model

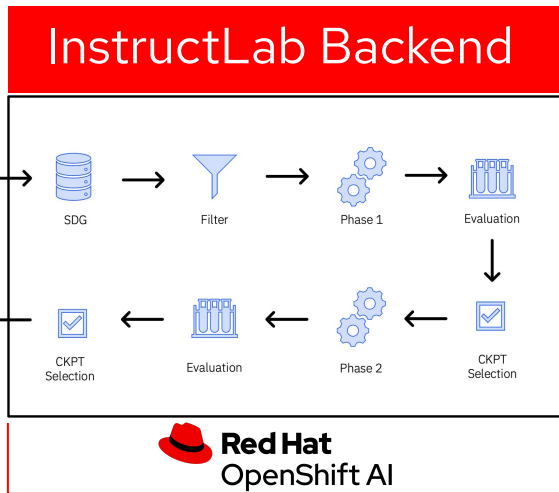
The **student model** is trained with the curriculum using a novel training approach.



Developers use CLI, Podman, VS Code, etc. to develop, test and submit skills & knowledge as pull requests (PRs)

### Triaging Tool & Workflow

- PRs are reviewed for quality and a subset is chosen for this round



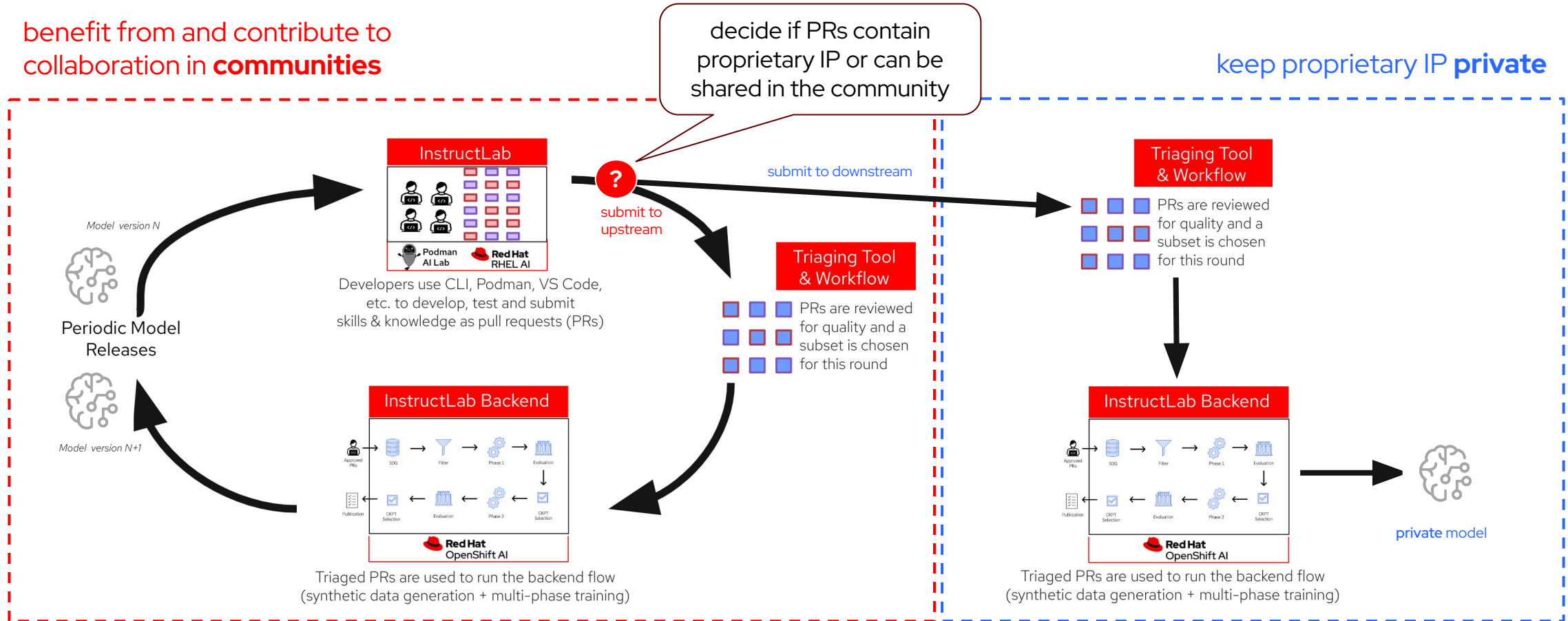
Triaged PRs are used to run the backend flow (synthetic data generation + multi-phase training)

Model version N  
Periodic Model Releases

Model version N+1

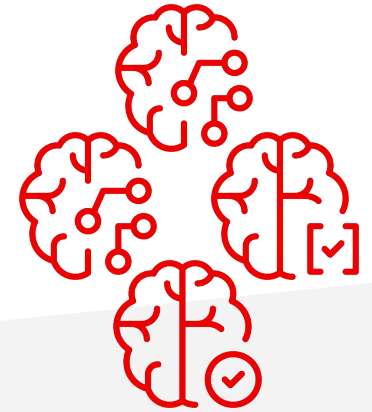
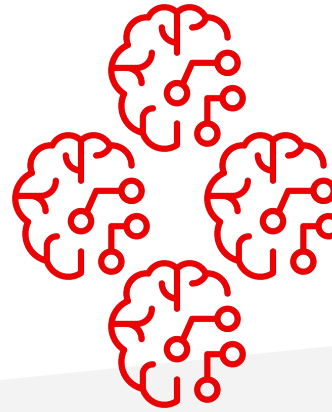
benefit from and contribute to collaboration in **communities**

keep proprietary IP **private**



Skills and knowledge that can be shared with the community are contributed upstream. These come back for free with the next version of the model, thus reducing the resources required for in-house fine-tuning of the private model, and potentially improved by other collaborators.

Proprietary skills and knowledge, that shall not be shared, are not submitted upstream but retained in-house. These have to be re-added to each new version of the upstream base model.

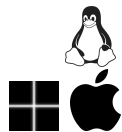


## InstructLab

### STEP 1

Learn & experiment via limited desktop-scale training method (qlora) on small datasets. *Future potential Podman Desktop integration.*

Laptop / desktop



## Red Hat Enterprise Linux AI

### STEP 2

Production-grade model training using full synthetic data generation, teacher and critic models. Tooling focused on scriptable primitives.

Server / VM



## Red Hat OpenShift AI

### STEP 3

Production-grade model training as in RHEL AI, using full power of Kubernetes scaling, automation and MLOps services.

Cluster

## watsonx

### STEP 4

Comprehensive AI solution including AI optimized infrastructure, runtimes, middleware, data services, **governance** and applications.

Cluster

# Why you want your AI to be Open Source



## Innovate with Open Source

- Proven **Predictive-AI** use-cases with Open Source can provide faster time-to-business value,
- Open Source & Open Research is where **Innovation** in **Generative-AI** happens,
- Open Source **avoids Lock-Ins** to hyperscalers or HW vendors.

## But there are challenges

- Open Source provides better **Transparency** and **Auditability**,
- the **EU AI-Act** regulation is a bit lighter on Open Source,
- **Collaboration** on AI model development can solve common challenges faster, while allowing to keep unique IP private.

## Red Hat can help

- We have the capabilities and **partnerships** to help speed-up your AI initiatives,
- allowing **faster** delivery of intelligent software applications,
- providing faster time-to-business value
- and to **control** the risks.

Red Hat  
**Summit**

**Connect**

Thank you



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