

AI & Machine Learning SkillJourneys

Deep Learning Essentials Boot Camp (TTAI3012)

Quick Start to working with neural networks, data preprocessing, and model optimization, using Python, TensorFlow and Keras for deep learning

Course Snapshot

- **Course: Deep Learning Essentials Boot Camp (TTAI3012)**
- **Duration:** 2 days
- **Audience & Skill Level:** This intermediate and beyond-level course is geared for Python experienced professionals aiming to apply machine learning and deep learning to solve complex business problems, including product managers, data analysts, data scientists, developers, team leads, and other technical stakeholders who want to leverage deep learning for strategic decisions.
- **Format / Hands-on:** This course combines engaging instructor-led presentations and practical demonstrations with hands-on programming exercises, challenge labs, use case exploration and engaging group activities. Student machines are required.
- **Flexible Delivery Options:** This course can be delivered for your team or organization **online-live (virtual), onsite in-person, self-paced** or across our immersive **blended learning experience platform (LXP)**.
- **Public Schedule:** This course is currently available on our Public Open Enrollment Schedule.
- **Customizable:** We're flexible! This course agenda, topics, labs, hours and delivery modalities can be adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

Description

Jump Start your Deep Learning journey in our two-day, hands-on **Deep Learning Essentials Boot Camp**, where you'll learn to employ deep learning, a potent subset of machine learning that utilizes artificial neural networks to mimic human cognition. This skill will equip you to analyze complex data, make informed predictions, and significantly contribute to your organization's success.

This comprehensive course covers a broad array of crucial topics. You'll explore the deep learning environment, become proficient with TensorFlow and Keras, and comprehend the principles of neural networks. You'll also learn to handle data preprocessing, model tuning, and optimization, as well as model deployment using TensorFlow Serving. As part of the interactive curriculum, 40% of the course is dedicated to hands-on lab work. This experience allows you to apply your newfound knowledge to real-world projects, such as implementing neural networks, enhancing model performance, and deploying trained models on a server.

By the conclusion of this course, you'll possess a robust foundation in deep learning with Python. You'll be competent in creating, training, and optimizing deep learning models, and applying these skills to solve data-centric problems within your organization. Under the guidance of an industry expert and with exposure to cutting-edge tools, this course promises to be a valuable stepping-stone in your deep learning journey.

Learning Objectives

This course combines engaging instructor-led presentations and useful demonstrations with valuable hands-on labs and engaging group activities. Throughout the course you'll learn how to:

- Gain a firm grasp of the fundamentals of deep learning, understanding the theory and math that powers it.
- Get comfortable with Anaconda and Jupyter Notebook, two essential tools in a data scientist's arsenal.
- Understand how to build, train, and deploy neural networks using Python, TensorFlow, and Keras.
- Dive deep into Python and its powerful libraries used for deep learning, becoming proficient in TensorFlow and Keras.
- Learn the art of data preprocessing, a critical skill in preparing data for machine learning models.
- Learn to tune and optimize your deep learning models to ensure they deliver the best performance possible. Uncover the mystery of various optimizers and learn to choose the right one.

- Bonus Content: Exploring GPT and its role in Deep Learning, and applying Generative AI to deep learning

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

Audience

This intermediate and beyond level course is geared for experienced professionals aiming to apply machine learning and deep learning to solve complex business problems, including product managers, data analysts, data scientists, developers, team leads, and other technical stakeholders who want to leverage deep learning for strategic decisions. It's also suited for those who are in roles that require them to work with data, understand patterns, or make predictions, such as business analysts, software developers, and researchers. Python experience is required.

Pre-Requisites

To ensure a smooth learning experience and maximize the benefits of attending this course, you should have the following prerequisite skills:

- Python programming is required, as the labs revolve around leveraging Python. Basic skills in handling and manipulating data using Python libraries such as NumPy and Pandas would be advantageous.
- Familiarity with concepts such as variables, functions, control flow, and data structures will ensure a smooth learning experience.
- While the course will introduce deep learning from scratch, having a grasp of basic machine learning concepts will be beneficial.
- Some understanding of algebra and basic calculus will be helpful in comprehending the mathematical components of deep learning.

