SDAIA
الهيئة السعودية للبيانات والذكاء الاصطناعي
Saudi Data & AI Authority

SDAIA AI Program

Week	Dates	Duration	Topics Covered
1 – Build a Strong Programming Foundation for AI (Online)	Aug 24 – Aug 28	5–6 hrs daily	Python syntax, functions & control structures, NumPy & Pandas, Data visualization (Matplotlib, Seaborn), File handling (CSV, JSON, text, images), Build a basic AI model (spam filter/digit recognizer).
2 – Programming with Deep Learning Libraries (Online)	Aug 31 – Sep 4	5–6 hrs daily	Deep learning concepts, TensorFlow, Keras, PyTorch. Build neural network, Training, testing, and evaluation. GPU acceleration. Explore datasets such as MNIST, CIFAR-10. learn how to Save & reload models.
3 – Advanced Neural Networks & Model Tuning (Online)	Sep 7 – Sep 11	5–6 hrs daily	Apply Hyperparameter tuning, dropout & regularization. Apply early stopping, CNNs, data augmentation, performance metrics, and Tuned CNN for image tasks.
4 – Advanced Computer Vision & Intro to NLP (Online)	Sep 14 – Sep 18	5–6 hrs daily	OpenCV basics, YOLOv8 object detection, dataset annotation (Roboflow). Image segmentation (Mask R-CNN), build smart surveillance app, and and export YOLO models. NLP basics: tokenization, embeddings, use Hugging Face Transformers (BERT, GPT), text classification, sentiment analysis, summarization, and translation. Use spaCy or NLTK for basic text preprocessing.
5 – Generative Artificial Intelligence (LMH, Oxford)	Sep 21 – Sep 25	8 hrs daily	GANs & VAEs fundamentals, build GANs (digits/faces), Style transfer, VAEs for anomaly detection, and explore Kaggle & Hugging Face datasets.
6–7 – Natural Language Processing Intelligence (LMH, Oxford)	Sep 28 – Oct 9	8 hrs daily	LLMs: BERT, GPT, scaling laws, LoRA & QLoRA, Evaluation: Perplexity, BLEU, ROUGE. Contrastive/self-supervised learning (CPC, MoCo, SimCLR, BYOL, DINO, iBOT). Prompt engineering (few-shot, CoT). Advancements (Mixture of Experts, FlashAttention-2, Llama 3, DeepSeek, BLT, diffusion models). Multimodality (CLIP, VisualBERT, FLAVA). Code generation, Audio processing, and Ethics in LLMs.
8–9 – Capstone Project: AI for Real-World Solutions (Online)	Oct 12 – Oct 23	5–6 hrs daily	Team project with KAUST/Oxford mentorship. Build full AI pipeline: data → model → output. Technical report & presentation. Present confidently, Submit code & documentation