



NVIDIA DLI COURSE CATALOG



DEEP
LEARNING
INSTITUTE

INTRODUCTION

The NVIDIA Deep Learning Institute (DLI) offers resources for diverse needs—from learning materials to self-paced and live training to educator programs—giving individuals, teams, organizations, educators, and students what they need to advance their knowledge in AI, accelerated computing, data science, graphics and simulation, networking, and more.

With access to GPU-accelerated servers in the cloud, you'll learn how to train, optimize, and deploy neural networks using the latest deep learning tools, frameworks, and SDKs. You'll also learn how to assess, parallelize, optimize, and deploy GPU-accelerated computing applications.

INSTRUCTOR-LED WORKSHOPS

DLI workshops teach you how to implement and deploy an end-to-end project in one day. These in-depth classes are taught by experts in their respective fields, delivering industry-leading technical knowledge to drive breakthrough results for individuals and organizations. Participants can earn a certificate of competency to support their long-term professional growth. Workshops are currently delivered remotely via a virtual classroom. In-person training will be offered as conditions permit.

Public workshops are scheduled year-round and are available for single-seat registrations. Visit the [DLI website](#) for the current schedule.

Private workshops are available for organizations. Contact DLI at nvdl@nvidia.com for more details.

ONLINE COURSES

Online, self-paced courses show you how to set up an end-to-end project in eight hours or how to apply a specific technology or development technique in two hours. Online courses can be taken anytime, anywhere—as long as you have a computer (desktop or laptop) and an internet connection. Several courses offer a certificate of competency upon completion of the built-in assessment.

Explore one-click notebooks and get free hands-on experience in deep learning, accelerated computing, and data science. The courses, ranging from as little as 10 minutes to 60 minutes, help expose you to the fundamental skills you need to do your life's work.

WHY CHOOSE THE NVIDIA DEEP LEARNING INSTITUTE FOR TRAINING?

- > Access instructor-led workshops and online courses from anywhere with just your computer and an internet connection. Each participant will have access to a fully configured, GPU-accelerated server in the cloud.
- > Obtain hands-on experience with the most widely used, industry-standard software, tools, and frameworks.
- > Learn to build deep learning and accelerated computing applications for industries, such as healthcare, robotics, autonomous driving, manufacturing, and more.
- > Gain real-world expertise through content designed in collaboration with industry leaders, such as the Children's Hospital of Los Angeles, Mayo Clinic, and PwC.
- > Earn an NVIDIA Deep Learning Institute certificate to demonstrate your subject matter competency and support your career growth.



CERTIFICATE

Participants can earn a certificate to demonstrate subject matter competency and support professional career growth. Certificates are offered for select instructor-led workshops and online courses.

INSTRUCTOR-LED WORKSHOPS

DEEP LEARNING FUNDAMENTALS

Fundamentals of Deep Learning

Learn how deep learning (DL) works through hands-on exercises in computer vision and natural language processing (NLP). You will train deep learning models from scratch, and pick up tricks and tools for achieving highly accurate results along the way. You'll also learn to leverage freely available, state-of-the-art pre-trained models to save time and get your deep learning application up and running quickly.

PREREQUISITES: An understanding of fundamental programming concepts in **Python 3**, such as functions, loops, dictionaries, and arrays. Also, familiarity with pandas data structures and an understanding of how to compute a **regression line**.

Suggested materials to satisfy prerequisites: **Python Beginner's Guide**

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow 2 with Keras, pandas

LANGUAGES: English, Japanese, Korean, Simplified Chinese, Traditional Chinese

[> Learn more](#)

Building Transformer-Based Natural Language Processing

Learn how to use Transformer-based natural language processing models for text classification tasks, such as categorizing documents. You will also get insight on how to leverage Transformer-based models for named-entity recognition (NER) tasks and analyze various model features, constraints, and characteristics to determine which model is best suited for a particular use case—based on metrics, domain specificity, and available resources.

PREREQUISITES: Experience with Python coding and use of library functions and parameters. Fundamental understanding of a deep learning framework such as TensorFlow, PyTorch, or Keras. And basic understanding of neural networks.

