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

Duration: 3 Days
Skill Level: Intermediate
Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

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.

What You'll Learn

Overview

Generative AI is an exciting frontier in artificial intelligence, enabling the creation of new data, automated content, and enhanced user experiences across industries. Its capabilities drive efficiency and innovation, allowing developers to produce dynamic content, generate code and documentation, improve user interfaces, and design custom recommendations. By harnessing generative AI, developers can build efficient, tailored solutions for various applications.

Turbocharge Your Code! Generative AI Boot Camp for Developers is a three-day, hands-on course designed for experienced programmers ready to master generative AI techniques and tools. This intensive program will transform your approach to software development, equipping you to generate code, create documentation, automate testing, enhance UI/UX, and develop adaptive content. With companies like NVIDIA, OpenAI, and Google leading the way, generative AI is setting new standards for innovation.

Throughout the course, you'll work with advanced AI models such as GANs, VAEs, and Transformers, enabling you to produce content, documentation, and tests, personalize user interfaces, and deploy AI-driven solutions. The curriculum covers everything from foundational principles to advanced applications, including ethical AI practices, with hands-on labs where you'll develop and deploy custom models using leading tools like TensorFlow and Hugging Face Transformers.

In this collaborative, interactive environment, you'll receive personalized guidance and real-time feedback from our expert instructor. By the end, you'll have the skills to develop and implement innovative generative AI models, elevate products, create new applications, and bring valuable AI expertise to your projects.

Objectives

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

- Build a solid understanding of generative AI techniques and their applications in software.
- Gain hands-on experience with popular models, including GANs, VAEs, and Transformers.
- Use AI libraries and frameworks like TensorFlow, Keras, and Hugging Face Transformers for implementing generative models.
- Design, train, optimize, and evaluate custom generative AI models for specific development tasks.
- Fine-tune pre-trained models for targeted applications and deploy them on cloud-based or on-premises servers.
- Address ethical, legal, and safety considerations of generative AI, including bias mitigation and responsible content generation.

Audience

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: Those wanting to integrate AI into tasks like code generation, documentation, and testing.
- Data Scientists: Professionals expanding their skillset by incorporating generative models in analysis and prediction.
- Machine Learning Engineers: Individuals focused on developing and deploying generative AI for various applications.
- AI Researchers: Those exploring advancements in generative AI and its applications in software.
- UI/UX Designers: Professionals interested in creating dynamic, adaptive interfaces using AI.
- Technical Product Managers: Managers looking to enhance AI-driven products.
- Technical Team Leads: Leaders seeking innovative ways to incorporate generative AI into team 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 varietyof 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.

TT2100	Core Java Programming Developer's Workshop
TT2120	Basic Java Programming for Developers New to OO (C, COBOL, etc.)
TT2104	Fast Track to Core Java Programming for OO Experienced Developers
TT2000	Getting Started with Programming, OO & Java Basics for Non-Developers
TTML5503	Introduction to AI & Machine Learning JumpStart
TTPS4873	Fast Track to Python for Data Science and/or Machine Learning
TTAI2063	Voice of Innovation: Crafting Your Enterprise's Digital Assistant: Building a Voice Bot - From Concept to Reality

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.

1.   Introduction to Generative AI

- Understand generative AI concepts and applications.
- Trace the evolution of generative AI technologies.
- Identify types of generative models and their uses.
- Learn key concepts: machine learning, neural networks, transformers.
- Review popular generative models like GPT and Codex.

2.   Introduction to Prompt Engineering

- Explore prompts' role in guiding AI outputs.
- Craft effective prompts for various tasks.
- See how prompt specificity shapes results.
- Experiment with prompt variations for desired outcomes.

3.   Deep Dive into AI Models

- Understand architectures of popular AI models.
- Learn to fine-tune models for tasks like code generation.
- Examine transformers' role in generative AI.
- Assess model performance and limitations.

4.   Ethics and Responsible AI

- Explore ethical considerations in generative AI.
- Detect and address biases in AI content.

- Apply best practices for privacy and fairness.
- Understand regulatory impacts of generative AI.

5. • Variational Autoencoders (VAEs)

- Learn VAE principles and mechanisms.
- Use VAEs for generating code and test scenarios.
- Apply VAEs in UI enhancement and content personalization.
- Generate variations in code and UI elements.

6. Deep Learning and GANs

- Learn GAN concepts and applications.
- Generate synthetic data for testing.
- Use GANs for realistic UI elements and media.
- Explore advanced GANs for complex code generation.

7. Natural Language Generation (NLG)

- Understand NLG's role in software development.
- Generate readable documentation from code.
- Create code from high-level descriptions.
- Build interactive, personalized user experiences.

8. Automated Code Generation

- Generate boilerplate code across languages.
- Use AI for refactoring and optimizing code.
- Learn best practices for code integration.
- Develop integration strategies for generated code.

9. Automating Documentation Creation

- Generate API documentation and comments with AI.
- Maintain accurate, up-to-date documentation.
- Create user guides and technical manuals.
- Integrate AI-generated docs into workflows.

10. Test Generation and Automation

- Generate unit, integration, and end-to-end tests.
- Ensure test coverage and reliability with AI.
- Automate testing using generative AI.
- Integrate AI-generated tests into CI/CD pipelines.

11. AI in UI/UX Design

- Use AI for dynamic, adaptive interfaces.
- Enhance UX and accessibility with AI.
- Personalize UI/UX based on user preferences.
- Review case studies of AI-driven UI/UX improvement.

12. Multimodal Generative AI

- Generate combined text, images, and data.
- Leverage multimodal AI for comprehensive content.
- Enhance UI/UX design with multimodal AI.
- Integrate multimodal content into applications.

13. Style Transfer and Neural Art

- Learn style transfer principles and applications.
- Apply neural art in UI/UX design.
- Create customizable UI themes with style transfer.
- Explore creative content generation techniques.

14. Integrating AI into Existing Projects

- Incorporate generative AI into ongoing projects.
- Balance AI content with manual development.
- Maintain integrity while integrating AI.
- Manage AI-driven changes in long-term projects.

15. Customizing AI Models for Specific Use Cases

- Adapt generative models for specific needs.
- Train and deploy customized models.
- Fine-tune models for specialized tasks.

16. Generative AI in the Real World

- Explore generative AI applications across industries.
- Apply techniques to real-world challenges.
- Review case studies of successful implementations.
- Develop strategies for practical applications.

17. Pulling it All Together: Building and Deploying Generative AI Models

- Synthesize concepts to build and deploy AI models.

Related Courses

TTPS4879   Hands-On Predictive Analytics with Python

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels, CodeCoach.AI anytime tutor access, and rich extended learning and post training resources are provided for you in our "easy access, single source, 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.

For More Information

Please contact us or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.