com._604robotics.robot2012.vision

Class LinearRegression

java.lang.Object
    com._604robotics.robot2012.vision.LinearRegression

```
public class LinearRegression
extends java.lang.Object
```

Accepts a sequence of pairs of real numbers and computes the best fit (least squares) line y = ax + b through the set of points. Also computes the correlation coefficient and the standard error of the regression coefficients.

Nested Class Summary

Nested Classes

Modifier and Type	Class and Description
static class	**LinearRegression.BackwardsRegressionResult** A regression result that, instead of having y as a function of x has x as a function of y.
static class	**LinearRegression.RegressionResult** A regression result that indicates the line that best matches a given set of data.

Constructor Summary

Constructors

Constructor and Description
LinearRegression()

Method Summary

Methods

Modifier and Type	Method and Description
static **LinearRegression.BackwardsRegressionResult**	**getBackwardsRegression**(double[] y, double[] x) This returns a regression result that, instead of having y as a function of x has x as a function of y.
static **LinearRegression.RegressionResult**	**getRegression**(double[] x, double[] y) This function computes the linear regression of a set of x and y values.
static **Point2d**	**solve**(**LinearRegression.RegressionResult** a, **LinearRegression.RegressionResult** b) Computes the intersection of two RegressionResults

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

LinearRegression

```
public LinearRegression()
```

Method Detail

getBackwardsRegression

```
public static LinearRegression.BackwardsRegressionResult getBackwardsRegression(double[] y,
                                                                                 double[] x)
```

This returns a regression result that, instead of having y as a function of x has x as a function of y.

Parameters:

`y` - the list of Y values

`x` - the list of X values

Returns:

getRegression

```
public static LinearRegression.RegressionResult getRegression(double[] x,
                                                               double[] y)
```

This function computes the linear regression of a set of x and y values.

It is largely taken from: http:// introcs.cs.princeton.edu/java/97data/LinearRegression.java.html

Parameters:

`x` - An array of X values

`y` - An array of Y values

Returns:

solve

```
public static Point2d solve(LinearRegression.RegressionResult a,
                            LinearRegression.RegressionResult b)
```

Computes the intersection of two RegressionResults

Parameters:

`a` - A RegressionResult

`b` - A RegressionResult

Returns:

The intersection