TOOLS, LIBRARIES, FRAMEWORKS: PyTorch, pandas, NVIDIA NeMo™, NVIDIA Triton™ Inference Server

LANGUAGES: English, Korean, Simplified Chinese

[> Learn more](#)

Building Conversational AI Applications

Learn how to quickly build and deploy production quality conversational AI applications with real-time transcription and natural language processing capabilities.

PREREQUISITES: Experience with Python coding and use of library functions and parameters; fundamental understanding of a deep learning framework such as TensorFlow, PyTorch, or Keras; and basic understanding of neural networks

TOOLS, LIBRARIES, FRAMEWORKS: NVIDIA Riva, NVIDIA TAO Toolkit, Kubernetes

LANGUAGE: English

[> Learn more](#)

Building Intelligent Recommender Systems

Explore the fundamental tools and techniques for building highly effective recommender systems, as well as how to deploy GPU-accelerated solutions for real-time recommendations.

PREREQUISITES: Intermediate knowledge of Python, including understanding of list comprehension. Data science experience using Python and familiarity with NumPy and matrix mathematics.

TOOLS, LIBRARIES, FRAMEWORKS: CuDF, CuPy, TensorFlow 2, NVIDIA Merlin™, NVTabular, and NVIDIA Triton Inference Server

LANGUAGE: English

[> Learn more](#)

Fundamentals of Deep Learning for Multi-GPUs

Find out how to use multiple GPUs to train neural networks and effectively parallelize training of deep neural networks using TensorFlow.

PREREQUISITES: Experience with stochastic-gradient-descent mechanics, network architecture, and parallel computing

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow, Keras, Horovod

LANGUAGE: English, Korean, Japanese, Simplified Chinese, Traditional Chinese

[> Learn more](#)

DEEP LEARNING BY INDUSTRY

Deep Learning for Industrial Inspection

Find out how to design, train, test, and deploy building blocks of a hardware-accelerated industrial inspection pipeline.

PREREQUISITES: Familiarity with deep neural networks and experience with Python and deep learning frameworks, such as TensorFlow, Keras, and PyTorch

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow, NVIDIA® TensorRT™, Keras

LANGUAGES: English, Simplified Chinese, Traditional Chinese

[> Learn more](#)

Deep Learning for Intelligent Video Analytics

Explore how to deploy object detection and tracking networks to evaluate real-time, large-scale video streams.

PREREQUISITES: Experience with deep networks (specifically variations of CNNs) and intermediate-level experience with C++ and Python

TOOLS, LIBRARIES, FRAMEWORKS: DeepStream 3.0, TensorFlow

LANGUAGES: English, Korean

[> Learn more](#)

Applications of AI for Anomaly Detection

Learn to detect anomalies in large datasets to identify network intrusions using supervised and unsupervised machine learning techniques, such as accelerated XGBoost, autoencoders, and generative adversarial networks (GANs).

PREREQUISITES: Experience with CNNs and Python

TOOLS, LIBRARIES, FRAMEWORKS: NVIDIA RAPIDS™, XGBoost, TensorFlow, Keras, pandas, autoencoders, GANs

LANGUAGE: English

[> Learn more](#)

Applications of AI for Predictive Maintenance

Discover how to identify anomalies and failures in time-series data, estimate the remaining useful life of the corresponding parts, and use this information to map anomalies to failure conditions.

PREREQUISITES: Experience with Python and deep networks

TOOLS, LIBRARIES, FRAMEWORKS: Python, TensorFlow, Keras, XGBoost, RAPIDS, cuDF, long short-term memory (LSTM), autoencoders

LANGUAGE: English

[> Learn more](#)

ACCELERATED COMPUTING

Fundamentals of Accelerated Computing with CUDA® C/C++

Learn how to accelerate and optimize existing C/C++ CPU-only applications to leverage the power of GPUs using the most essential CUDA techniques and the NVIDIA Nsight™ Systems profiler.

