



Fundamentals of Deep Learning: NVIDIA Deep Learning Institute Workshop

Abstract:

Deep learning, a core pillar of artificial intelligence (AI), enables machines to learn patterns and make predictions with unparalleled accuracy. This workshop, hosted by the NVIDIA Deep Learning Institute (DLI), introduces participants to the essentials of deep learning through hands-on exercises in computer vision and natural language processing. Participants will train deep learning models from scratch and leverage state-of-the-art pre-trained models to build applications rapidly and efficiently.

Objectives:

- Learn the foundational techniques and tools needed to train deep learning models.
- Gain familiarity with common data types and model architectures in deep learning.
- Enhance datasets with data augmentation to improve model performance.
- Explore transfer learning to achieve efficient results with limited resources.
- Build confidence to independently undertake deep learning projects using modern frameworks.

Motivation:

Deep learning is transforming industries such as healthcare, retail, and transportation by enabling real-time decision-making and personalized experiences. This workshop empowers participants to acquire the skills necessary to develop applications that solve complex challenges across various domains.

Intended Audience:

- Developers, researchers, and professionals keen to enhance their AI expertise.
- Students with basic programming knowledge, eager to explore the fundamentals of deep learning.
- AI enthusiasts seeking hands-on experience with industry-standard tools and frameworks.



Description of Topics:

Introduction to Deep Learning (15 mins)

Overview of the workshop, introduction to deep learning principles, and account setup on the NVIDIA DLI platform.

The Mechanics of Deep Learning (120 mins)

Training basic computer vision models.

Introduction to convolutional neural networks and data augmentation.

Pre-Trained Models and Recurrent Neural Networks (120 mins)

Leveraging pre-trained models for quick problem-solving.

Training recurrent neural networks on sequential data.

Final Project: Object Classification (120 mins)

Developing and training a model for fresh and rotten fruit classification.

Employing transfer learning and feature extraction for improved efficiency.

Review and Certification (15 mins)

Completion of assessments to earn the NVIDIA DLI certificate.

Duration: 8 Hours – (**Two sessions of 4 hours**)

Participants will receive access to a GPU-accelerated cloud environment, tools such as TensorFlow, Keras, Pandas, and NumPy, and support throughout the session.

Speaker Information

Speaker: Ramasamy Srinivasagan

Affiliation: Computer Engineering, CCSIT, King Faisal University, KSA

Biography:



Dr. Ramasamy is an esteemed academic and researcher at the College of Computer Science and Information Technology, King Faisal University. He is serving as an NVIDIA Ambassador since 2021, he has trained over 500 participants, helping them earn NVIDIA certifications. Additionally, he contributed as a Technical Assistant for NVIDIA GTC from 2022 to 2024, showcasing his dedication to empowering the AI and ML community. He is also TinyML Academic Lead in Saudi Arabia, Dr. Ramasamy has spearheaded numerous workshops on TinyML for students, faculty, and industry professionals across India, Ethiopia, and Saudi Arabia. With four published research articles in collaboration with the KFU Research Center, he is actively advancing the field of Deep learning and edge computing. Dr. Ramasamy is also involved in cutting-edge research projects leveraging edge computing technologies.