

AI & Machine Learning Developer SkillJourneys

Turbocharge Your Code! Generative AI Boot Camp for Developers (TTAI2305)

Use Cutting-Edge Tech to Generate Code, Documentation, and Tests, Enhance User Interfaces, and Create Flexible, Dynamic Content

Course Snapshot

- **Course:** Turbocharge Your Code! Generative AI Boot Camp for Developers (TTAI2305)
- **Duration:** 3 days
- **Audience & Skill Level:** This intermediate and beyond level course is ideal for experienced programmers who want to use this cutting-edge tech to generate code, documentation and tests, enhance user interfaces, and create dynamic content that adapts to user needs.
- **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.
- **Format:** This course can be delivered for your team or organization **online live (virtual)**, **onsite in-person** or across our robust **blended learning experience platform (LXP)**.
- **Public Schedule:** This course is currently available on our Public Open Enrollment Schedule.
- **Customizable:** 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.

Overview

Generative AI represents an exhilarating frontier in artificial intelligence, specializing in the creation of new data instances, imitation of real data, and content generation. Its remarkable capabilities facilitate automated content creation, enriched user experiences, and groundbreaking solutions across diverse industries, ultimately fueling efficiency and transcending technological limits. By harnessing the power of generative AI, developers can craft dynamic content, produce code and documentation, refine user interfaces, and devise customized recommendations, empowering them to construct highly efficient and custom solutions for a wide range of applications.

Designed for experienced programmers, **Turbocharge Your Code! Generative AI Boot Camp for Developers** is a three-day workshop-style course that teaches you the latest skills and tools required to master generative AI models, transforming the way you approach software development. In today's fast-paced technological landscape, generative AI has emerged as a game-changer, with leading companies like NVIDIA, OpenAI, and Google leveraging its capabilities to push the boundaries of innovation.

By learning how to harness the power of generative models such as GANs, VAEs, and Transformer models, you will be able to generate code, documentation, and tests, enhance user interfaces, and create dynamic content that adapts to user needs. Our comprehensive curriculum covers everything from the fundamentals of generative AI to advanced techniques and ethical considerations, including hands-on labs where you will develop and deploy custom models using state-of-the-art AI tools and libraries like TensorFlow and Hugging Face Transformers.

Throughout the course you'll focus on practical application and collaboration, building confidence with personalized guidance and real-time feedback from our expert live instructor. Upon completion, you will be equipped with the knowledge and experience necessary to develop and implement innovative generative AI models across various industries, improving existing products, creating new applications, and gaining highly-valuable skills in the rapidly advancing field of AI.

Learning Objectives

Working in an interactive learning environment, led by our engaging AI expert you'll:

- Develop a strong foundational understanding of generative AI techniques and their applications in software development.

- Gain hands-on experience working with popular generative AI models, including Generative Adversarial Networks (GANs), Variational Autoencoders (VAEs), and Transformer models.
- Master the use of leading AI libraries and frameworks, such as TensorFlow, Keras, and Hugging Face Transformers, for implementing generative AI models.
- Acquire the skills to design, train, optimize, and evaluate custom generative AI models tailored to specific software development tasks.
- Learn to fine-tune pre-trained generative AI models for targeted applications and deploy them effectively in various environments, including cloud-based services and on-premises servers.
- Understand and address the ethical, legal, and safety considerations of using generative AI, including mitigating biases and ensuring responsible AI-generated content.

Audience & Pre-Requisites

The ideal audience for this **intermediate and beyond** level course consists of experienced software developers, programmers, and engineers who are eager to learn and adopt cutting-edge generative AI techniques in their projects. The course is tailored for experienced professionals with a background in programming and a basic understanding of artificial intelligence and machine learning concepts.