PREREQUISITES: Basic C/C++ competency, including familiarity with variable types, loops, conditional statements, functions, and array manipulations. No previous knowledge of CUDA programming is assumed.

TOOLS, LIBRARIES, FRAMEWORKS: NVIDIA Nsight Systems, nsys

LANGUAGES: English, Korean, Japanese, Simplified Chinese, Traditional Chinese

[> Learn more](#)

Fundamentals of Accelerated Computing with CUDA Python

Explore how to use Numba—the just-in-time, type-specializing Python function compiler—to accelerate Python programs to run on massively parallel NVIDIA GPUs.

PREREQUISITES: Basic Python competency, including familiarity with variable types, loops, conditional statements, functions, and array manipulations. Also, must have NumPy competency, including the use of ndarrays and ufuncs.

TOOLS, LIBRARIES, FRAMEWORKS: CUDA, Python, Numba, NumPy

LANGUAGES: English, Simplified Chinese, Traditional Chinese

[> Learn more](#)

Accelerating CUDA C++ Applications with Multiple GPUs

Learn how to write CUDA C++ applications that efficiently and correctly utilize all available GPUs in a single node, dramatically improving the performance of applications and making the most cost-effective use of systems with multiple GPUs.

PREREQUISITES: Professional experience programming CUDA C/C++ applications, including the use of the NVIDIA CUDA Compiler (NVCC), kernel launches, grid-stride loops, host-to-device and device-to-host memory transfers, and CUDA error handling. Familiarity with the Linux command line and experience using makefiles to compile C/C++ code.

TOOLS, LIBRARIES, FRAMEWORKS: CUDA C++, NVCC, Nsight Systems

LANGUAGES: English, Simplified Chinese

[> Learn more](#)

Scaling CUDA C++ Applications to Multiple Nodes

Learn the tools and techniques needed to write CUDA C++ applications that can scale efficiently to clusters of NVIDIA GPUs.

PREREQUISITES: Basic C/C++ or Fortran competency, including familiarity with variable types, loops, conditional statements, functions, and array manipulations. No previous knowledge of GPU programming is assumed.

TOOLS, LIBRARIES, FRAMEWORKS: NVIDIA Nsight, OpenACC

LANGUAGES: English

[> Learn more](#)

Fundamentals of Accelerated Computing with OpenACC

Learn how to write and configure code parallelization with OpenACC, optimize memory movements between the CPU and GPU accelerator, and apply the techniques to accelerate a CPU-only Laplace Heat Equation to achieve performance gains.

PREREQUISITES: Intermediate experience writing CUDA C/C++ applications

TOOLS, LIBRARIES, FRAMEWORKS: C++, CUDA, MPI, NVSHMEM

LANGUAGES: English

[> Learn more](#)

ACCELERATED DATA SCIENCE

Accelerating Data Engineering Pipelines

Learn how to employ advanced data engineering tools and techniques with GPUs to significantly improve data engineering pipelines.

PREREQUISITES: Intermediate knowledge of **Python** (list comprehension, objects); familiarity with **pandas** a plus; **introductory statistics** (mean, median, mode)

TOOLS, LIBRARIES, FRAMEWORKS: pandas, cuDF, Dask, NVTabular, Plotly

LANGUAGE: English

[> Learn more](#)

Fundamentals of Accelerated Data Science

Learn how to perform multiple analysis tasks on large data sets using RAPIDS, a collection of data science libraries that allows end-to-end GPU acceleration for data science workflows.

PREREQUISITES: Professional data science experience with Python, including proficiency in pandas and NumPy. Also, must have familiarity with common machine learning algorithms, including XGBoost, linear regression, DBSCAN, K-Means, and SSSP.

TOOLS, LIBRARIES, FRAMEWORKS: RAPIDS, cuDF, XGBoost, cuML, cuGraph, Dask, cuPy, pandas, NumPy, Bokeh

LANGUAGES: English, Traditional Chinese

> [Learn more](#)

NETWORKING

The NVIDIA Networking Academy offers customizable training and certification on dozens of networking topics, including InfiniBand, NVIDIA Cumulus Linux™, protocols configuration such as Virtual Extensible LAN (VXLAN), Multi-Chassis Link Aggregation (MLAG), Border Gateway Protocol Ethernet VPN (BGP EVPN), and much more. The training combines hands-on practice and theoretical concepts to match job requirements and prepare participants for immediate productivity.

