Developing Generative AI Applications on AWS

AWS Classroom Training

Course description

This course is designed to introduce generative AI to software developers interested in leveraging large language models without fine-tuning. The course provides an overview of generative AI, planning a generative AI project, getting started with Amazon Bedrock, the foundations of prompt engineering, and the architecture patterns to build generative AI applications using Amazon Bedrock and LangChain.

- Course level: Advanced
- Duration: 2 days
- Mode of Instruction: In-person Classroom Training

Activities

This course includes presentations, demonstrations, and group exercises.

Course objectives

In this course, you will:

- Describe generative AI and how it aligns to machine learning
- Define the importance of generative AI and explain its potential risks and benefits
- Identify business value from generative AI use cases
- Discuss the technical foundations and key terminology for generative AI
- Explain the steps for planning a generative AI project
- Identify some of the risks and mitigations when using generative AI
- Understand how Amazon Bedrock works
- Familiarize yourself with basic concepts of Amazon Bedrock
- Recognize the benefits of Amazon Bedrock
- List typical use cases for Amazon Bedrock
- Describe the typical architecture associated with an Amazon Bedrock solution
- Understand the cost structure of Amazon Bedrock
- Implement a demonstration of Amazon Bedrock in the AWS Management Console
- Define prompt engineering and apply general best practices when interacting with FMs
- Identify the basic types of prompt techniques, including zero-shot and few-shot learning
- Apply advanced prompt techniques when necessary for your use case
- Identify which prompt-techniques are best-suited for specific models
- Identify potential prompt misuses

Course Fee

Standard fee: HK$12,000
Promotion fee: HK$6,000

Course Schedule

Sep 15-16, 2025 (12 hours)
9:30am - 12:30pm & 2:00pm - 5:00pm
(12:30pm - 2:00pm Lunch Break)

Medium of instruction

Cantonese with English terminology

Training Venue

2/F., Centre Point, 181 Gloucester Road, Wan Chai, Hong Kong

How to Apply

• Complete Course Enrollment with Kenfil AND

• Submit Training Grant Application to NITTP Secretariat at least five weeks before the commencement of training

- Analyze potential bias in FM responses and design prompts that mitigate that bias
- Identify the components of a generative AI application and how to customize a foundation model (FM)
- Describe Amazon Bedrock foundation models, inference parameters, and key Amazon Bedrock APIs
- Identify Amazon Web Services (AWS) offerings that help with monitoring, securing, and governing your Amazon Bedrock applications
- Describe how to integrate LangChain with large language models (LLMs), prompt templates, chains, chat models, text embeddings models, document loaders, retrievers, and Agents for Amazon Bedrock
- Describe architecture patterns that can be implemented with Amazon Bedrock for building generative AI applications
- Apply the concepts to build and test sample use cases that leverage the various Amazon Bedrock models, LangChain, and the Retrieval Augmented Generation (RAG) approach

Intended audience

This course is intended for:

- Software developers interested in leveraging large language models without fine-tuning

Prerequisites

We recommend that attendees of this course have:

- AWS Technical Essentials
- Intermediate-level proficiency in Python

Course outline

Day 1

Module 1: Introduction to Generative AI - Art of the Possible (1 hour)

- Overview of ML
- Basics of generative AI
- Generative AI use cases
- Generative AI in practice
- Risks and benefits

Module 2: Planning a Generative AI Project (2 hours)

- Generative AI fundamentals
- Generative AI in practice
- Generative AI context
- Steps in planning a generative AI project
- Risks and mitigation

Module 3: Getting Started with Amazon Bedrock (1.5 hours)

- Introduction to Amazon Bedrock
- Architecture and use cases
- How to use Amazon Bedrock
- Demonstration: Setting Up Bedrock Access and Using Playgrounds

Module 4: Foundations of Prompt Engineering (1.5 hours)

