E DIN EN 18281:2026-05 (E)

Erscheinungsdatum: 2026-04-10

Artificial Intelligence - Evaluation methods for accurate computer vision systems; English version prEN 18281:2026

Contents

Page

European foreword **4**

1 Scope **5**

2 Normative references **5**

3 Terms and definitions **5**

4 Abbreviated terms **5**

5 Overview **5**
5.1 General **6**
5.2 Purpose of evaluation **7**
5.3 Types of evaluation methods **7**
5.4 Basic evaluation concepts **7**
5.4.1 General **7**
5.4.2 Intrinsic vs. extrinsic evaluation **7**
5.4.3 Component vs. system evaluation **8**
5.4.4 Quantitative vs. qualitative methods **8**

6 Definition of evaluation methods **8**
6.1 General **8**
6.2 Accuracy, precision, recall, F1 ..... **8**
6.3 Absolute Relative Error (AbsRel or REL) **8**
6.4 Absolute Trajectory Error (ATE) **9**
6.5 Association Accuracy (AssA) **9**
6.6 Average Precision (AP) **10**
6.7 Chamfer Distance **10**
6.8 Detection Accuracy (DetA) **10**
6.9 Dice Similarity Coefficient **11**
6.10 Expected Calibration Error (ECE) **11**
6.11 Frechet Inception Distance (FID) **11**
6.12 Hausdorff Distance (HD) **12**
6.13 Higher Order Tracking Accuracy (HOTA) **12**
6.14 Identification F1 (IDF1) **13**
6.15 Inception Score (IS) **14**
6.16 Intersection over Union (IoU) **14**
6.17 Learned Perceptual Image Patch Similarity (LPIPS) **16**
6.18 Mean Average Precision (mAP) **16**
6.19 Mean Intersection over Union (mIoU) **16**
6.20 Mean Per Joint Position Error (MPJPE) **17**
6.21 Multiple Object Tracking Accuracy (MOTA) **17**
6.22 Mutual Information and Normalized Mutual Information **18**
6.23 Panoptic Quality (PQ) **20**
6.24 Peak Signal-to-Noise Ratio (PSNR) **20**
6.25 Percentage of Correct Keypoints (PCK) **21**
6.26 Percentage of Correct Parts (PCP) **21**
6.27 Pixel Accuracy (PA) **21**
6.28 Relative Pose Error (RPE) **22**
6.29 Root Mean Square Error (RMSE) **22**
6.30 Scale-Invariant Logarithmic Loss (SILog) **23**
6.31 Structural Similarity Index Measure (SSIM) **23**

6.32 Surface Coverage (SC) **24**
6.33 Target Registration Error (TRE) **24**
6.34 Temporal Intersection over Union (tIoU) **25**
6.35 Hausdorff Distance 95 Percentile **26**
6.36 Average Symmetric Surface Distance **26**
6.37 Mean Average Surface Distance **26**
6.38 Mean Squared Error (MSE) **26**
6.39 Mean Absolute Error (MAE) **27**
6.40 Pearson Correlation Coefficient (PCC) **27**

7 Evaluation methods per task **27**
7.1 General **27**
7.2 Image analysis **28**
7.2.1 General **28**
7.2.2 Object localization **29**
7.2.3 Object classification **29**
7.2.4 Object detection **30**
7.2.5 Semantic segmentation **32**
7.2.6 Instance segmentation **33**
7.2.7 Panoptic Segmentation **34**
7.2.8 Image registration **35**
7.2.9 Image similarity **39**
7.3 Spatial analysis **40**
7.3.1 General **40**
7.3.2 Depth estimation **40**
7.3.3 Object / 3D reconstruction **40**
7.3.4 Object pose estimation **43**
7.4 Temporal analysis **44**
7.4.1 General **44**
7.4.2 Multiple object tracking **44**
7.4.3 Action recognition **48**
7.4.4 Event detection **51**
7.5 Tasks producing image as an output **52**
7.5.1 General **52**
7.5.2 Image generation **52**
7.6 Tasks producing video as an output **53**

8 Requirements on resources **53**

Annex A (informative) **Regularity Measures for Image Transformations** **54**

Bibliography **56**