Lidar Filters

Range Filter:

Description:

The range filter is used to crop all the distant measurement values in a particular scan which is an array of length N consisting of floating values generated by LiDAR.

Usage:

RangeFilter(N, low, high)

Update(scan)

Arguments:
N - Length of Array of floating values generated on each scan

Low - Minimum distance value threshold below which all the measured distances must be cropped and replaced by the minimum value itself(range_min)

High - Maximum distance value threshold above which all the measured distances must be cropped and replaced by the maximum value itself(range_max)

scan – Scans generated by the LiDAR

Output Values:

array of length N consisting of floating values that consist of distant measurement values that lie within the provided range[range_min, range_max]4

Author(s):

Goutham Balasubramaniam

Examples:

#Length of Array

N <- 5

#Maximum threshold

High<- 50

#Minimum threshold

Low<- 0.03

#Scan from the LiDAR

scan<- np.random.uniform(-80,80,N)

#Running Range Filter

X = RangeFilter(N, Low, High)

X.update(scan)

```
Testing Range Filter

Input scan: [-73.99 -29.06  42.76 -51.62  46.62]       Output scan:  [ 0.03  0.03 42.76  0.03 46.62]
```

Here, [-73.99 -29.06 42.76 -51.62 46.62] is the input scan array from the LiDAR and the array [0.03 0.03 42.76 0.03 46.62] is the range filtered output of the scan.