> To explore what's available, visit academy.mellanox.com

ONLINE, SELF-PACED COURSES

DEEP LEARNING FUNDAMENTALS

Building a Brain in 10 Minutes

This one-click notebook explores the biological and psychological inspirations for the world's first neural networks.

DURATION: 10 minutes

PRICE: Free

[> Learn more](#)

Getting Started with Deep Learning

Explore the fundamentals of deep learning by training neural networks and using results to improve performance and capabilities.

PREREQUISITES: An understanding of fundamental programming concepts in **Python 3**, such as functions, loops, dictionaries, and arrays; familiarity with **pandas data structures**; and an understanding of how to compute a **regression line**

Suggested materials to satisfy prerequisites: **Python Beginner's Guide**

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow 2
with Keras, pandas

LANGUAGE: English

DURATION: 8 hours

PRICE: \$90 (excludes tax, if applicable)

[> Learn more](#)

Getting Started with AI on Jetson Nano

Discover how to build a deep learning classification project with computer vision models using the NVIDIA Jetson Nano™ Developer Kit.

PREREQUISITES: Basic familiarity with Python (helpful, not required)

TOOLS, LIBRARIES, FRAMEWORKS: PyTorch, Jetson Nano

LANGUAGES: English,
Simplified Chinese

DURATION: 8 hours

PRICE: Free (hardware required)

[> Learn more](#)

Optimization and Deployment of TensorFlow Models with TensorRT

Learn how to optimize TensorFlow models to generate fast inference engines in the deployment stage.

PREREQUISITES: Experience with TensorFlow and Python

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow, Keras, TensorRT

LANGUAGE: English

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

Deep Learning at Scale with Horovod

Find out how to scale deep learning training to multiple GPUs with Horovod, the open-source distributed training framework originally built by Uber.

PREREQUISITES: Competency in Python and professional experience training deep learning models in Python

TOOLS, LIBRARIES, FRAMEWORKS: Horovod, TensorFlow 2, Keras

LANGUAGE: English

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

Getting Started with Image Segmentation

Learn how to categorize segments of an image.

PREREQUISITES: Basic experience training neural networks

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow 2 with Keras

LANGUAGE: English

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn More](#)

Modeling Time-Series Data with Recurrent Neural Networks in Keras

Explore how to classify and forecast time-series data using recurrent neural networks (RNNs), such as modeling a patient's health over time.

PREREQUISITES: Basic experience with deep learning

TOOLS, LIBRARIES, FRAMEWORKS: Keras

LANGUAGE: English

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

DEEP LEARNING BY INDUSTRY

AUTONOMOUS VEHICLES

Integrating Sensors with NVIDIA DRIVE®

Learn how to integrate automotive sensors into your applications using NVIDIA DRIVE.

PREREQUISITES: Basic experience in C++ and Linux terminal commands

TOOLS, LIBRARIES, FRAMEWORKS: C++,
NVIDIA DriveWorks

LANGUAGE: English

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

HEALTHCARE

Medical Image Classification Using the MedNIST Data Set

Explore an introduction to deep learning for radiology and medical imaging by applying CNNs to classify images in a medical imaging data set.

PREREQUISITES: Basic experience in Python

LANGUAGES: English,
Simplified Chinese

TOOLS, LIBRARIES, FRAMEWORKS: PyTorch

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

Image Classification with TensorFlow: Radiomics—1p19q Chromosome Status Classification

Learn how to train CNNs to detect radiomics from MRI imaging.

PREREQUISITES: Basic experience with CNNs and Python

LANGUAGES: English,
Simplified Chinese

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

Data Augmentation and Segmentation with Generative Networks for Medical Imaging

Discover how to use GANs for medical imaging by applying them to the creation and segmentation of brain MRIs.

