

Machine Learning

Framework: Accord.NET, FedAI, Microsoft LightGBM, MAHOUT, ML.NET, RAY

Platform: Angel (Graduated), ForestFlow (Incubating), Alibaba Alink, Apache SystemML, Ax, cortex, H2O, Kubeflow, METAFLOW, mlflow, Orchest, PredictionIO, SELDOVA, VONPALL MARKET

Library: AutoGluon, CatBoost, Flashlight, MediaPipe, mipack, Learn, OpenCV, OpenMM, CARET, Learn, 將軍 Shogun, Sonnet, salesforce TransmogrifAI, dmlc XGBoost, xLearn

MLOps: ZenML

Deep Learning

Framework: SINGA, Chainer, Microsoft CNTK, ayinet, Alibaba Euler, MindSpore, mxnet, ncnn, 飞龙, Pythia, PyTorch, TensorFlow

Platform: Tony (Incubating), DeepDetect, Determined AI, jina, Onepanel, Polyaxon

Library: BigDL, Catalyst, DL4J, fast.ai, Keras, OpenText PySyft, PyTorch Ignite, PyTorch Lightning, PyTorch, tvn

Tool: BoTorch, Intel Distiller, ploidVIL, PyTorch BigGraph, PyTorch, tvn

Reinforcement Learning

Chainer RL, Coach, DeepMind Lab, Dopamine, Horizon, OpenAI, Google PlanNet, Google SEED RL, Stable Baselines

Programming

Pyro (Graduated), Kompute (Sandbox), DASK, Infer.NET, Numba, NumPy, NYOKA, primegrate, PyMC3, python, R, SciPy, Stan

Data

Education: DATAPRACTICES.ORG (Incubating), OpenDS4All (Incubating)

Lineage: OpenBytes (Sandbox), Open Lineage (Sandbox)

Relational DB: CouchDB, MySQL, KV

Store & Format: Milvus (Graduated), JanusGraph (Incubating), ALLUXIO, ICEBERG, ORC, ARESDB, ARROW, InfluxDB, pandas, Parquet, pilosa, VEARCH, vespa, Vineyard

Versioning: dotscience domain, DVC, Pachyderm, quilt

Operations: Amundsen (Incubating), datashim (Incubating), MARQUEZ (Incubating), SHIVE, ckan, Data Hub, snoriel, WHYLABS whylogs

Feature Engineering: FEAST (Incubating), Featuretools, tsfresh

Stream Processing: NNStreamer (Incubating), RocketMQ, beam, brooklin, Flink, fluentd, kafka, logstash, Pravega, PREFECT, PULSAR, samza, Uber uReplicator

SQL Engine: Apache DRILL, HAWQ, presto, SQLFlow, trino

Visualization: bokeh, Carbon Design System, plotly Dash, Uber deck.gl, Ecco, Google Facets, Grafana, Metabase, Prometheus, RCloud, re dash, NYU, Superset, Google TensorBoard

Pipeline Management: Intel Analytics Zoo, DAGSTER, TEKTON

Labeling & Annotation: Intel CVAT, Doccano, Labelbox, HITACHI, Labeling, Microsoft WTT

Governance: EGERIA (Graduated), COBERTA DATA LICENSE AGREEMENT

Model

Inference: ADLIX (Incubating), KServe (Incubating), CausalML, KFServing, MNN, NVIDIA TensorRT, NVIDIA, uTensor

Benchmarking: DAWN Bench, MLPerf

Training: Hologres (Graduated), Ludwig (Incubating), SUBSTRA (Incubating), Microsoft Research Learning Library, Petastorm

Parameter: HYPERSOPT, KATIB, talos

Format & Interface: ONNX (Graduated), Uber NeuroPod

Marketplace: Acumos (Graduated), Machine Learning exchange (Sandbox), IBM

Workflow: Flyte (Incubating), Kedro (Incubating), Airflow, nifi, argo, Azkaban, BENTONL, Cadence, Couler, CYCLONE, DataBolt ddtflow, Spotify luigi, mLeap, PREFECT, TRAINS, VOLCANO

Tool: Qualcomm AIMET, Facebook dtrm, FLAML, Microsoft MMON, AWS MMS, MDB, Amazon Neo-AI, NETRON, ONNX RUNTIME, PipelineAI, studio.ml, Google TensorFlow Model Analysis, AWS TorchServe, turi

Trusted & Responsible AI

AI Explainability 360 (Incubating), ALIBI, ELIS, Microsoft, UNIVERSITY OF WASHINGTON Lime, Google Lucid, SHAP, SKATER, Bolt, Treelnterpreter

Adversarial: Adversarial Robustness Toolbox (Incubating), AdvBox, bodover torch, cleverhans, UNIVERSITY OF TORONTO Foolbox

Bias & Fairness: AI Fairness 360 (Incubating), Aequitas, Audit AI, Scikit-Learn Fairness, Fairlearn

Distributed Computing

Computing & Management: EDL Elastic Deep Learning (Incubating), SOAJS (Incubating), Apache Bahir, MESOS, Apache Ranger, SPARK, STORM, GNS, NETFLIX genie, GraphScope, kubernetes, Intel Nauta, OPENSHIFT, Singularity

Interface: sparklyr (Incubating), APACHE TOREE, LOVY

The LF AI & Data landscape explores open source projects in Artificial Intelligence and Data and their sub-

LF AI & DATA Landscape

LF AI & DATA

lfaidata.foundation

Security & Privacy

Google Differential Privacy, HELIB, Microsoft SEAL, Google TensorFlow Privacy, TFEncrypted

Natural Language Processing

DELTA (Incubating), RosaeNLG (Sandbox), Google ALBERT, AllenNLP, Google Bert, NLP, mozilla DeepSpeech, fastText, flair, LUON, Kashgari, Facebook LASER, CISCO MindMeld, Intel NLP Architect, NLP, ParIAI, Facebook PyText, RASA, spaCy, Transformers, Facebook XLM, YouTokenToMe

Notebook Environment

Apache Zeppelin, BeakerX, colab, Elyra, IPython, jupyter, IBM, PolyVote, Stencila, Streamlit