Machine Learning for Business Course

An End-to-End Guide to Building and Leading Machine Learning Projects

As artificial intelligence becomes more commonly adopted across industries and business functions the demand for professionals who are able to solve complex business problems and create business value using machine learning has become increasingly critical. This course covers both the core technology and the business-side of machine learning projects, empowering participants with the end-to-end expertise needed to lead and contribute to machine learning projects and initiatives as well as apply machine learning in their daily work. Frameworks, case-studies, quizzes, demonstrations, and hands-on labs using selected enterprise machine learning platforms enhance participants' learning and expose them to practical environments.

This course takes a **no coding, no advanced mathematics approach**, making it accessible to executives and professionals in all business functions across all industries.

Audience

- Individuals seeking to assure or advance their careers in the era of artificial intelligence
- Business leaders seeking to build competitive advantage for their organizations
- Executives, decision makers and professionals from all business functions across all industries including board of directors, executive management, line-of-business management, strategy, finance, human resources, sales, marketing, operations, risk management and compliance, audit, legal, data science, analytics, procurement, project management, supply chain management, customer service, product development and management, administration, business development, IT, and engineering

Prerequisites

- No prior knowledge of data science, machine learning, programming, or statistics is assumed
- Ability to use computer programs such as Excel and business applications
- An open mind

Outcomes

Upon successful completion of the course, the participant should be able to:

- Identify business opportunities for machine learning
- Frame a machine learning business problem
- Estimate machine learning project ROI
- Manage a machine learning project
- Measure machine learning project success in financial and qualitative terms
- Manage ethical and legal issues in a machine learning/artificial intelligence project
- Debunk myths and address misconceptions around machine learning/artificial intelligence
- Collect and prepare data for a machine learning project
- Build and evaluate a machine learning model
- Explain the output of a machine learning model
- Identify and remove bias in a model
- Operationalize a machine learning model
- Avoid common technical pitfalls in machine learning
- Evaluate a machine learning model in both technical and business metrics
- Approach modern enterprise machine learning platforms

Delivery

Two (2) full days Live onsite or online using Zoom, Teams, Google Meet or similar platform

Curriculum

1. Introduction to Artificial Intelligence and Machine Learning
    - What is artificial intelligence?
    - Artificial intelligence technologies and machine learning
    - Applications of machine learning
    - When to use machine learning
    - How machine learning creates business value
    - Types of machine learning
    - Types of problems that can be addressed by machine learning
    - Challenges in machine learning
    - Quiz
    - Key takeaways

2. Building Machine Learning Applications
    - Machine learning process
    - Key roles for a successful machine learning project
    - Enterprise machine learning platforms
    - Quiz
    - Key takeaways

3. Business Problem Definition
    - Defining the business problem
    - Converting a business problem into a machine learning problem
    - A problem framing methodology
    - Calculating project return-on-investment
    - Preliminary project plan
    - Case study: Fraud Detection - Problem Framing
    - Case study: Fraud Detection - Build a Project Team
    - Quiz
    - Key takeaways

4. Data Collection and Data Understanding
    - Data sources
    - Data sampling
    - Labeling
    - Data blending/data integration
    - Tips for building great datasets
    - Basic data statistics
    - Case study: Fraud Detection - Build a Dataset
    - Hands-on lab: Data Visualization
    - Quiz
    - Key takeaways

5. Data Preparation
    - Avoiding data leakage
    - Categorical variables
    - Numeric variable
    - Dirty data
    - Handling date
    - Text-based features
    - Feature selection
    - Feature generation
    - Hands-on lab: Data Preparation
    - Quiz
    - Key takeaways

6. Model Building and Evaluation: Churn Prevention
    - A framework for model building
    - Important classification algorithms
    - Pitfalls: p-hacking, overfitting and underfitting
    - Model training, validation and testing
    - Cross validation
    - Model selection: Evaluation methods and performance metrics
    - Optimization and parameter tuning
    - Evaluating model business performance
    - Model understanding
    - Explaining predictions
    - Calculating project business value
    - Hands-on lab: Build a Churn Prevention Model (Classification)
    - Quiz
    - Key takeaways

7. Model Building and Evaluation: Market Penetration
    - Important regression algorithms
    - Model selection: evaluation methods and performance metrics
    - Optimization and parameter tuning
    - Evaluating model business performance
    - Model understanding
    - Explaining predictions
    - Calculating project business value
    - Hands-on lab: Build a Market Penetration Strategy Model (Regression)
    - Quiz
    - Key takeaways

8. Model Building and Evaluation: Customer Segmentation
    - Clustering methods
    - Important algorithms
    - Optimization and parameter tuning
    - Evaluating model performance
    - Model understanding
    - Calculating project business value
    - Hands-on lab: Build a Customer Segmentation Model (Clustering)
    - Quiz

- Key takeaways

9. Model Operationalization
   - Model deployment options
   - Making predictions
   - Business implementation
   - Data drift and accuracy drift
   - Hands-on: Model Deployment
   - Quiz
   - Key takeaways

10. Legal and Ethical Issues in artificial intelligence and machine learning
   - Data privacy
   - Discrimination
   - Bias
   - Ethical issues
   - Quiz
   - Key takeaways

11. Epilogue
   - Key takeaways
   - The path ahead
   - Online resources

Registration
To book your seat register at www.sdscope.com/events, email events@sdscope.com or call +263 77 341 9956

Fee per Participant
US$599 paid in advance

Award
Certificate of Completion

Course Instructor


Shepherd Fungayi CEO SDscope
Certified Machine Learning Master
Certified Data Engineering Professional

Started professional career as a telecommunications engineer over 20 years ago
Experience building data-driven services
Experience in delivering IT, analytics and machine learning projects in telecommunications and financial services industries
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