

# Least Squares version 1.1

Library to calculate least squares approximations.

Calculations written in SysRPL, GUI done in UserRPL, and converted to library format with Easylib.

LeastSquares.hp is the full version with GUI (1304 bytes).

Installs as library number 1492.

Tested on HP49G+.

Version history:

1.1 – 20050805

Converted calculations to SysRPL.

Include source.

As the source is included, no more lite version.

1.0.3 – 20050803

Reduced library size.

Faster algorithm.

1.0.2 – 20050802

Reduced library size.

Faster algorithm.

1.0.1 – 20050802

Reduced library size.

Added lite version.

1.0 – 20050801

Initial version

## **LESQ**

Least squares approximation for a set of base functions.

Args:

Level 2:  $[[x_1, y_1], \dots, [x_n, y_n]]$

Level 1:  $\{ 1 \text{ 'X' 'X}^2 \dots \}$  (list of base functions in X)

Result:

Level 1:  $[c_1 \dots c_m]$  (array of linear coefficients)

## **LESQP**

Least squares approximation as an  $n^{\text{th}}$  degree polynomial.

Args:

Level 2:  $[[x_1, y_1], \dots, [x_n, y_n]]$

Level 1: N (degree of polynomial)

Result:

Level 1:  $[c_1 \dots c_m]$  (array of linear coefficients, in ascending order)

# Least Squares version 1.1

## ***LESQGUI***

Menu-driven interface for performing least squares approximations. Interacts with variables  $\Sigma DAT$  and  $EQ$ .

Args:

Nothing, or an array of data points in variable  $\Sigma DAT$ , a polynomial degree in  $NN$ , a list of base functions in  $BA$ .

Result:

Level 1:  $[c_1 \dots c_m]$  (array of linear coefficients)

Variable  $NN$  or  $BA$  is set with the last used value.

Variable  $EQ$  is set with the determined interpolation function.

Comments or ideas to: [andre.jesus@netcabo.pt](mailto:andre.jesus@netcabo.pt)