Package ‘eyetracking’

February 19, 2015

Type Package

Title Eyetracking Helper Functions

Version 1.1

Date 2011-05-25

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Description Misc function for working with eyetracking data

License GPL-3

LazyLoad yes

Repository CRAN

Date/Publication 2012-10-29 08:58:40

NeedsCompilation no

R topics documented:

`eyetracking-package` *Eyetracking Helper Functions*

Description

Misc helper functions for working with eyetracking data.

Details

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`distance2point` *Distance to Point*

Description

Takes an x and y screen coordinate and returns the physical distance (in centimeters) from the observer to that point on the screen.

Usage

```
distance2point(x, y, viewerDistance, viewerHeight, resolutionX, resolutionY, screenWidth, screenHeigh
```

Arguments

`x`	The x coordinate of a point on a screen
`y`	The y coordinate of point on a screen
`viewerDistance`	Perpendicular distance from the viewer to the screen (cm)
`viewerHeight`	Vertical height of the viewer above screen center (cm)
`resolutionX`	The x resolution of the monitor (pixels)
`resolutionY`	The y resolution of the monitor (pixels)
`screenWidth`	The physical screen width (cm)
`screenHeight`	The physical screen height (cm)

Value

A distance in centimeters

Author(s)

Ryan M. Hope

Examples

```
function( x, y, viewerDistance, viewerHeight, resolutionX, resolutionY, screenWidth, screenHeight ) {

    centerX <- screenWidth / 2
    centerY <- screenHeight / 2 - viewerHeight

    targetX <- x / resolutionX * screenWidth
    targetY <- y / resolutionY * screenHeight

    dX <- targetX - centerX
    dY <- targetY - centerY

    screenDistance <- sqrt( dX^2 + dY^2 )

    sqrt( ( viewerDistance^2 + screenDistance^2) )

  }
```

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subtendedAngle *Subtended Angle*

Description

Takes two screen coordinates and returns the angle (in degrees) subtended by those two points.

Usage

```
subtendedAngle(x1, y1, x2, y2, viewerDistance = 58.74, viewerHeight = 4.55, resolutionX = 1280, resolu
```

Arguments

x1	The x coordinate of the first point on a screen
y1	The y coordinate of the first point on a screen
x2	The x coordinate of the second point on a screen
y2	The y coordinate of the second point on a screen
viewerDistance	Perpendicular distance from the viewer to the screen (cm)
viewerHeight	Vertical height of the viewer above screen center (cm)
resolutionX	The x resolution of the monitor (pixels)
resolutionY	The y resolution of the monitor (pixels)
screenWidth	The physical screen width (cm)
screenHeight	The physical screen height (cm)

Value

The angle (in degrees) subtended by two points

Author(s)

Ryan M. Hope

Examples

```
function( x1, y1, x2, y2, viewerDistance=58.74, viewerHeight=4.55, resolutionX=1280, resolutionY=1024, screenWid

   d1 <- distance2point(x1, y1, viewerDistance, viewerHeight, resolutionX, resolutionY, screenWidth, screenHeigh
   d2 <- distance2point(x2, y2, viewerDistance, viewerHeight, resolutionX, resolutionY, screenWidth, screenHeigh

    dX <- screenWidth * ( x2 - x1 ) / resolutionX
    dY <- screenWidth * ( y2 - y1 ) / resolutionY

    screenDistance <- sqrt( dX^2 + dY^2 )

    angleRadians <- acos( ( d1^2 + d2^2 - screenDistance^2 ) / ( 2 * d1 * d2 ) )

    angleRadians / ( 2 * pi ) * 360

  }
```

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