Szkolenie: HPE
Deep Learning Theory and Practice

Hewlett Packard Enterprise

Cel szkolenia:

This training covers the foundations of artificial intelligence and machine learning, with special focus on deep learning. Best practices in managing deep learning projects will be shared. Hands-on labs in Python, TensorFlow and Keras will be provided to deepen student understanding.

Course objectives

At the conclusion of this course, you should be able to:

- Understand general terms and background of deep learning
- Leverage pre-trained deep learning models in image classification, object detection and natural language processing
- Know the best practices in managing deep learning projects
- Get basic understanding on deep learning application development using Python, TensorFlow and Keras

Audience

This course is ideal for data scientists, software developers, solution architects, project managers, researchers and other IT professionals looking to understand deep learning, and to develop and deploy deep learning solutions.

Plan szkolenia:

- Module 1: Deep Learning Introduction
  - Terminology
  - AI topics and techniques
  - Current use of AI
  - New frontiers of AI
  - Supervised learning
  - Unsupervised learning
  - Reinforcement learning
- Module 2: Artificial Neural Network
  - Artificial neuron

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- Activation function
- Forward pass and backward pass
- Loss function and gradient descent
- Fully connected neural network
- Convolutional neural network
- Recurrent neural network
- Training and inference

- Module 3: Deep Learning Programming Overview
  - Python
  - NumPy
  - Pandas
  - TensorFlow
  - Keras
- Module 4: Pre-trained Models
  - Image classification
  - Object detection
  - Word embedding
- Module 5: Regularization
  - Underfitting and overfitting
  - Bias-variance tradeoff
  - Dataset augmentation
  - Early stopping
  - L1 and L2 regularization
  - Dropout
  - Adversarial training
  - Ensemble method
- Module 6: Optimization and Tuning
  - Learning rate
  - Momentum
  - Optimization algorithm
  - Parameter initialization strategy
  - Data normalization
  - Batch normalization
  - Hyperparameter tuning strategy
  - Hardware acceleration
  - HPE Deep Learning Cookbook

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- Module 7: Deep Learning Project Management
  - Deep learning project management
  - Data acquisition
  - Data preprocessing
  - Data labelling
  - Baselining
  - Data augmentation
  - Transfer learning
  - Performance measurement
  - Ensemble method
- Module 8: AI in Law and Ethics
  - AI in law
  - All in ethics
- Module 9: Capstone Project
  - Apply deep learning to a real-life use case

Poziom trudności

Certyfikaty:

The participants will obtain certificates signed by HPE (course completion).

Prowadzący:

Authorized HPE Trainer.

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