PREREQUISITES: Experience with CNNs

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow

LANGUAGES: English, Simplified
Chinese

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

Coarse-to-Fine Contextual Memory for Medical Imaging

Find out how to use coarse-to-fine context memory (CFCM) to improve traditional architectures for medical image segmentation and classification tasks.

PREREQUISITES: Experience with CNNs and long short-term memory (LSTM)

TOOLS, LIBRARIES, FRAMEWORKS: TensorFlow

LANGUAGE: English

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

INTELLIGENT VIDEO ANALYTICS

AI Workflows for Intelligent Video Analytics with DeepStream

Learn how to build hardware-accelerated applications for intelligent video analytics (IVA) with DeepStream and deploy them at scale to transform video streams into insights.

PREREQUISITES: Experience with C++ and GStreamer

TOOLS, LIBRARIES, FRAMEWORKS: DeepStream 3.0

LANGUAGE: English

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

Getting Started with DeepStream for Video Analytics on Jetson Nano

Explore how to build DeepStream applications to annotate video streams using object detection and classification networks.

PREREQUISITES: Basic familiarity with C

TOOLS, LIBRARIES, FRAMEWORKS: DeepStream, TensorRT, Jetson Nano

LANGUAGES: English

DURATION: 8 hours

PRICE: Free

[> Learn more](#)

ACCELERATED COMPUTING FUNDAMENTALS

An Even Easier Introduction to CUDA

Learn the basics of writing parallel CUDA kernels to run on NVIDIA GPUs.

PREREQUISITES: Competency writing applications in CUDA C/C++

TOOLS, LIBRARIES, FRAMEWORKS: C/C++

LANGUAGE: English

DURATION: 1 hour

PRICE: Free

[> Learn more](#)

Fundamentals of Accelerated Computing with CUDA C/C++

Discover how to accelerate and optimize existing C/C++ CPU-only applications to leverage the power of GPUs using the most essential CUDA techniques and the Nsight Systems profiler.

PREREQUISITES: Basic C/C++ competency, including familiarity with variable types, loops, conditional statements, functions, and array manipulations. No previous knowledge of CUDA programming is assumed.

TOOLS, LIBRARIES, FRAMEWORKS: C/C++, CUDA

LANGUAGES: English, Japanese, Korean, Simplified Chinese, Traditional Chinese

DURATION: 8 hours

PRICE: \$90 (excludes tax, if applicable)

[> Learn more](#)

Fundamentals of Accelerated Computing with CUDA Python

Explore how to use Numba—the just-in-time, type-specializing Python function compiler—to create and launch CUDA kernels to accelerate Python programs on massively parallel NVIDIA GPUs.

PREREQUISITES: Basic Python competency, including familiarity with variable types, loops, conditional statements, functions, and array manipulations. Also, must have NumPy competency, including the use of ndarrays and ufuncs.

TOOLS, LIBRARIES, FRAMEWORKS: CUDA, Python, Numba, NumPy

LANGUAGES: English, Simplified Chinese, Traditional Chinese

DURATION: 8 hours

PRICE: \$90 (excludes tax, if applicable)

[> Learn more](#)

Scaling Workloads Across Multiple GPUs with CUDA C++

Learn how to build robust and efficient CUDA C++ applications that can leverage all available GPUs on a single node.

PREREQUISITES: Competency writing applications in CUDA C/C++

TOOLS, LIBRARIES, FRAMEWORKS: C/C++, accelerated computing, CUDA

LANGUAGE: English

DURATION: 4 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

Accelerating CUDA C++ Applications with Concurrent Streams

Learn how to improve performance for your CUDA C/C++ applications by overlapping memory transfers to and from the GPU with computations on the GPU.

PREREQUISITES: Competency writing applications in CUDA C/C++

TOOLS, LIBRARIES, FRAMEWORKS: C/C++

LANGUAGE: English

DURATION: 4 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

Fundamentals of Accelerated Computing with OpenACC

Find out how to build and optimize accelerated heterogeneous applications on multiple GPU clusters using a combination of OpenACC®, CUDA-aware MPI, and NVIDIA profiling tools.

