predDS

Predicts all frames of a test dataset at once.

Syntax

```
[fang, frad, fcos, fsin, fcov, s, ciang, cirad] = predDS(Mdl, TestDS)
predicts whole dataset at once using predFrame in a loop.
```

Description

[fang, frad, fcos, fsin, fcov, s, ciang, cirad] = predDS(Mdl, TestDS)

Input Argurments

Mdl model struct.

TestDS struct of loaded test dataset.

Output Argurments

fang vector of computed angle by predicted cosine and sine results.

frad vector of computed radius by predicted cosine and sine results.

fcos vector of predictive mean result of cosine regression.

fsin vector of predictive mean result of sine regression.

fcov vector of predictive variance for both predictive means.

s vector of resulting standard deviation by predictive variance and noise level.

ciang vector of confidence interval of computed angle.

cirad vector of confidence interval of computed radius.

Requirements

- Other m-files required: None
- Subfunctions: predFrame
- MAT-files required: None

See Also

- predFrame
- Training and Test Datasets

Created on March 03. 2021 by Tobias Wulf.

```
function [fang, frad, fcos, fsin, fcov, s, ciang, cirad] = predDS(Mdl, TestDS)

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

    % allocate memory for results
```

```
    fang = zeros(N, 1); % angle
    frad = zeros(N, 1); % radius
    fcos = zeros(N, 1); % cosine
    fsin = zeros(N, 1); % sine
    fcov = zeros(N, 1); % predictive covariance over radius
    s = zeros(N, 1); % sigma standard deviation over radius
    ciang = zeros(N, 2); % confidence 95% interval over angles lower and upper
    cirad = zeros(N, 2); % confidence 95% interval over raidus lower and upper

    % predict angle by angle from dataset
    for n = 1:N
        % get cosine and sine at n-th angle
        Xcos = TestDS.Data.Vcos(:,:,n);
        Xsin = TestDS.Data.Vsin(:,:,n);

        % predict frame
        [fang(n), frad(n), fcos(n), fsin(n), ...
         fcov(n), s(n), ciang(n,:), cirad(n,:)] = predFrame(Mdl, Xcos, Xsin);
    end
end
```

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