Attendee roles might include:

- **Software Developers/Programmers:** Professionals who want to integrate generative AI into their projects for tasks like code generation, documentation, and testing.
- **Data Scientists:** Those looking to expand their skillset by incorporating generative AI models into their data analysis and prediction tasks.
- **Machine Learning Engineers:** Individuals who want to specialize in developing and deploying generative AI models for various applications.
- **AI Researchers:** Academics and researchers interested in exploring the latest advancements in generative AI and their potential applications in software development.
- **User Interface (UI) and User Experience (UX) Designers:** Professionals who want to leverage generative AI for creating dynamic and adaptive interfaces.
- **Technical Product Managers:** Managers who oversee the development of AI-driven products and want to understand how generative AI can enhance their offerings.
- **Technical Team Leads:** Supervisors responsible for guiding development teams and looking for innovative ways to incorporate generative AI into their projects.

Pre-Requisites

This course is highly technical in nature. In order to gain the most from attending you should possess the following incoming skills:

- Python programming experience (Python syntax and constructs, experience with NumPy and Pandas)
- Basic understanding of artificial intelligence and machine learning concepts (supervised and unsupervised learning, neural networks, optimization techniques)
- Some experience with data manipulation and preprocessing, including working with various data formats, such as text, images, and structured data, preprocessing and cleaning data for use in machine learning models.

Take Before: You should have incoming skills aligned with the topics in the course(s) below, or should attend as a pre-requisite:

- TTML5503 AI & Machine Learning JumpStart | Introduction to AI, AI Programming & Machine Learning (3 days)
- TTPS4873 Fast Track to Python in Data Science (3 days)

Next Steps / Follow-on Courses: We offer a wide variety of follow-on courses and learning paths for Generative AI, AI programming, machine learning, analytics, intelligent automation and other related topics. Please see our **AI & Machine Learning Suite** of courses and **Learning Paths** for options based on your specific role and goals.

Course Topics / Agenda

Please note that this topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill level, interests and participation.

Day 1

1. Introduction to Generative AI

- Unveil the world of generative AI and its applications.
- Brief history of generative AI
- Overview of generative models
- Types of generative AI techniques
- Applications of generative AI
- **Lab:** Setting up the development environment

2. Variational Autoencoders (VAEs)

- Explore VAEs and learn their applications in generative AI.
- Introduction to VAEs
- VAE architecture and training process
- Applications of VAEs
- Comparing VAEs and GANs
- **Lab:** VAE for image generation: Create images with a VAE model

3. Deep Learning and GANs

- Dive into the fundamentals of GANs and their applications.
- Introduction to deep learning
- Basic components of GANs
- GAN architecture and training process
- Common GAN variants and applications
- **Lab:** Simple GAN implementation: Generate synthetic images with GAN

Day 2

4. Natural Language Generation (NLG)

- Uncover the power of NLG and its applications in generative AI.
- Introduction to NLG
- Overview of language models
- Transformer architecture and variants
- Applications of NLG in generative AI
- **Lab:** Text generation using GPT: Generate text with GPT-based models; using Hugging Face Transformers

5. Ethics and Responsible AI

- Understand the ethical implications of generative AI applications.
- AI ethics and its importance

- Bias in generative models
- Responsible AI and best practices
- Future research and open problems
- **Lab:** Bias detection and mitigation: Identify and mitigate biases in generative models

6. Multimodal Generative AI

- Discover the potential of combining different data modalities in generative AI.
- Introduction to multimodal AI
- Text-to-image synthesis
- Audio-to-video synthesis
- Applications of multimodal generative AI
- Lab

Day 3

7. Style Transfer and Neural Art

- Explore the creative side of generative AI with style transfer techniques.
- Introduction to style transfer
- Neural style transfer algorithms
- Applications of style transfer in generative AI
- Limitations and future directions
- **Lab:** Implement neural style transfer: Create artistic images using neural style transfer

8. Generative AI in the Real World

- Gain insights on practical applications of generative AI across various domains.
- Generative AI in marketing and advertising
- Generative AI in entertainment and gaming
- Generative AI in healthcare and life sciences
- Generative AI in finance and economics
- **Lab:** Develop a simple AI-powered application: Build a practical generative AI application

9. Pulling it all together: Building and Deploying Generative AI Models

- Learn best practices for building, fine-tuning, and deploying generative AI models.
- Model selection and fine-tuning
- Deployment strategies
- Monitoring and maintenance
- Ensuring user privacy and security
- **Lab:** Build and Deploy a generative AI model

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 setup and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

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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