Developing AI Inference Solutions with the Vitis AI Platform
AI 3

Course Specification

Check with Morgan Advanced Programmable Systems, Inc. for the specifics of the in-class lab board or other customizations.

After completing this comprehensive training, you will have the necessary skills to:

- Describe Xilinx machine learning solutions with the Vitis AI development environment
- Describe the supported frameworks, network modes, and pre-trained models for cloud and edge applications
- Utilize DNN algorithms, models, inference and training, and frameworks on cloud and edge computing platforms
- Use the Vitis AI quantizer and AI compiler to optimize a trained model
- Use the architectural features of the DPU processing engine to optimize a model for an edge application
- Identify the high-level libraries and APIs that come with the Xilinx Vitis AI Library
- Create a custom hardware overlay based on application requirements
- Create a custom application using a custom hardware overlay and deploy the design

Course Outline

Day 1

- Introduction to the Vitis AI Development Environment
  Describes the Vitis AI development environment, which consists of the Vitis AI development kit, for AI inference on Xilinx hardware platforms, including both edge devices and Alveo accelerator cards. (Lecture)
- Overview of ML Concepts
  Overview of ML concepts such as DNN algorithms, models, inference and training, and frameworks. (Lecture)
- Frameworks Supported by the Vitis AI Development Environment
  Discusses the support for many common machine learning frameworks such as Caffe, TensorFlow, and Pytorch. (Lecture)
- Setting Up the Vitis AI Development Environment
  Demonstrates the steps to set up a host machine for developing and running AI inference applications on cloud or embedded devices. (Demo)
- AI Optimizer
  Describes the optimization of a trained model that can prune a model up to 90%.
  This topic is for advanced users and will be covered in detail in the Advanced ML training course. (Lecture)
- AI Quantizer and AI Compiler
  Describes the AI quantizer, which supports model quantization, calibration, and fine tuning. Also describes the AI compiler tool flow.
  With these tools, deep learning algorithms can deploy in the Deep Learning Processor Unit (DPU), which is an efficient hardware platform running on a Xilinx FPGA or SoC. (Lecture, Lab)
- AI Profiler and AI Debugger
  Describes the AI profiler, which provides layer-by-layer analysis to help with bottlenecks. Also covers debugging the DPU running result. (Lecture)
- Introduction to the Deep Learning Processor Unit (DPU)

AI-INFER (v1.0) updated 05/12/2021

© 2020 Xilinx, Inc. All rights reserved. All Xilinx trademarks, registered trademarks, patents, and disclaimers are as listed at http://www.xilinx.com/legal.htm.
All other trademarks and registered trademarks are the property of their respective owners. All specifications are subject to change without notice.
AI INFER (v1.0) Developed by Morgan Advanced Programmable Systems

Course Specification

- Student cancellations received less than 7 days before the first day of class are entitled to a 100% credit toward a future class.
- Student cancellations must be sent here.

Morgan A.P.S. Course Cancellation Policy

- We regret from time-to-time classes will need to be rescheduled or cancelled.
- In the event of cancellation, live-on-line training may be offered as a substitute.
- Morgan A.P.S. may cancel a class up to 7 days before the scheduled start date of the class; all students will be entitled to a 100% refund.
- Under no circumstances is Morgan A.P.S. responsible or liable for travel, lodging or other incidental costs. Please be aware of this cancellation policy when making your arrangements.
- For additional information or to schedule a private class contact us here.

Online training with real hardware

During the Covid-19 period, some companies do not allow their staff to participate in live in-person training.

- Consequently, Morgan Advanced Programmable Systems, Inc. has set up a training VPN where engineer participants can take classes online using the same computers and devCards used during in-person training.
- Even better, and upon request, you can use these computers after hours on training days to experiment with labs. This is not possible for in-person training.
- Additionally, just like in-person training, the laptops and devCards, tools, OS, and licensing are setup in advance.
- In some ways, live online-training is better than in-person... for example, you can grant the instructor permission to look at your Vivado, PetaLinux terminal, or Vitis for extended periods of time if your lab is not going exactly as planned to a missed step.
- This is often more comfortable than two engineers crowding around a laptop screen.

Taking remote training also allows you to learn some tips and tricks for working remote. Whether your devCard is in the lab down the hall, or across the world via VPN, you can control your Xilinx based device quickly and efficiently.

Student Cancellation Policy

- Students cancellations received more than 7 days before the first day of class are entitled to a 100% refund. Refunds will be processed within 14 days.

Register Today

Morgan Advanced Programmable Systems, Inc. (Morgan A.P.S.) delivers public and private courses in locations throughout the central US region; including Iowa, Illinois, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota and Wisconsin.

Visit morgan-aps.com/training, for full course schedule and training information.

You must have your tuition payment information available when you enroll. We accept credit cards (Visa, MasterCard, or American Express) as well as purchase orders and Xilinx training credits.

© 2020 Xilinx, Inc. All rights reserved. All Xilinx trademarks, registered trademarks, patents, and disclaimers are as listed at http://www.xilinx.com/legal.htm. All other trademarks and registered trademarks are the property of their respective owners. All specifications are subject to change without notice.

AI INFER (v1.0) updated 05/12/2021

Xilinx

1-800-255-7778

morgan-aps.com

(952) 486-8818