PyTorch Exporter

Supported: pytorch-1.10, opset-14

- Support GRU RNNs with packed input in scripting mode
- Enhanced shape inference
- Support torch.linspace
- Support torch.new_ones
- Support torch.nn.LSTMCell
- Support torch.bernoulli export
- Support torch.distributions.normal.Normal export
- Support torch.roll export
- Support torch.dot and torch.nn.utils.spectral_norm

sklearn-onnx

- support for opset-15, scikit-learn 1.0, onnxruntime 1.9.0
- Converts 125 models from scikit-learn, support float and double.
- Converts Pipeline, ColumnTransformer, FeatureUnion
- Many options to adapt the customize the converted model Inference with onnxruntime is much faster for small batch size, faster than scikit-learn for any batch size below 10.000

tensorflow-onnx

We stopped active development on keras-onnx due to resource crunch and high cost of keeping up with changes in tensorflow. Going forward we use tf2onnx to convert keras models to onnx.

We expect little friction switching from keras-onnx to tf2onnx.

The big difference between keras-onnx and tf2onnx is that keras-onnx picks up the model at a keras level and tf2onnx picks up the model at a graph level. Because of this we might run into some shortcomings in tf2onnx to convert lstm's to the onnx lstm (conversion will work but is going to use loops)

tensorflow-onnx

Supported: opset-15 and tensorflow up to 2.6

New features:
we added support for tensorflow.js - tf2onnx can now convert tensorflow, keras, tflite and tensorflow.js models.

ONNX-TensorRT

TensorRT 8.2 EA released on 9/30

New operator support:
- Einsum, IsNan, GatherND, ScatterElements, ScatterND, Sign, Round

Updated operator support:
- Support for negative indices in Gather + GatherElements
- ND-Padding support - including reflection and edge padding modes
- Performance enhancements for If operators

ONNX-Tensorflow

ONNX-Tensorflow version 1.9.0
- Released on Aug 26
- Fully support ONNX opset 14
- Total coverage 92.97% on ONNX [backend scoreboard](#)
- Tensorflow 2.6.0
- Loading ONNX models with external data

Upcoming
- ONNX opset 15 support
- Enhance inference graph based training
- Investigate TFLite

Backend General Discussions

Support all ONNX versions (opset versions)
- Difficult to maintain code to convert all ONNX/opset versions
- Lack of test coverage for older ONNX versions with newer framework versions
- Use of ONNX version converter?
- Can we deprecate older versions?

Quality and coverage of ONNX backend tests
- Converters are depending on standard backend tests as the first checkpoint
- Robust unit tests help review, approval, and converter development
- Occasional broken tests (optional, identity sequence)
- Build a more efficient community!

Roadmap Priority

Highly relevant

- Address gaps with Opset conversions across broad set of models
- Converters improvement suggestions (tensorflow-onnx, Keras2Onnx) for better graph optimizations

Interested in

- Add meta information in tensors
- E2E pipeline with ONNX operators (include Keras, TF, Scikit-learn/Spark pipeline preprocessing flows) using single graph
- New operators for data processing to cover ML pipeline