esri UK

Training the GIS Professional

AVINEON TENSING

Training Course Outline

AI-Powered Data Integration with ArcGIS Data Interoperability - 1 day

Overview

This hands-on, one-day course shows you how to build Generative AI into your ArcGIS Data Interoperability workspaces, turning messy, unstructured and unpredictable content into clean, structured data. Building on foundational Data Interoperability skills, you'll start with how AI services are reached through their APIs. You'll then connect to models from providers such as OpenAI and Google Gemini, and to open-source models running locally with Ollama for cases where security and data protection matter most. Along the way you'll learn to write effective prompts and get back structured JSON you can rely on, then use that to clean and enrich real-world data. The course then moves on to harder problems. These include mapping unknown schemas to your own structure, extracting tables from PDFs, orchestrating Roboflow computer vision models alongside generative AI, and using embeddings to search ArcGIS Online content by meaning rather than keyword. You'll leave with practical, multi-model workflows you can put to use straight away.

Please note: This couerse was previously called Applying Generative AI in Esri Data Interoperability Workflows, please do not reattend as the content is similar.

This course will be delivered by Avineon Tensing, a Partner of Esri UK.

Who should attend

- GIS Analysts
- GIS Technical Leads
- Data Management Professionals
- GIS Application Developers

Goals

- Effective prompt writing techniques and managing dynamic JSON outputs from AI services.
- A practical comparison of AI models from OpenAI, Gemini, Anthropic and local models using Ollama, understanding when to use each.
- Learn how to incorporate custom image recognition using models trained and deployed in Roboflow as part of a data workflow.
- PDF document extraction and conversion into spatially enabled feature class attributes.
- Sentiment analysis and text classification techniques for unstructured text or image content.

Topics Covered

- Introduction to generative AI in spatial data workflows, understanding the value of structured data extraction as a key LLM capability.
- A comparison of cloud-based and local AI models and setting up API connections to AI services using certified FME Hub Transformers.
- Prompt engineering for geospatial data processing, writing effective prompts, handling dynamic JSON and GeoJSON responses and strategies for consistent structured outputs from generative AI.
- Working with multiple AI providers (including OpenAI, Gemini and others) APIs, understanding the pros and cons of each provider and managing API keys and authentication within the Data Interoperability Extension.

Topics Covered Continued

- Overview of open-source AI models, their value in addressing security and data privacy requirements, the capabilities and performance considerations.
- Learn how custom image classification models can be trained and how such computer vision models can be used within Data Interoperability workflows, including their practical applications for feature attachment classification.
- Document (unstructured data) extraction including extracting tables and spatial data from PDF documents, converting unstructured document content to feature attributes and handling multi-page document extraction.
- Text classification and sentiment analysis, classifying unstructured text content, performing sentiment analysis and enriching geodatabase feature attributes with AI-derived values and Google Search-grounded data.
- Building reusable workflows with AI, creating modular workspace designs, error handling for AI responses and strategies for scaling AI integration across your ArcGIS Enterprise or ArcGIS Online environment.

Prerequisites

Attendees should have a basic working knowledge of ArcGIS Data Interoperability for ArcGIS Pro and be comfortable running a workspace, using readers and writers for common spatial formats such as Shapefile, GeoJSON and file geodatabase, and applying basic transformers to manipulate data. No prior experience of AI or machine learning is needed.

Contact Us

For GIS training enquiries and bookings visit esriuk.com/learning, email us at learning@esriuk.com or call us on 01296 745504

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