

| Machine Learning | Framework | Platform | Library | Deep Learning | Framework | Platform | Library | Tool | Programming | Programming | Reinforcement Learning | | |
|------------------|---|---|---|---------------|--|--|--------------------------|-------------------------------------|-------------|----------------|------------------------|--|--------------------------------|
| | Accord.NET, Microsoft Azure ML | Angel, ForestFlow | 1ML, DeepCausality, IREE | | DeepRec, ShaderNN | BigDL, Catalyst | BeyondML | Pyro, Kompute, DASK | | PyTorch, Intel | | PyTorch | CleanRL, Coach |
| | Hugging Face CANDLE, Microsoft LightGBM | Open Platform for Enterprise AI, Alibaba Alink, Apache SystemML | Recommenders, SapientML, AutoGlue, CatBoost | | SINGA, Chainer, Microsoft CNTK, ðy/net | DL4J, fast.ai | BoTorch, Intel Distiller | Julia, MARS, Numba, NumPy, NYOKA | | pytorchvision | | pytorch | DeepMindLab, Dopamine, Horizon |
| | MAHOUT, ML.NET | Ax, cortex | Flashlight, MediaPipe | | Alibaba eulor, MindSpore, mxnet, ncnn | Keras, PyTorch Ignite, PyTorch Lightning | pLaidML, PyTorch Graph | primegrate, PyMC3, python, R, SciPy | | PyTorch | | OpenAI, Google PlanNet, Google SEED RL | |
| | RAY, ZenML | H2O, KubeFlow, METAFLOW, mlflow | mlpack, OpenCV, openen, CARET, Legend | | Pythia, PyTorch, TensorFlow | PyTorch | Stan | SKIP, Stan | | | | | |

| Data | Education | Lineage | Relational DB | Store & Format | Versioning | Operations | Feature Engineering | Stream Processing | SQL Engine | Visualization | Pipeline Management | Labeling & Annotation | Governance |
|------|--------------------------------|------------------------|---|--|-------------------------------|------------------------------------|------------------------------------|--|------------------------------|-----------------------------------|----------------------------------|------------------------------|------------|
| | DATA PRACTICES.ORG, OpenDS4All | OpenLineage, OpenBytes | CouchDB, MySQL, KV | docarray, Milvus, DELTA LAKE, JanusGraph | dolittle, DVC, Apache Commons | MARQUEZ, Amundsen | FEAST, feathr | NNStreamer, RocketMQ, beam, kafka, logstash, samza | HAWQ, presto, SQLFlow, trino | bakeh, plotly, Uber deck.gl, Ecco | Artigraph | Xtremel, intel CVAT, Doccano | EGERIA |
| | OpenData4All | OpenDataology | LakeSoul, ALLUXIO, ICEBERG, orc, AREO, ARROW, XAR | LakeSoul, ceph, Dragonfly, druid, hudi, HugeGraph, influxdb | datashim | datashim | Featuretools, ML OpenMLDS, tsfresh | Flink, fluentd, kafka, logstash, samza, PULSAR | presto, SQLFlow, trino | Google Facets, Grafana, Metabase | Analytics Zoo, DAGSTER, PIPEFLOW | Labelbox, LabelImg | Bitol |
| | | | | pandas, Parquet, pilosa, StarRocks, Valid, VEARCH, vespa, Vineyard | quilt | Mathesar, snoriel, WHYLABS whylogs | | Pravega, PREDICT, PULSAR, samza | trino | NYU, Superset, Google | Hitachi, Microsoft | Labelbox, LabelImg | Bitol |
| | | | | | | | | Uber uReplicator | | | | | |

| Model | Inference | Federated Learning | Training | Parameter | Format & Interface | Marketplace | Workflow | Benchmarking | Tool | Data |
|-------|--|--------------------|---|------------------|---------------------------|-----------------------------------|---|--------------------|---|------|
| | ADLIX, KServe | FATE, Substra | MICOVOX, LEWDIG | HYPERMART, KATIB | ONNX | Machine Learning Exchange, Acumos | Flyte, kedro, C4TME-D | DAWN Bench, MLPerf | FlagAI, Quicowa AIMET, FLAML, Microsoft MMin, AWS MMS | RWKG |
| | CaixaML, MNN, NVIDIA TensorRT, NVIDIA TensorRT | OPENFL | deepspeed, Microsoft, Petastorm, TorchRec | talos | Uber Neuronpod, Microsoft | Machine Learning Exchange, Acumos | argo, Azkaban, BENTONML, Cadence, Couler, CYCLOPS, DataBolt, kestra, Spotify luigi, mLeap, Orchest, PREFECT, TRAINS | | MDB, Amazon Neo-AI, NETRIN, ONNX RUNTIME, PipelineAI | |
| | uTensor, VLLM | | | | | IBM | | | studio.ml, Google, AWS, torchserve, turti | |
| | | | | | | | | | | |

| Distributed Computing | Computing & Management | Interface | Security & Privacy | Natural Language Processing | Notebook Environment | Trusted & Responsible AI | Explainability | Adversarial | Bias & Fairness | | |
|-----------------------|--|-----------------------------|---|-----------------------------|----------------------|--------------------------|---|-------------------------|--|---|---|
| | EDL, SOAJS, Bahir | OPEN VOICE INTEROPERABILITY | Google Differential Privacy, IBM HElib | | | | DELTA | Elyra, colab, BeakerX | AI Explainability 360, Captum | Adversarial Robustness Toolbox | AI Fairness 360, OPEN VOICE TRUSTMARK |
| | MESOS, Apache Ranger, SPARK, STORM, GNS3, NETFLIX genie, GraphScope, kubernetes, intel Nauta | sparklyr | Microsoft SEAL, Google TensorFlow Privacy | | | | RosaeNLG | IP[y]: IPython, jupyter | ELIS, Microsoft Hopsworks, UNIVERSITY OF WASHINGTON Lime | AdvBox, bodover torch | Intersectional Fairness, Aequisitas, Audit AI |
| | OPENSIFT, Singularity | | TFEnrypted | | | | intel NLP Architect, NLP, ParIAI, FACEBOOK PyTorch, RASA, spaCy | Stencilo, Streamlit | Google Lucid, SHAP, SKATER | cleverhans, UNIVERSITY OF TORONTO Foolbox | Standard University, Fairlearn |
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