TensorFlow for Data Analysis Training Course

Professional Development Training Course Outline

Category	Research and Data Analysis	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today’s data-driven era, organizations rely on advanced machine learning frameworks to unlock actionable insights from complex datasets. TensorFlow for Data Analysis empowers professionals to harness the full potential of structured and unstructured data using deep learning and AI-powered analytics. TensorFlow for Data Analysis Training Course provides hands-on experience with TensorFlow, Python, data preprocessing, feature engineering, and predictive modeling, enabling participants to design scalable, production-ready solutions. Participants will learn to transform raw data into high-value insights, optimize machine learning workflows, and deploy intelligent models to solve real-world business problems.

This comprehensive program bridges the gap between theory and practical application, ensuring learners gain proficiency in neural networks, tensor operations, data visualization, and time-series forecasting. Through case studies and interactive exercises, participants will understand how TensorFlow accelerates data analysis pipelines and decision-making processes. By the end of the course, attendees will confidently apply AI-driven analytics, leverage deep learning frameworks, and contribute to data-centric projects in industries like finance, healthcare, marketing, and technology.

Programme Curriculum

TensorFlow for Data Analysis Training Course

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Course Duration

5 days

Course Objectives

1. Master TensorFlow fundamentals for effective data analysis.
2. Gain expertise in data preprocessing and feature engineering.
3. Build and optimize deep learning models for real-world datasets.
4. Perform predictive analytics using neural networks.
5. Implement time-series forecasting with TensorFlow.
6. Leverage TensorFlow APIs for scalable model deployment.
7. Integrate machine learning pipelines with Python.
8. Analyze unstructured data using NLP and computer vision techniques.
9. Develop custom models for business-specific applications.
10. Apply data visualization techniques for actionable insights.
11. Evaluate and improve model performance with hyperparameter tuning.
12. Learn cloud integration for TensorFlow workflows.
13. Apply ethical and responsible AI practices in data analysis projects.

Target Audience

1. Data Analysts seeking to upskill in AI frameworks.
2. Machine Learning Engineers aiming to enhance TensorFlow proficiency.
3. Data Scientists focusing on predictive modeling.
4. Business Analysts interested in AI-driven decision making.
5. Python Developers expanding into machine learning.
6. AI Enthusiasts wanting hands-on TensorFlow experience.
7. IT Professionals transitioning into data-centric roles.
8. Students and researchers exploring deep learning applications.

Course Modules

Module 1: Introduction to TensorFlow & Data Analysis

- Overview of TensorFlow ecosystem and architecture
- Understanding tensors and computational graphs
- Installation and setup of TensorFlow environment
- Basic operations and matrix manipulations
- **Case Study:** Analyzing sales data for trend prediction

Module 2: Data Preprocessing & Feature Engineering

- Handling missing data, outliers, and normalization
- Encoding categorical features and scaling techniques
- Feature selection and dimensionality reduction
- Preparing datasets for TensorFlow models
- **Case Study:** Customer churn prediction dataset

Module 3: Building Neural Networks

- Understanding layers, activations, and loss functions
- Sequential and Functional API in TensorFlow
- Training, validation, and test set splitting
- Implementing forward and backward propagation
- **Case Study:** Predicting housing prices with neural networks

Module 4: Advanced Deep Learning Techniques

- Convolutional Neural Networks (CNNs) for image analysis
- Recurrent Neural Networks (RNNs) for sequential data
- Autoencoders and anomaly detection
- Transfer learning and pre-trained models
- **Case Study:** Stock price prediction using RNNs

Module 5: Predictive Modeling & Evaluation

- Regression and classification tasks
- Model evaluation metrics: accuracy, precision, recall, F1-score
- Cross-validation and k-fold techniques
- Hyperparameter tuning and regularization
- **Case Study:** Predictive maintenance in manufacturing

Module 6: Time-Series Forecasting

- Time-series data preparation and visualization
- Using RNN and LSTM models in TensorFlow
- Seasonal trend decomposition and forecasting
- Evaluating forecast accuracy
- **Case Study:** Energy consumption forecasting

Module 7: Deployment & Integration

- Saving and loading TensorFlow models
- Exporting models for production environments
- Introduction to TensorFlow Serving and TensorFlow Lite
- Integrating models into web applications
- **Case Study:** Deploying a real-time sales prediction model

Module 8: Data Visualization & Insights

- Visualizing datasets with Matplotlib and Seaborn
- TensorBoard for model performance tracking
- Creating interactive dashboards
- Communicating insights for business decision-making

- **Case Study:** Marketing campaign performance analysis

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price

23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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