LF AI Updates

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Open source dominates AI

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222 projects
1.2+M GitHub Stars
425+M LoC
30+K developers

127 founding orgs

9 universities

10 licenses

Help us improve the landscape:
https://github.com/lfai/lfai-landscape/

China holds the second largest number of open source AI projects
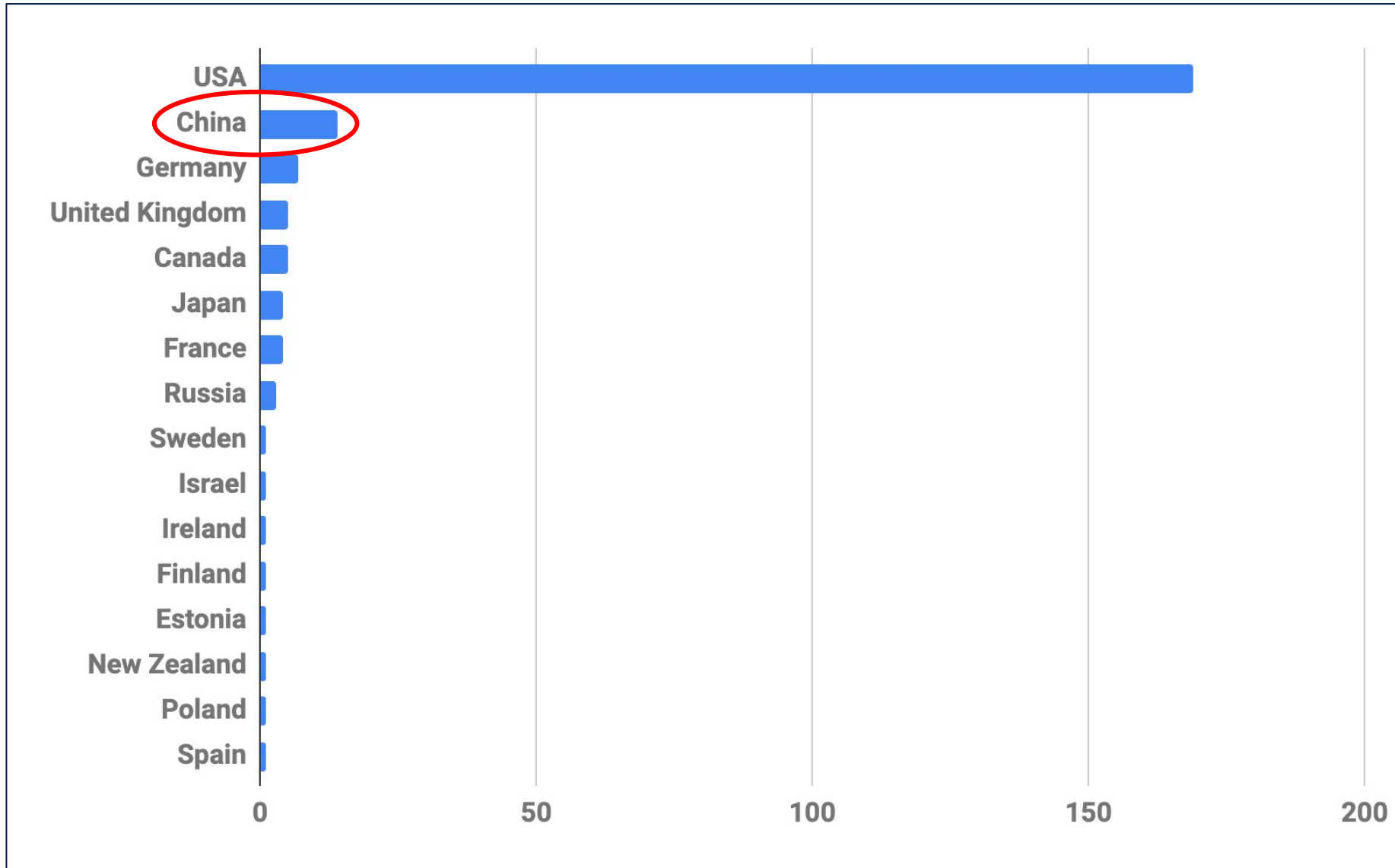
Open source AI Projects founded in China

