Package ‘eyetracking’

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Type Package
Title Eyetracking Helper Functions
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Description Misc function for working with eyetracking data
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R topics documented:

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distance2point
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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, screenHeight)

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
subtendedAngle

Author(s)

Ryan M. Hope

Examples

```r
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) )
}
```

---

subtendedAngle  Subtended Angle

Description

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

Usage

```r
subtendedAngle(x1, y1, x2, y2, viewerDistance = 58.74, viewerHeight = 4.55, resolutionX = 1280, resolutionY = 1024, screenwidth = 33.5, screenheight = 31)
```

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)
subtendedAngle

Value

The angle (in degrees) subtended by two points

Author(s)

Ryan M. Hope

Examples

```r
d1 <- distance2point(x1, y1, viewerDistance, viewerHeight, resolutionX, resolutionY, screenWidth, screenHeight)
d2 <- distance2point(x2, y2, viewerDistance, viewerHeight, resolutionX, resolutionY, screenWidth, screenHeight)
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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