EUROPEAN INFORMATION TECHNOLOGIES CERTIFICATION INSTITUTE, ASBL.

Brussels, Belgium, European Union

# CERTIFICATE

## Matthias Kuhn

Has successfully completed test requirements of
The European Information Technologies Certification Programme

### EITC/AI/MLP Machine Learning with Python

**Certification Programme examination result:** 80%

**Certification Programme description:**

Introduction: introduction to practical machine learning with Python; Regression: introduction to regression, regression features and labels, regression training and testing, regression forecasting and predicting, pickling and scaling, understanding regression; Programming machine learning: programming the best fit slope, programming the best fit line, R squared theory, programming R squared, testing assumptions, introduction to classification with K nearest neighbors, K nearest neighbors application, Euclidean distance, defining K nearest neighbors algorithm, programming own K nearest neighbors algorithm, applying own K nearest neighbors algorithm, summary of K nearest neighbors algorithm; Support vector machine: support vector machine introduction and application, understanding vectors, support vector assertion, support vector machine fundamentals, support vector machine optimization, creating an SVM from scratch, SVM training, SVM optimization, completing SVM from scratch, kernels introduction, reasons for kernels, soft margin SVM, soft margin SVM and kernels with CVXOPT, SVM parameters; Clustering, k-means and mean shift: clustering introduction, handling non-numerical data, K means with titanic dataset, custom K means, K means from scratch, mean shift introduction, mean shift with titanic dataset, mean shift from scratch, mean shift dynamic bandwidth

**Certificate Programme version/revision: EITC/AI/MLPv1r1**

CERTIFICATE ID: **EITC/AI/MLP/SLJ25004877**

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DATE OF ISSUE:
July 2025
Brussels, Belgium
**European Union**