Texas A&M
Intel AI Analytics Toolkit Training Agenda
July13th 2023
2:30 – 5:00 Central Time Zone

South Shore Harbour Resort and Conference Center – Amphitheater Room

oneAPI - AI Analytics Toolkit – 20 min

- Overview
- XPU support since 2023.1

Hands-On Environment Setup

Intel Optimization for PyTorch on XPU – **60** min

- **Skill Level** – High level understanding of Deep Learning concepts, Pytorch beginner level
- Overview XPU optimizations from IPEX – 5 min
- Exercise complete with instructor – 20 min – all available on GPU.
    - IPEX optimizations
    - BF16 vs FP32
    - TorchScript
    - Profiling, Validating Output
    - Model Zoo (Exercise URL - https://github.com/IntelAI/models/tree/master/quickstart/image_recognition/pytorch/resnet50v1_5/inference/gpu)
- Individual time to complete exercise, Q&A – 5 min.
- Expected Outcome: learn how to leverage optimizations from Intel Extension for PyTorch and see the performance benefits with minimal code changes.

BREAK

Intel Optimizations for TensorFlow on XPU – 60 min

- **Skill Level** – High level understanding of Deep Learning concepts, TensorFlow beginner level
- Overview types of XPU optimizations for TensorFlow/ITEX – 5 min
- Exercise complete with instructor – 20 min - all available on GPU
    - Getting Started sample
    - Data Type (BF16 / FP16)
    - Profiling analysis
    - Model Zoo Exercise URL - https://github.com/IntelAI/models/blob/master/quickstart/image_recognition/tensorflow/resnet50v1_5/inference/gpu/README_Max_Series.md
- Individual time to complete exercise, Q&A – 5 min.
- Expected Outcome be able to see the performance benefit from using Intel Optimizations for TensorFlow over stock TensorFlow framework.

Distributed DL on XPU – 15 min

- Overview Horovod with TensorFlow on PVC
    - Scale up (multi-cards) via Horovod.
    - Exercise: https://github.com/intel/intel-optimization-for-horovod/blob/main/examples/tensorflow2/tensorflow2_keras_synthetic_benchmark.py
- Overview DDP with PyTorch on PVC
    - Scale up (multi-cards) via DDP.
    - Exercise: https://github.com/oneapi-src/oneAPI-samples/tree/master/AI-and-Analytics/Getting-Started-Samples/Intel_oneCCL_Bindings_For_PyTorch_GettingStarted

Question and Answer – Until finished.