PREREQUISITES: Basic experience with C/C++

TOOLS, LIBRARIES, FRAMEWORKS: OpenACC, C/C++

LANGUAGE: English

DURATION: 8 hours

PRICE: \$90 (excludes tax, if applicable)

[> Learn more](#)

High-Performance Computing with Containers

Learn how to reduce complexity and improve portability and efficiency of your code by using a containerized environment for high performance computing (HPC) application development.

PREREQUISITES: Proficiency programming in C/C++ and professional experience working on HPC applications

TOOLS, LIBRARIES, FRAMEWORKS: Docker, Singularity, HPC Container Maker (HPCCM), C/C++

LANGUAGE: English

DURATION: 2 hours

PRICE: \$30 (excludes tax, if applicable)

[> Learn more](#)

ACCELERATED DATA SCIENCE

Speed Up DataFrame Operations With RAPIDS cuDF

This one-click notebook demonstrates significant speed up by moving common DataFrame operations to the GPU with minimal changes to existing code.

DURATION: 20 minutes

PRICE: Free

[> Learn more](#)

Accelerating End-to-End Data Science Workflows

Learn how to perform multiple analysis tasks on large data sets using RAPIDS, a collection of data science libraries that allows end-to-end GPU acceleration for data science workflows.

PREREQUISITES: Experience with Python, ideally including pandas and NumPy

TOOLS, LIBRARIES, FRAMEWORKS: RAPIDS, cuDF, cuML, cuGraph, Apache Arrow

LANGUAGE: English

DURATION: 6 hours

PRICE: \$90 (excludes tax, if applicable)

[> Learn more](#)

GRAPHICS AND SIMULATION

Getting Started with USD for Collaborative 3D Workflows

Learn how to generate a scene using human-readable Universal Scene Description ASCII (.USDA) files. Upon completion, participants will be able to create their own scenes within the USD framework and will have a strong foundation to use it in applications such as **NVIDIA Omniverse™**, Maya, Unity, and Unreal Engine.

PREREQUISITES: A basic understanding of computer graphics concepts such as vertices, meshes, and RGB values and an understanding of fundamental programming concepts in Python such as functions, loops, dictionaries, and arrays.

TOOLS, LIBRARIES, FRAMEWORKS: [Universal Scene Description Framework](#)

LANGUAGE: English

DURATION: 2 hours

PRICE: Free

> [Learn more](#)

GPU COMPUTING IN THE DATA CENTER

Introduction to AI in the Data Center *(Digital Badge Available)*

Explore AI, GPU computing, NVIDIA AI software architectures, and how to implement and scale AI workloads in the enterprise data center.

PREREQUISITES: Basic knowledge of enterprise networking, storage, and data center operations

TOOLS, LIBRARIES, FRAMEWORKS: Artificial intelligence, machine learning, deep learning, GPU hardware and software

LANGUAGE: English

DURATION: 4 hours

PRICE: \$30 (excludes tax, if applicable)

> [Learn more](#)

NETWORKING

The NVIDIA Networking Academy offers dozens of online, self-paced courses and certifications on networking topics such as InfiniBand, remote direct-memory access (RDMA) programming, Cumulus Linux, data center protocols configuration, network automation tools, and much more.

> To explore the offerings, visit academy.mellanox.com



To get started with DLI hands-on training,
visit www.nvidia.com/dli

For questions, contact us at
nvdli@nvidia.com

© 2021 NVIDIA Corporation and affiliates. All rights reserved. NVIDIA, the NVIDIA logo, CUDA, Cumulus Linux, Jetson Nano, Merlin, NeMo, Nsight, RAPIDS, TensorRT, and Triton are trademarks and/or registered trademarks of NVIDIA Corporation and its affiliates in the U.S. and other countries. Other company and product names may be trademarks of the respective companies with which they are associated. All other trademarks are property of their respective owners. OCT21



DEEP
LEARNING
INSTITUTE