MERCURY

Developing Large AI Models Training Course

28 February – 4 March 2027
Dubai (UAE)



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Developing Large AI Models Training Course

Ref: 16026_1003184 **Date:** 28 February – 4 March 2027 **Location:** Dubai (UAE) **Fees:** 4900 Euro

Introduction to Developing Large AI Models:

The Developing Large AI Models training course is a comprehensive and advanced program designed to equip professionals with the knowledge and tools needed to build, scale, and deploy large Artificial Intelligence AI models. As AI continues to reshape industries and redefine competitive advantages, professionals must understand how to develop AI systems that can handle complex, real-world challenges.

This Developing Large AI Models course provides hands-on training in deep learning, neural network development, and AI model optimization techniques. It emphasizes responsible AI development by integrating ethical considerations and risk management practices throughout the model lifecycle. Participants will engage with modern frameworks and large-scale infrastructure used in training deep learning models.

By exploring case studies and practical scenarios, learners will gain insights into deploying scalable AI solutions for business transformation. This Developing Large AI Models training will enhance the participants' abilities to leverage data-driven decision-making with AI-powered analytics.

The Developing Large AI Models program is ideal for individuals seeking to lead AI initiatives and integrate advanced AI into enterprise operations. Whether working in tech, business, research, or consulting, learners will finish the course ready to implement AI innovations strategically.

Targeted Groups:

This Developing Large AI Models training course targets professionals seeking specialized knowledge and skills:

- Data scientists focused on scalable AI modeling.
- Machine learning engineers are building advanced systems.
- AI developers are enhancing deep learning expertise.
- Software developers are integrating AI frameworks.
- Business analysts are using AI for predictive insights.
- IT professionals manage AI infrastructure.
- Researchers are developing next-generation AI solutions.
- Technical consultants offering AI-based services.
- AI-focused project managers or leads.
- Professionals transitioning to AI development roles.

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Course Objectives:

Participants will achieve the following objectives by the completion of the Developing Large AI Models course:

- Understand foundational AI and deep learning concepts.
- Identify architectures suitable for large-scale AI systems.
- Analyze and prepare complex datasets for model training and development.
- Design and implement neural networks for business use.
- Train large AI models using cutting-edge tools and technologies.
- Apply optimization techniques for speed and accuracy.
- Assess AI models based on performance metrics.
- Address the ethical, legal, and societal impacts of AI.
- Integrate AI into analytics pipelines for real-time insights.
- Manage AI workflows within enterprise environments.
- Monitor and improve model performance continuously.
- Translate AI outputs into business decisions.
- Mitigate risks associated with large AI model deployments.
- Align AI initiatives with organizational goals.
- Communicate complex AI concepts clearly to stakeholders.
- Plan scalable AI model deployment strategies.
- Drive digital transformation through AI capabilities.
- Innovate with generative and emerging AI models.
- Prepare for advanced roles in AI research or development.
- Lead AI teams and mentor junior AI professionals.

Targeted Competencies:

Participants will gain the following competencies during the Developing Large AI Models program:

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- Mastering AI model development from design to deployment.
- Building deep learning and neural network architectures.
- Preprocessing and engineering features from big data.
- Training and validating high-performance AI models.
- Managing distributed training environments with GPUs.
- Scaling AI models for enterprise-level applications.
- Integrating AI solutions into decision-making workflows.
- Evaluating model bias, ethics, and explainability.
- Communicating technical results to diverse audiences.
- Leading AI projects aligned with business strategies.

Course Content:

Unit 1: Foundations of Artificial Intelligence and Machine Learning:

- Introduction to Artificial Intelligence and its evolution.
- Core differences between machine learning and traditional programming.
- Overview of AI model types: classification, regression, clustering.
- Supervised, unsupervised, and reinforcement learning approaches.
- Deep Learning Foundations and Neural Network Fundamentals.
- Understanding layers, weights, and backpropagation.
- Role of large datasets in AI model training.
- Data collection, quality, and augmentation techniques.
- Applications of AI in healthcare, finance, marketing, and more.
- Ethical considerations: bias, fairness, and transparency.
- Regulatory frameworks and responsible AI practices.
- Case examples of AI-powered innovations across industries.

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Unit 2: Building and Training Large AI Models:

- Selecting architectures for large AI models CNNs, RNNs, Transformers.
- Overview of AI frameworks: TensorFlow, PyTorch, and JAX.
- Setting up cloud-based or distributed training environments.
- GPU and TPU Utilization Strategies for Performance Gains.
- Data pipelines and feature extraction techniques.
- Hyperparameter optimization methods grid search, Bayesian.
- Regularization, dropout, and batch normalization for stability.
- Handling overfitting and underfitting in complex models.
- Model evaluation using confusion matrix, ROC, and precision-recall.
- Cross-validation techniques for generalization.
- Transfer learning and pre-trained model customization.
- End-to-end AI model development lifecycle in practice.

Unit 3: Business Applications and Decision-Making with AI Models:

- Leveraging large AI models for predictive analytics.
- Forecasting trends and customer behavior with machine learning.
- Integrating AI models into CRM and ERP systems.
- Scenario analysis using AI simulations.
- Automating business processes with intelligent systems.
- AI in real-time decision support systems.
- Enhancing operational efficiency through data-driven insights.
- Using AI for fraud detection and risk scoring.
- Impact of AI on marketing, personalization, and segmentation.
- Building AI-based recommendation engines.
- Ensuring ROI from AI investments.
- Success stories in enterprise AI transformation.

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Unit 4: AI Model Deployment, Scaling, and Maintenance:

- Strategies for Deploying Models in Production Environments.
- Understanding APIs, containers Docker, and CI/CD pipelines.
- Real-time vs. Batch Model Inference and Latency Concerns.
- Model monitoring, logging, and alerting best practices.
- Version Control and Rollback Procedures for AI Models.
- Resource scaling via Kubernetes and cloud-native tools.
- Edge computing and federated learning applications.
- Addressing compliance GDPR, HIPAA in AI deployment.
- Security protocols for protecting AI pipelines.
- Building explainable AI interfaces and dashboards.
- Managing continuous learning and retraining cycles.
- Tools: MLflow, DVC, TFX for scalable AI operations.

Unit 5: Future Trends, Challenges, and Innovations in Large AI Models:

- Trends in AI: generative models, foundation models, and agents.
- Exploring innovations in natural language processing LLMs.
- Advances in computer vision and multi-modal models.
- Quantum computing in AI model acceleration.
- Challenges in interpretability and model transparency.
- Societal impacts: displacement, AI ethics, and fairness.
- Responsible use of AI in sensitive sectors.
- The future of neural architecture search and AutoML.
- Career paths in AI research, engineering, and strategy.
- Building an AI-first culture in organizations.
- Leadership and policy-making in AI governance.
- Professional growth and a continuous AI upskilling roadmap.

Final Insights & Key Takeaways:

The Developing Large AI Models training course empowers professionals to architect, train, and scale advanced AI solutions. It fosters innovation by providing practical insights into the development and deployment of neural networks. Participants leave with hands-on experience and a strategic understanding of deep learning model development. The course bridges the gap between technical expertise and business applications. Graduates will be ready to drive AI transformation in complex, data-rich environments.