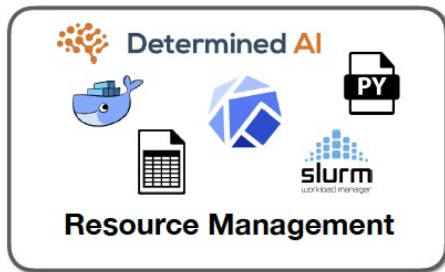


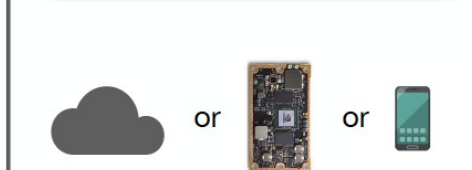
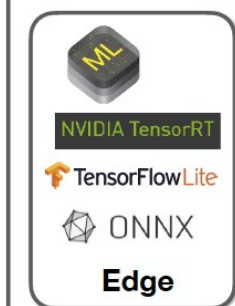
Profiling AI Tools on HPC Systems



Data



Training/Evaluation



Deployment

Profiling Tools

“From outside”

- Perf
- callgrind
- (n)gprof
- Nvidia Nsight

“From inside”

- cProfile or line_profiler
- Torch Profiler
- Nvidia DLProf
- Torchskript+likwid?

The Pytorch Profiler

```
prof = torch.profiler.profile(  
    schedule=torch.profiler.schedule(wait=2,active=1,repeat=3)  
    on_trace_ready=torch.profiler.tensorboard_trace_handler('./profiler/'),  
    profile_memory=True,  
    record_shapes=True,  
    ...,)  
  
prof.start()  
  
for inputs, labels in ...:  
    TRAIN(inputs, labels)  
    prof.step()  
  
prof.stop()
```



EXPLORER

OPEN EDITORS

PROFILERSAMPLES

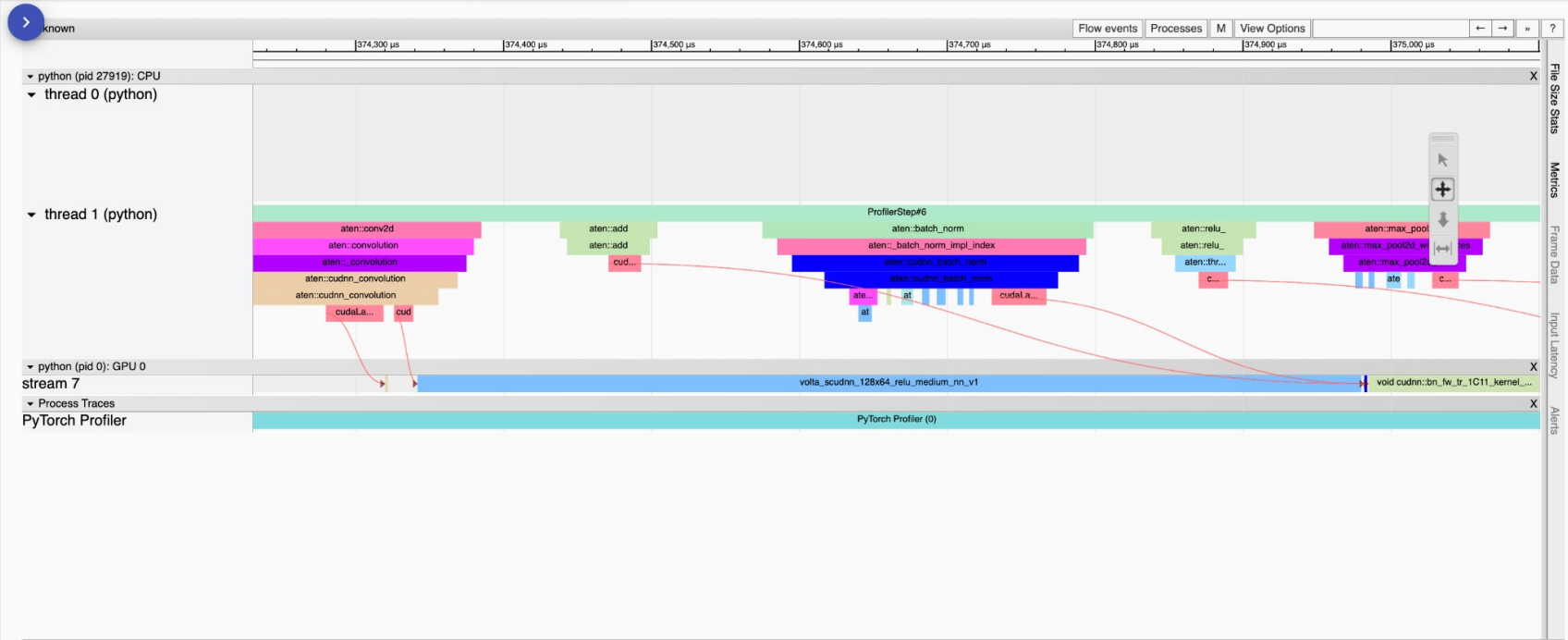
- > data / FashionMNIST
- > mnist_train / MNIST
- > runs
- tensorboard_example.py
- test.py

tensorboard_example.py

TensorBoard

TensorBoard SCALARS IMAGES

INACTIVE UPLOAD



6590 items selected. Slices (5663) Flow Events (927)

Name	Event(s)	Link
void implicit_convolve_sgemm-float_float_128_6_7_3_3_5_1_false_true_true-int_int_int_float const*_int_float*_float const*_kernel_conv_params_unsigned long long_int_float_float_int_float const*_float const*_bool_int_int)	Internal flow	launch
cudalaunchKernel	Internal flow	launch
aten::cudnn_convolution	Internal flow	launch
aten::convolution	Internal flow	launch
aten::convolution	Internal flow	launch
aten::conv2d	Internal flow	launch
ProfilerStep#6	Internal flow	launch
aten::empty	Internal flow	launch
aten::resize	Internal flow	launch
cudaEventRecord	Internal flow	launch
aten::zeros	Internal flow	launch
enumerate(DataLoader)#_SingleProcessDataLoaderIter__next__	Internal flow	launch
aten::to	Internal flow	launch