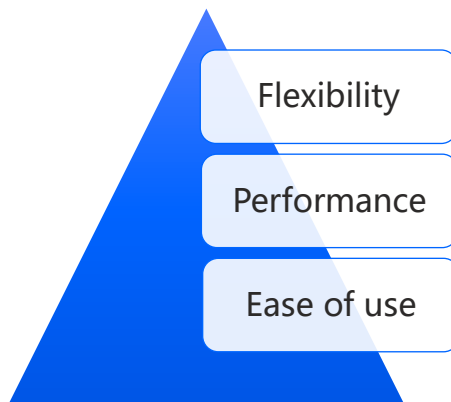


# OpenExplorer™

## A Toolkit for Horizon Robotics AI Processors

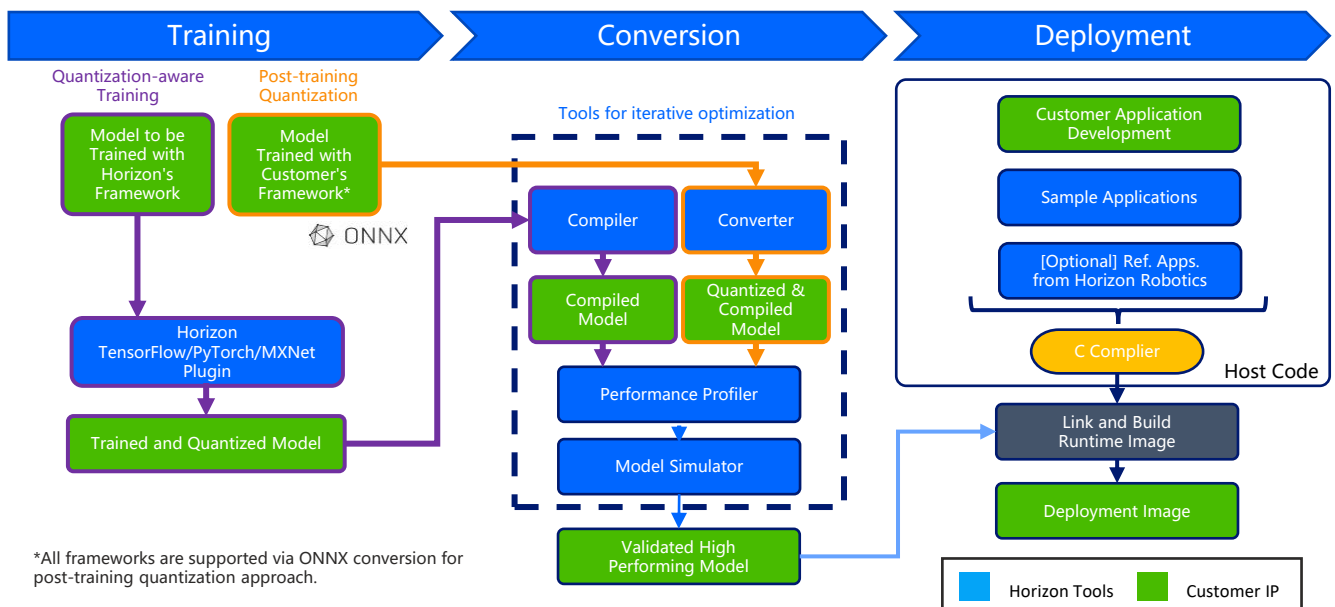
### Train, optimize and deploy your Deep Learning models for Horizon BPU engine

Horizon OpenExplorer™ toolkit empowers deep learning software developers to fully leverage the high utilization and the optimized performance-power capabilities of Journey's Brain Processing Unit™ (BPU). Built on top of Linux, this comprehensive toolkit is easy to use. With OpenExplorer, developers can train their proprietary neural networks on popular frameworks and quantize for performance without significant loss of accuracy. The OpenExplorer model optimizing compiler automatically delivers the best BPU performance for your deep learning models, ready to be deployed at the edge.



*OpenExplorer is a modern, flexible AI toolkit, enabling neural networks developers to achieve an optimal AI performance*

### OpenExplorer toolkit workflow:

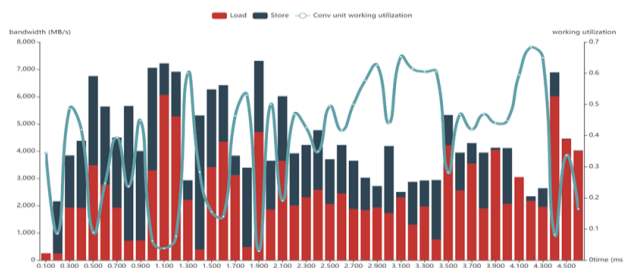


## Train:

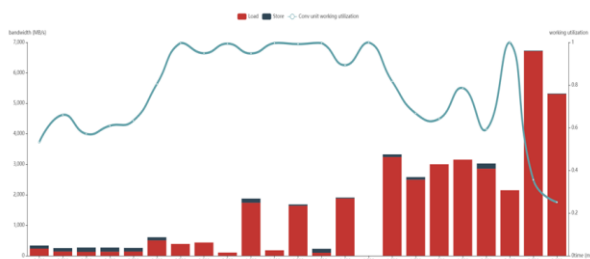
- Framework support: Tensorflow, PyTorch, MXNet, Caffe and ONNX.
- Two methods of quantization supported: Quantization-aware training for near zero accuracy loss and Post-training quantization for ease-of-use and rapid porting to Journey BPU.
- State-of-the-art Operators and DL models support



Before Compiler Optimizations:  
Perf 1x / latency 4.6ms / BPU 33% effective util. / DDR 4.5GB/s



After Compiler Optimizations:  
Perf 2x / latency 2.3ms / BPU 67% effective util. / DDR 1.8 GB/s



MobileNet-V2 @ 224x224x3 classification from ImageNet on Journey 2 BPU

## Deploy:

- Abundant model and application samples
- Detection, classification and pixel level segmentation
- Point Pillar LiDAR model (soon to be released)
- BPU SDK
- Runtime and platform SDK

## Analyze & Optimize:

- Model structure is checked to run efficiently on BPU
- Analyzer provides a snapshot of resource utilization
- Model compiler automatically performs optimizations, such as layer split and fuse, to increase data and instruction level parallelism. It also schedules store and load processes as efficiently as possible for the workload
- Result is a higher BPU utilization (up to 90% in certain cases) and higher inference performance at low latency
- Performance improves with more recent version of popular models, such as MobileNet v2 and EfficientNet



## Horizon support

Customer success is our number one objective. Horizon provides documentation, design examples, training services and support, for a compelling developer's experience. Please visit our website at [horizon.ai](http://horizon.ai), or contact your Horizon representative for more details