
Subject: Distance between two sets of datapoints
Posted by [Maxwell Peck](#) on Thu, 25 Mar 2010 10:33:45 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi All,

I have two sets of data points, inputa and inputb, inputa has many more data points than the other. I need to find the distance between each point in inputa and all the points in inputb (hopefully without loops). At the moment I am using parts of distance_measure.pro to generate the full set of distances and subsetting indexes as required. The code follows. I can't see an easy way of generating the indexes though so that only the pairs i want are calculated (i.e. not calculating between inputb/inputb or inputa/inputa indexes).

inputa and inputb can be very very large so I don't think i can use a matrix approach to do it vectorially and looping seems awfully slow.

An alternative approach or other suggestions would be appreciated.

Regards

Max

```
inputa = findgen(2,10)
inputb = findgen(2,2)
```

```
t = [[inputa],[inputb]]
m=n_elements(t)/2
n = m*(m-1)/2
```

```
ii = 0L
index0 = LINDGEN(m - 1) + 1 ; work array
index1 = LONARR(n, /NOZERO)
index2 = LONARR(n, /NOZERO)
```

```
for i=0,m-2 do begin
  n1 = m - (i+1)
  index1[ii:ii+n1-1] = i
  index2[ii] = index0[0:n1-1] + i
  ii += n1
endfor
```

```
diff = abs(t[* ,index1] - t[* ,index2])
res = sqrt(TOTAL(diff^2, 1))
```
