generateSimulationDatasets

Generate sensor array simulation datasets for training and test applications. Loads needed configurations from config.mat and characterization data from defined characterization dataset (current: PathVariables.tdkDatasetPath). Simulated dataset are saved to data/training and data/test path. Generate dataset for a predefined configuration at once. Best use is to generate simulation data, do wish application or evaluation on it and save results. Delete datasets, edit configuration and rerun for a new set of datasets.

Contents

Requirements

- Other m-files required: simulateDipoleSquareSensorArray.m
- Subfunctions: None
- MAT-files required: config.mat, TDK_TAS2141_Characterization_2020-10-22_18-12-16-827.mat

See Also

- sensorArraySimulation
- simulateDipoleSquareSensorArray
- generateConfigMat

Load Configuration and Characterization Dataset

Load configuration to generate dataset from config.mat and defined characterization dataset.

```
try
    clearvars;
    close all;
    disp('Load configuration ...');
    load('config.mat', 'GeneralOptions', 'PathVariables', ...
        'SensorArrayOptions', 'DipoleOptions', ...
        'TrainingOptions', 'TestOptions');
    disp('Load characterization dataset ...');
    switch TrainingOptions.BaseReference
        case 'TDK'
            TrainingCharDataset = load(PathVariables.tdkDatasetPath);
        case 'KMZ60'
            TrainingCharDataset = load(PathVariables.kmz60DatasetPath);
        otherwise
            error('Unknow characterization dataset in config.');
    end

    switch TestOptions.BaseReference
        case 'TDK'
```

```
            TestCharDataset = load(PathVariables.tdkDatasetPath);
        case 'KMZ60'
            TestCharDataset = load(PathVariables.kmz60DatasetPath);
        otherwise
            error('Unknow characterization dataset in config.');
    end

catch ME
    rethrow(ME)
end
```

Generate Training Datasets

Generate training dataset from configuration and characterization dataset.

```
disp('Generate training datasets ...');
simulateDipoleSquareSensorArray(GeneralOptions, PathVariables, ...
    SensorArrayOptions, DipoleOptions, TrainingOptions, TrainingCharDataset)
```

Generate Test Datasets

Generate test dataset from configuration and characterization dataset.

```
disp('Generate test datasets ...');
simulateDipoleSquareSensorArray(GeneralOptions, PathVariables, ...
    SensorArrayOptions, DipoleOptions, TestOptions, TestCharDataset)
```

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