AdvBox
AdvBox ⭐ 665
Baidu · MCap: $40.32B

Alink
Alink ⭐ 1,744
Alibaba Group · MCap: $528.78B

Cyclone
Cyclone ⭐ 845
Caicloud · Funding: $7.3M

FedAI Ecosystem
FATE ⭐ 1,191
WeBank · Funding: $182.79M

GNES Generic Neural Elastic Search
Generic Neural Elastic Search (GNES) ⭐ 922
Tencent Holdings · MCap: $419.33B

Kashgari
Kashgari ⭐ 1,297
Kashgari Open Source Project

Milvus
Milvus ⭐ 2,292
ZILLIZ · Funding: $10M

ncnn
ncnn ⭐ 7,830
Tencent Holdings · MCap: $419.33B

PaddlePaddle 飞桨
PaddlePaddle ⭐ 10,418
Baidu · MCap: $40.32B

SQLFlow
SQLFlow ⭐ 3,424
Alibaba Group · MCap: $528.78B

VEARCH
VEARCH ⭐ 398
JD.com · MCap: $55.47B

VOLCANO Kubernetes Native Batch System
Volcano ⭐ 674
Huawei Technologies

阿里巴巴 Alibaba.com X-DeepLearning
X-DeepLearning ⭐ 3,097
Alibaba Group · MCap: $528.78B

xLearn
xLearn ⭐ 2,582
xLearn Open Source Project

ADLIK
Adlik ⭐ 31
LF Artificial Intelligence Foundation

ADLIK
Adlik ⭐ 31
LF Artificial Intelligence Foundation

Angel
Angel-ML ⭐ 5,512
LF Artificial Intelligence Foundation

EDL Elastic Deep Learning
Elastic Deep Learning (EDL) ⭐ 51
LF Artificial Intelligence Foundation

Hosted in LF AI

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Scheduled for TAC vote

01/16/2020

Milvus
ZILLIZ
★ 2,292
Funding: $10M

We all are aware of the advantages of open source...

Access to source code	**Ability to customize**	**Rapid development**	**Peer review**	**Improved quality and security**
Reduce dev time and TTM	**Flexible licensing model**	**Community driven innovation**	**Influence roadmap via participation**	**Transparent technical discussions**

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But, Open Source offers *unique* benefits to AI

Fairness

Methods to detect and mitigate bias in datasets and models, including bias against known protected populations

Robustness

Methods to detect alterations/tampering with datasets and models, including alterations from known adversarial attacks

Explainability

Methods to enhance understandability and interpretability by persona/roles in process of AI model outcomes/decision recommendations, incl ranking and debating results and decision options

