# Matave Identification ToolBox
# A State Space Approach
# Version 12.5

## Linear System Algorithms

| *Function name* | *Description* | *Status* | *Model* |
|---|---|---|---|
| eradc | Eigensystem Realization Algorithm Data Correlation | Done | MIMO |
| ocid | Observer Controller IDentification | Done | MIMO |
| rls | Recursive Least Square | Done | SISO |
| n4sid | Numerical algorithms for Subspace State Space System IDentification | Done | MIMO |
| cca | Canonical Correlation Analysis for Subspace Identification | Done | MIMO |
| sra | Stochastic Realization Algorithm | Done | SISO |
| moesp | Multivariable Output-Error State Space | Done | MIMO |
| ortjiop | Orthogonal Decomposition of Joint Input-Output Process | Done | MIMO |

## Nonlinear System Algorithms

| *Function name* | *Description* | *Status* | *Model* |
|---|---|---|---|
| sindy | Sparse Identification of Nonlinear Dynamics | Done | MIMO |
| sr_ukf_parameter_estimation | Estimate parameters for a nonlinear system. Notice that this is parameter estimation and very similar to system identification | Done | MIMO |

## Analysis

| *Function name* | *Description* | *Status* | *Data* |
|---|---|---|---|
| spa | Plot bode spectral analysis plot using Fast Fourier Transform | Done | Requried |
| idbode | Plot bode diagram from frequency data | Done | Requried |
| rpca | Filter data using Robust Principal Component Analysis | Done | Requried |
| ica | Separate signals from each other so they are independent | Done | Requried |

## Filtering

| *Function name* | *Description* | *Status* | *Model* |
|---|---|---|---|
| filtfilt2 | Zero phase filtering with low pass filter. Not recursive. | Done | No |
| pf | Particle filter state estimation for non-gaussian noise | Done | No |
| sr_ukf_state_estimation | Estimate states for a nonlinear system using square root uncented kalman filter. | Done | Yes |

# Classification

| ***Function name*** | ***Description*** | ***Status*** | ***Data*** |
|---|---|---|---|
| svm | Support Vector Machine with C generation for CControl | Done | Requried |

# Miscellaneous

| ***Function name*** | ***Description*** | ***Status*** | ***Internet connection*** |
|---|---|---|---|
| updatemataveid | Update the Mataveid library | Done | Requried |