Take Before: Students should have incoming practical skills aligned with those in the course(s) below, or should have attended the following course(s) as a pre-requisite:

- TTML5506-P Machine Learning Essentials with Python (3 days)

Next Steps / Follow-on Courses: We offer a wide variety of follow-on courses and learning paths for Python, Big Data, Machine Learning, Generative AI, AI for Business, GPT, Applied AI, Azure OpenAI, Google BARD, AI for developers, testers, data analytics, deep learning, programming, intelligent automation and many other related topics. Please see our catalog for the current **Python, Data Science, AI & Machine Learning Courses, Learning Journeys & Skills Roadmaps**, list courses and programs.

Setup Made Simple! Learning Experience Platform (LXP)

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels and rich extended learning and post training resources are provided for you in our “easy access, no install required” online **Learning Experience Platform (LXP)**, remote lab and content environment. Access periods vary by course. We'll collaborate with you to ensure your team is set up and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We'll work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill level, interests and participation.

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| <p>1. Introduction to Deep Learning</p> <ul style="list-style-type: none"> • Understand the concept and significance of deep learning in modern business. | <ul style="list-style-type: none"> • Fundamental concepts in deep learning like neurons, layers, weights, bias, and activation functions. | <ul style="list-style-type: none"> • Real-world use cases of deep learning in business. |
| <p>2. Setting up Deep Learning</p> | | |

- Environment**
- Understand how to create an effective deep learning environment.
- Basics of Anaconda and Jupyter notebook.
- Lab: Set up a Python environment
- 3. Introduction to TensorFlow and Keras**
- Get an overview of TensorFlow and Keras.
- Learn the process of creating a simple neural network using Keras.
- Lab: Build a basic neural network
- 4. Fundamentals of Neural Networks**
- Understand what neural networks are and how they function.
- Learn about forward propagation and backpropagation in a neural network.
- Lab: Implement a Multi-Layer Perceptron (MLP) on a simple dataset
- 5. Working with Data in Deep Learning**
- Understand the importance of data preprocessing in deep learning.
- Learn how to handle and preprocess different types of data - images, text, etc.
- Lab: Preprocess a dataset for a deep learning task
- 6. Tuning and Optimizing Deep Learning Models**
- Learn about different types of optimizers - SGD, Adam, RMSprop, etc.
- Learn how to save and load trained models.
- Lab: Tune and optimize a neural network model
- 7. Deploying Deep Learning Models**
- Understand how to deploy deep learning models.
- Learn about serving models with TensorFlow Serving.
- Lab: Deploy a trained model
- 8. Real-world Applications of Deep Learning**
- Understand the real-world applications of deep learning.
- Overview of deep learning in healthcare, finance, transportation, and more.
- contributes to Deep Learning.
- Explore how GPT models work and their architecture.
- Discover GPT applications in natural language understanding and generation tasks.
- Learn how GPT can assist in various job roles, such as customer service, content creation, etc.
- Understand the ethical considerations around using generative models.
- Lab

Bonus: Deep Dive into Generative AI for Deep Learning

- Understand the principles of Generative AI and its function in Deep Learning.
- Discover different types of generative models such as Generative Adversarial Networks (GANs) and their applications.
- Learn about the role of generative AI in image generation, text-to-image synthesis, and more.
- Understand how generative AI can improve productivity and creativity in job roles involving digital content and design.
- Discussion on the challenges of using generative AI and future trends.
- Lab

Bonus Chapters / Time Permitting

Bonus: Introduction to GPT and its Role in Deep Learning

- Understand what GPT (Generative Pretrained Transformer) is and how it

For More Information

For more information about our training services (instructor-led, self-paced or blended), collaborative coaching services, robust Learning Experience Platform (LXP), Career Experiences, public course schedule, partner programs, courseware licensing options or to see our complete list of course offerings, solutions and special offers, please visit us at www.triveratech.com, email Info@triveratech.com or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

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