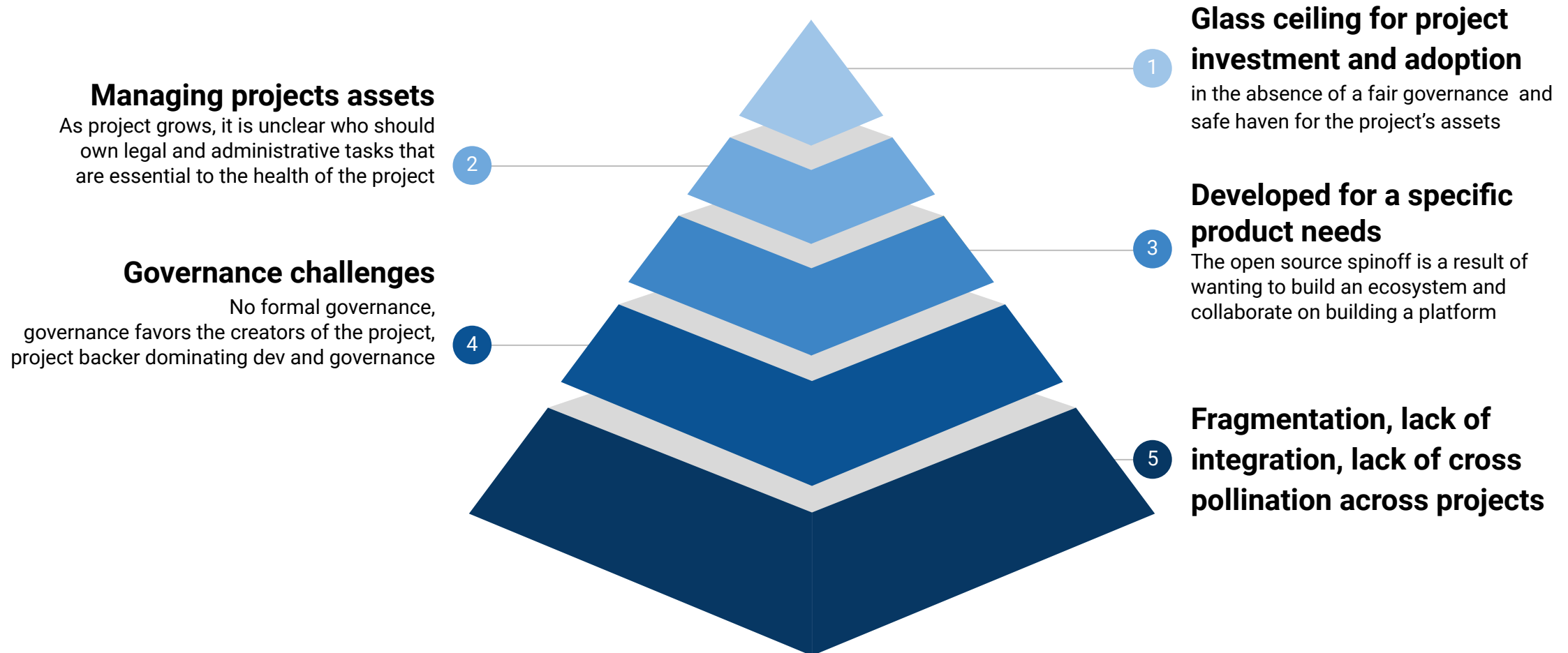## Lineage

Methods to ensure provenance of datasets and AI models, including reproducibility of generated datasets and AI models

Open Data
Methods to clean, sort, tag and track provenance and a governance structure for doing these things

Open Source AI Ecosystem - Challenges

Glass ceiling for project investment and adoption
in the absence of a fair governance and safe haven for the project's assets

1

Managing projects assets
As project grows, it is unclear who should own legal and administrative tasks that are essential to the health of the project

2

Developed for a specific product needs
The open source spinoff is a result of wanting to build an ecosystem and collaborate on building a platform

3

Governance challenges
No formal governance, governance favors the creators of the project, project backer dominating dev and governance

4

Fragmentation, lack of integration, lack of cross pollination across projects

5

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How is LF AI addressing these challenges?

Neutral Environment

Provide a neutral environment and an open governance that fosters collaboration and cross-pollination across projects and communities

→

Vendor neutral
Not-for-profit
Open governance
IP clarity

Harmonization, Interoperability

Increase efforts to harmonize AI/ML/DL open source projects and reduce fragmentation; increase interoperability among technical projects

→

Technical Advisory Council
ML Workflow Committee
Cross-Foundation Collab
Integration across projects

Trusted and Responsible AI

Become the home of open source trusted and responsible AI, both at the level of technical projects and also at the level of principles and guidelines

→

Trusted AI Committee

Data, Models, Marketplace

Host open source models and provide supporting tools; publish best practices; offer a marketplace for AI/ML/DL models

→

Open source marketplace
Open source AI models

Funding and Awareness

Provide a funding model for key projects

Increase awareness via a number of marketing and outreach activities

→

Funding model
LF AI Days
LF AI Summits
Marketing services
PM services
Event services

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Our mission

Build and support an open AI community, and drive open source innovation in the AI, ML and DL domains by enabling collaboration and the creation of new opportunities for all the members of the community

