Vote

0

How do I extract the odd and even rows of my matrix into two separate matrices and reconstruct it back using vectorized code?

Asked by MathWorks Support Team on 17 Aug 2013
Accepted Answer by MathWorks Support Team

I would like to reconstruct my original matrix from the odd and even matrices using vectorized code.

I have a matrix M:

```
n = 7;
```

```
M = repmat((1:n)',1,5)
```

I split matrix M into two matrices. One contains the odd rows and another the even ones. Is it possible to reconstruct the initial matrix without using a FOR loop?

0 Comments

Tags

matrix matrices reorder row column even odd reconstruct for loop rearrange

Products

MATLAB

Related Content

1 Answer

Vote

2

Link

Answer by MathWorks Support Team on 17 Aug 2013

Accepted answer

Here is an example on how to extract the odd and even rows of a matrix into two separate matrices:

```
n = 7;   % number of rows
```

```
M = repmat((1:n)',1,5)
```

```
A = M(1:2:end,:)  % odd matrix
```

```
B = M(2:2:end,:)  % even matrix
```

To reconstruct the original matrix you can preallocate the result matrix and then use indexing similar to what was used above for splitting:

```
C = ones(size([A;B]))
```

```
C(1:2:end,:) = A
```

```
C(2:2:end,:) = B
```

As an alternative, you can use the SORT function to create an index for rearranging rows:

```
% concatenate odd and even matrices
```

```
C = [A;B] ;
```

```
% get odd row indices
oddI = 1:2:size(C,1) ;
% get even row indices
evenI = 2:2:size(C,1) ;
% concatenate odd and even row indices, then use SORT to find appropriate reorde
[~,reorderI] = sort([oddI,evenI])
% reorder matrix to reconstruct original matrix
M0 = C(reorderI,:)
```

0 Comments

Discover MAKERZONE

MATLAB and Simulink resources for Arduino, LEGO, and Raspberry Pi

» Learn more

Discover what MATLAB® can do for your career.

Opportunities for recent engineering grads.

» Apply Today

MATLAB Academy

New to MATLAB?

» Learn MATLAB today!