- Basics of foundation models
- Fundamentals of prompt engineering
- Basic prompt techniques
- Advanced prompt techniques
- Demonstration: Fine-Tuning a Basic Text Prompt
- Model-specific prompt techniques
- Addressing prompt misuses
- Mitigating bias
- Demonstration: Image Bias-Mitigation

Day 2

Module 5: Amazon Bedrock Application Components (1.5 hours)

- Applications and use cases
- Overview of generative AI application components
- Foundation models and the FM interface
- Working with datasets and embeddings
- Demonstration: Word Embeddings
- Additional application components
- RAG
- Model fine-tuning
- Securing generative AI applications
- Generative AI application architecture

Module 6: Amazon Bedrock Foundation Models (1.5 hours)

- Introduction to Amazon Bedrock foundation models
- Using Amazon Bedrock FMs for inference
- Amazon Bedrock methods
- Data protection and auditability
- Lab: Invoke Amazon Bedrock model for text generation using zero-shot prompt

Module 7: LangChain (1.5 hours)

- Optimizing LLM performance
- Integrating AWS and LangChain
- Using models with LangChain
- Constructing prompts
- Structuring documents with indexes
- Storing and retrieving data with memory
- Using chains to sequence components
- Managing external resources with LangChain agents

Module 8: Architecture Patterns (1.5 hours)

- Introduction to architecture patterns
- Text summarization
- Lab: Using Amazon Titan Text Premier to summarize text of small files
- Lab: Summarize long texts with Amazon Titan
- Question answering
- Lab: Using Amazon Bedrock for question answering
- Chatbots
- Lab: Build a chatbot

- Code generation
- Lab: Using Amazon Bedrock Models for Code Generation
- LangChain and agents for Amazon Bedrock
- Lab: Building conversational applications with the Converse API

Instructor Profile

Name:

Wu Hoi Lam (Brian)

Experience Summary:

Brian has over 20 years IT training experience. He is specialized in conducting IT technical and certification courses including Amazon Web Services (AWS), VMware vSphere; Microsoft Windows Server, Windows Operating System, SQL Server, Exchange Server, Microsoft 365, Azure; Citrix XenApp and XenDesktop, ADC (formerly NetScaler), Citrix Cloud, SDWAN; Linux Cluster, MySQL; SLURM; Nutanix hyperconverged infrastructure for enterprise datacenters, etc. to customers mainly came from international and local enterprise/corporations, public utilities and the Government in which thousands of IT Managers/Professionals, Project Managers, Systems Engineers, Administrators, Pre-sales and Post-sales of resellers had been successfully trained up. With his rich training experience within IT industry covering a wide range of skills and knowledge, from data center and network infrastructure to more recently Cloud architecture and implementation, he has been training up the enterprises in all industry level verticals to help their adoption of Cloud technology.

During the past years, he has frequently been recognized for outstanding achievement which led him to become Certified Instructor of AWS, Microsoft, Citrix, VMware and Nutanix. He had been awarded as Citrix Certified Instructor (CCI) of the Year in Greater China in the years of 2012, 2015 and 2017. Also, he had got CCI Triple NetScore Champions continuously during his teaching years. In addition, he is the only trainer to train up the pre-sales, post-sales, technical engineers of all Citrix partners (resellers) to keep abreast their latest skill and knowledge on Citrix solutions and technologies.

Brian was the first AWS Authorized Instructor (AAI) in Hong Kong since 2017, along with various certifications under his belt including AWS Authorized Instructor (AAI) Champion in which he had been certified to deliver full spectrum of AWS courses from the Associate to Professional Level and also Specialty courses. Besides regular classes in Hong Kong, he had been often appointed by AWS to deliver advanced and specialty courses in private classes to large number of enterprise customers. As a result, he had trained up over 3,000 students of AWS courses.

He is one of the top VMware Certified Instructor (VCI) since 2007 and delivered VMware official courses through the earliest VMware Infrastructure 3 into the latest vSphere v7 generation. In addition, he was engaged in delivering VMware technical training to train up VMware Partners (resellers).