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Premier

Amdocs — MCap: $9.46B / Amdocs	AT&T — MCap: $278.98B / AT&T	Baidu — MCap: $40.32B / Baidu	Ericsson — MCap: $30B / Ericsson	Huawei / Huawei Technologies
Nokia — MCap: $19.69B / Nokia	Tech Mahindra / Tech Mahindra	Tencent — MCap: $419.33B / Tencent Holdings	Zilliz — Funding: $10M / ZILLIZ	ZTE / ZTE

General

B.Yond — Funding: $3.3M / Byond	Ciena — MCap: $5.49B / Ciena	Didi — Funding: $21.24B / Didi Chuxing	Gemini Open Cloud / Gemini Open Cloud Computing	IBM — MCap: $119.64B / IBM
inwinSTACK / inwinSTACK	Orange — MCap: $39.26B / Orange	Red Hat — MCap: $119.64B / Red Hat	RStudio / RStudio	SyLabs / Sylabs

Associate

Institute of Ethical AI and Machine Learning / The Institute for Ethical AI & Machine Learning	New York University — Funding: $5M / New York University

50%

of LF AI governing board members are based in China

LF AI hosted projects

Graduated LFAI Projects (3)

Acumos ⭐ 10 LF Artificial Intelligence Foundation	**Angel-ML** ⭐ 5,512 LF Artificial Intelligence Foundation	**ONNX** ⭐ 7,564 LF Artificial Intelligence Foundation

Incubating LFAI Projects (6)

Adlik ⭐ 31 LF Artificial Intelligence Foundation	**Elastic Deep Learning (EDL)** ⭐ 51 LF Artificial Intelligence Foundation	**Horovod** ⭐ 8,117 LF Artificial Intelligence Foundation	**Marquez** ⭐ 201 The We Company — Funding: $22.55B	**Pyro** ⭐ 5,829 LF Artificial Intelligence Foundation	**Sparklyr** ⭐ 707 RStudio

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33%

of LF AI hosted projects originated from China

Value Proposition to Projects

01 Governance Structure	**02** Membership Management	**03** IP Management	**04** Hosting Infrastructure
05 Ecosystem Development	**06** Critical Mass at Launch	**07** Marketing Platform	**08** Awareness and Reach
09 Project Guidance	**10** Events Support	**11** Trademark Support	**12** Independent Neutral Home
13 Funding Model	**14** Compliance Scans	**15** CLA Management	**16** Creative Services
17 Dedicated Staff	**18** Validation from a trusted source	**19** Collaboration opp with other projects	

https://lfai.foundation/blog/2019/10/10/a-guide-to-hosting-your-project-in-lf-ai/

