lossDS

Predicts all angles of passed test dataset and computes logaritmic losses for radius and angles plus several squared errors.

Syntax

```
[AAED, SLLA, SLLR, SEA, SER, SEC, SES] = lossDS(Mdl, TestDS)
```

Description

[AAED, SLLA, SLLR, SEA, SER, SEC, SES] = lossDS(Mdl, TestDS)computes losses and prediction erros of a whole datasets

Examples

```
Enter example matlab code for each use case.
```

Input Argurments

positionalArg argurment description.

optionalArg argurment description.

Output Argurments

AAED Absolute Angular Error in Degrees**SLLA** Std. Log. Loss Angular**SLLR** Std. Log Loss Radius**SEA** Squared Error Angular **SER** Squared Error Radius **SEC** Squared Error Cosine **SES** Squared Error Sine

Requirements

- Other m-files required: None
- Subfunctions: angles2sinoids, computeStdLogLoss
- MAT-files required: None

See Also

- predDS
- Training and Test Datasets
- angles2sinoids
- computeStdLogLoss

Created on March 03. 2021 by Tobias Wulf. Copyright Tobias Wulf 2021.

```
function [AAED, SLLA, SLLR, SEA, SER, SEC, SES] = lossDS(Mdl, TestDS)

    % get number of angles in dataset
    N = TestDS.Info.UseOptions.nAngles;

    % get simulated cosin and sine references from dataset angles in degrees
    % and transpose to column vector, get sinoids and angles in rads
    [ysin, ycos, yang] = angles2sinoids(TestDS.Data.angles', false, Mdl.PF);

    % create reference radius of unit cricle, radius must be one for all angles
    yrad = ones(N, 1);

    % predict angles in rads not in degrees
    [fang, frad, fcos, fsin, ~, s, ~, ~] = predDS(Mdl, TestDS);

    % compute log loss and squared error for angles in rad
    [SLLA, SEA] = computeStdLogLoss(yang, fang, asin(s) * sqrt(2));

    % compute abslute angular error in degrees
    AAED = sqrt(SEA) * 180/pi;

    % compute log loss and squared error for radius
    [SLLR, SER] = computeStdLogLoss(yrad, frad, sqrt(2) * s);

    % compute squared error of sinoids
    SEC = (ycos - fcos).^2;
    SES = (ysin - fsin).^2;

end
```

Published with MATLAB® R2020b