What's more, he knows how private/public/multi-Cloud, virtualization and IT infrastructure technologies work in the real world. He is not only knowledgeable about the teaching subjects but also provides relevant real-world experience and share the cases and examples during the class. He also designed & customized training solutions to align the training curriculum in-sync with the objectives and mission-oriented needs of the staff and organizations. Thus, his classes give participants who coming from all sizes of organizations the knowledge and skills they need to effectively apply to their daily work and projects or pursue certifications.

In the aspect of training, he receives excellent feedback and evaluation score on his training skill and performance from the participants in terms of knowledge of subject, practical experience sharing with students, presentation & communication skills that motivate participants to achieve the best result. He is a highly preferred trainer by the customers.

Work Experience:

Feb 2005 – Present   **Kenfil Kong Kong Limited**
Trainer
- To conduct I.T. training for corporate customers or individuals.
- To assist in course development and materials preparation. To facilitate trainees in achieving the outcome of the training course attended.
- To deliver courses of I.T. vendors such as Microsoft, AWS, VMware, Citrix.
- Provide guidance and support to the course participants on the subject matter related queries.

AWS Event Speaker:

In addition, he has been invited to be guest speaker for vendors' Technology Events such as Technology Days. He is a regular and dedicated speaker/trainer of IT events, seminars and workshops in the previous years including:

- AWS Discovery Day in 2022-2024:
  - AWS Discovery Day - AWS Cloud Practitioner Essentials
  - AWS Discovery Day - Fundamentals of a Modern Data Strategy on AWS
  - AWS Discovery Day - Securing Your AWS Cloud
  - AWS Discovery Day - Strategies and Tools to Perform Large-Scale Migrations
  - AWS Discovery Day - Machine Learning Basics

- AWS webinars in 2020-2023:
  - Running Containers on AWS Webinar
  - Running Kubernetes on AWS Webinar
  - Handling Cloud Ingress Traffic & Hybrid Monitoring Webinar
  - Cloud VDI - Secure and Encrypted Remote Office Solution Webinar
  - Pro Tips for Advancing Your Career with AWS Certifications Webinar
  - Data Analytics on AWS Webinar
  - Data Encryption on AWS Webinar
  - Architecting Fundamentals on AWS Webinar
  - Building Kubernetes CI/CD on AWS Webinar
  - AWS Cloud Security Webinar
  - Cloud Data Warehousing on AWS Webinar
  - Getting Started with AWS DevOps Webinar
  - Architecting Fundamentals on AWS Webinar

- AWS hands-on workshops in 2018-2024:
  - Getting Started with AWS Managed Cloud DNS - Amazon Route 53
  - Getting Started with Amazon Virtual Private Cloud (Amazon VPC)
  - Begin your AWS Cloud Journey by Backing Up On-premise Data
  - Handing Over the Repetitive Heavy Lifting with Managed Database Services
  - Data Lakes and Analytics with AWS Big Data Services
  - Getting Started Workshop with AWS
  - Building Generative AI with Amazon Bedrock Workshop
  - Generative AI in Business Workshop: A Data-Driven Approach
  - Generative AI Essentials Workshop with Amazon Bedrock and Nova
  - Securing Generative AI: Guardrails for Amazon Bedrock Workshop
  - Transforming BI with Amazon QuickSight and Generative BI Workshop

- 3 times as speaker for AWS Summit in 2018-2025

- 3 times as speaker for AWSome Days in 2018-2019

Scope of AWS Official Courses Delivery:
Course Name
- AWS Cloud Practitioner Essentials
- AWS Technical Essentials
- Architecting on AWS
- Advanced Architecting on AWS
- Developing on AWS
- DevOps Engineering on AWS
- Cloud Operations on AWS
- Practical Data Science with Amazon SageMaker
- MLOps Engineering on AWS
- Amazon SageMaker Studio for Data Scientists
- Generative AI Essentials on AWS
- Developing Generative AI Applications on AWS

- Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS)
- Building Data Lakes on AWS
- Building Batch Data Analytics Solutions on AWS
- Building Data Analytics Solutions Using Amazon Redshift
- Building Streaming Data Analytics Solutions on AWS
- Planning and Designing Databases on AWS
- Data Warehousing on AWS
- Security Engineering on AWS

Real World Experience on AWS:
In 2019, Brian was in charge on a project helping an investment company to re-architect their production IT and AWS cloud environment. In the project, he accessed, designed, implemented, supported, optimized hyper-cloud infrastructure as a whole. He built an enterprise secure network framework, monitoring platform and helped the company to reduce the cost on cloud infrastructure.

Education and Profession Qualification:
- Master Degree in Information System
- Business Bachelor Degree in Accounting

AWS:
- **AWS Authorized Instructor (AAI) Champion *(Sole in HK)***
- AWS Certified Solution Architect – Professional
- AWS Certified DevOps Engineer – Professional
- AWS Certified Solutions Architect – Associate
- AWS Certified Machine Learning Engineer – Associate
- AWS Certified SysOps Administrator - Associate
- AWS Certified Developer – Associate
- AWS Certified Data Engineer – Associate
- AWS Certified Machine Learning – Specialty
- AWS Certified Security – Specialty
- AWS Certified Advanced Networking – Specialty
- AWS Certified Data Analytics – Specialty
- AWS Certified Database – Specialty
- AWS Certified SAP on AWS – Specialty
- AWS Certified Cloud Practitioner
- AWS Certified AI Practitioner

Microsoft:
- **Microsoft Certified Trainer (MCT)**
- MMicrosoft Certified: Azure Data Fundamentals
- Microsoft Certified: Azure Fundamentals
- Microsoft® Certified Solutions Expert: Data Management and Analytics Charter
- Microsoft Specialist: Server Virtualization with Windows Server Hyper-V and System
- Center
- Microsoft® Certified Solutions Expert: Data Platform
- Microsoft® Certified Solutions Expert: Business Intelligence
- MCSA: SQL Server 2012/2014
- Microsoft Certified Professional

VMware:
- **VMware Certified Instructor (VCI)**
- VMware Certified Professional – Data Center Virtualization 2021 (VCP-DCV 2021)
- VMware Certified Professional – Data Center Virtualization 2020 (VCP-DCV 2020)
- VMware Certified Professional 6.5 – Data Center Virtualization (VCP6.5-DCV)
- VMware Certified Professional 6 – Data Center Virtualization (VCP6-DCV)

Citrix:
- **Citrix Certified Instructor (CCI) of the Year in Greater China 2012, 2015, 2017**
- Citrix Certified Expert – Virtualization (CCE-V)
- Citrix Certified Professional – Virtualization (CCP-V)
- Citrix Certified Associate – Virtualization (CCA-V)
- Citrix Certified SD-WAN (CC-SDWAN)
- Citrix Certified Associate – App Delivery and Security (CCA-AppDS)
- Citrix Certified Professional – App Delivery and Security (CCP-AppDS)
- Citrix Certified Expert – App Delivery and Security (CCE-AppDS)

Name of major clients:
- AEON CREDIT SERVICE (ASIA) COMPANY LTD
- Hong Kong Exchanges and Clearing Ltd.
- The Hong Kong Jockey Club
- HKMC Annuity Limited
- Ricoh Hong Kong Limited
- Office of the Government Chief Information Officer (OGCIO)
- Hospital Authority
- Lands Department
- ATAL TECHNLOGIES LTD
- Hong Kong Examination & Assessment Authority
- Haven Technologies Asia
- CITIC Telecom International CPC Limited
- Hong Kong Telecommunications (HK) Ltd
- China Mobile Hong Kong Co Ltd.

Language Proficiency:
Fluent in Cantonese and English, Good at Mandarin