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ML Workflow Committee

Participants

› Amdocs
› GOC
› IBM
› IFC
› ITU
› Orange
› Seldon
› Siomtics
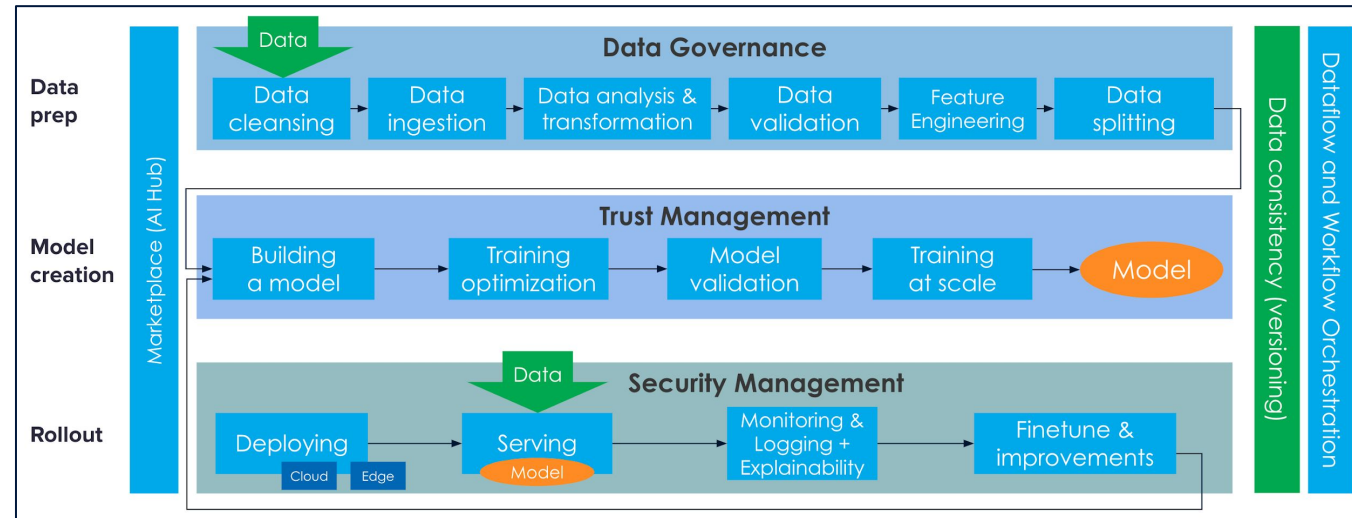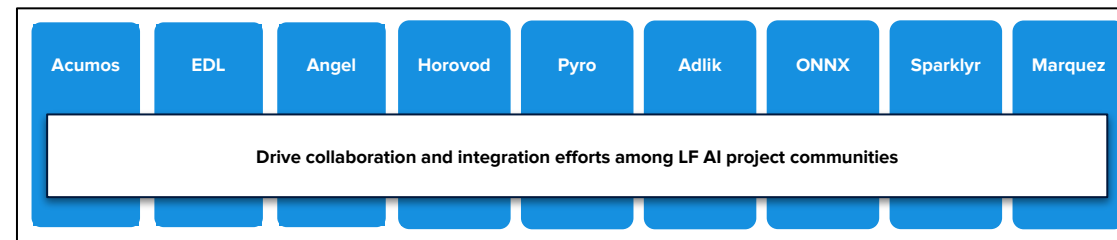› SyLabs.io
› TechM
› Tencent
› Verizon
› WBG

Anyone can participate.

Scope

1. Provide a reference ML workflow architecture and implementation

2. Increase interoperability and integration across technical projects

https://wiki.lfai.foundation/display/DL/ML+Workflow+Committee

Trusted AI Committee

Participants

- › Amdocs
- › ATT
- › Ericsson
- › ETL
- › Huawei
- › IBM
- › Orange
- › TechM
- › Tencent

Open to members.

Scope

1. Define policies, guidelines, tooling and use cases by industry to create responsible and trusted AI
2. Create a badging process for open source projects that meet the Trusted AI policies/guidelines as defined by LF AI

Two main efforts:

1. Principles: Define ethics, guidelines and principles for Trusted AI
2. Use Cases: Define and implement trusted AI use cases within different AI projects and industry domains

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https://wiki.lfai.foundation/display/DL/Trusted+AI+Committee

What have we done in 2019?

- Established LF AI as an umbrella foundation with all the required elements to operate efficiently and to scale

- Rebranded, gained visibility and recognition through a series of events, conferences talks, and dozens of talks delivered by active participants in LF AI and the ED (13 events)

- Welcomed 6 new projects including ONNX

- Re-engaged members in existing efforts; recruited new members

- Launched ML Workflow and Trusted AI that proved to be a great value ad

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What are our plans for 2020?

- Increase collaboration across hosted projects towards an integrated stack

- Recruit projects to fill in the gaps (goal: implement an end-to-end workflow)

- Establish LF AI as major player in the Trusted AI space

  - Ethics is highly critical and there is a need for "neutral" set of tooling that will verify fairness, robustness, lineage and explainability of algorithms, models and data

- Grow membership to enable our mission in supporting, funding and sustaining critical open source AI projects

- Create value specific to target business challenges / domain specific

Call to action

1. Actively participate in: Board, Outreach, TAC, ML Workflow, Trusted AI, etc.

2. Nominate yourselves for leadership roles

3. Host your open source AI projects in LF AI

4. Help the foundation staff with its recruitment efforts

5. Contribute to hosted projects, support and adopt them

6. Participate in visibility and networking opportunities

7. Support collaboration across projects and umbrella foundations

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2019 was a very productive year for LF AI thanks to your participation and support.

Thank you!

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