

KalmanFilter operator

This operator uses a [Kalman Filter](#) to produce a statistically optimal estimate of the underlying system state.

Parameter

- Variables: The name of the variables
- Attributes: The attributes to feed the filter
- Transition: The transition matrix 'A'
- ProcessNoise: The process noise matrix 'Q'
- Measurement: The measurement matrix 'H'
- MeasurementNoise: The measurement noise matrix 'R'
- InitialState: The initial state vector 'x' (optional)
- InitialError: The initial error matrix 'P' (optional)
- Control: The control matrix 'B' (optional)

Example

```
out = KALMAN({
    VARIABLES = ['x'],
    ATTRIBUTES = ['m'],
    TRANSITION = '[1.0]',
    PROCESSNOISE = '[2.0]',
    MEASUREMENT = '[1.0]',
    MEASUREMENTNOISE = '[4.0]'},
in)
```

```
out = KALMAN({
    VARIABLES = ['x','y','dx','dy'],
    ATTRIBUTES = ['vx','vy'],
    INITIALSTATE = '[0.0, 0.0, 0.0, 0.0]',
    INITIALERROR = '[1.0,0.0,0.0,0.0;0.0,1.0,0.0,0.0;0.0,0.0,1.0,0.0;0.0,0.0,0.0,1.0]',
    TRANSITION = '[1.0,0.0,1.0,0.0;0.0,1.0,0.0,1.0;0.0,0.0,1.0,0.0;0.0,0.0,0.0,1.0]',
    PROCESSNOISE = '[1/4, 1/4, 1/2, 1/2;1/4, 1/4, 1/2, 1/2; 1/2, 1/2, 1, 1; 1/2, 1/2, 1, 1]',
    MEASUREMENT = '[0.0,0.0,1.0,0.0;0.0,0.0,0.0,1.0]',
    MEASUREMENTNOISE = '[10.0,0.0;0.0,10.0]'},
in)
```