

Sample 1-4

画像データの表現

配列の生成

画像処理特論

村松 正吾

動作確認: MATLAB R2020a

Digital image representation

Creation of arrays

Advanced Topics in Image Processing

Shogo MURAMATSU

Verified: MATLAB R2020a

ワークスペースのクリア

(Clear workspace)

```
clear
```

全ての要素が零の配列の生成

(Create array of all zeros)

```
X = zeros(2,3) % zeros array of size 2x3
```

```
X = 2x3
    0    0    0
    0    0    0
```

全ての要素が1の配列の生成

(Create array of all ones)

```
Y = ones(3,4) % ones array of size 3x4
```

```
Y = 3x4
    1    1    1    1
    1    1    1    1
    1    1    1    1
```

ランダム配列の生成

(Create array of random numbers)

```
Z = rand(2,3,4) % random array of size 2x3x4
```

```
Z =
```

```
Z(:, :, 1) =
```

```
    0.3816    0.7952    0.4898  
    0.7655    0.1869    0.4456
```

```
Z(:, :, 2) =
```

```
    0.6463    0.7547    0.6797  
    0.7094    0.2760    0.6551
```

```
Z(:, :, 3) =
```

```
    0.1626    0.4984    0.3404  
    0.1190    0.9597    0.5853
```

```
Z(:, :, 4) =
```

```
    0.2238    0.2551    0.6991  
    0.7513    0.5060    0.8909
```

配列のサイズ

(Array size)

```
disp('Size of X')
```

```
Size of X
```

```
size(X)
```

```
ans = 1×2  
      2      3
```

```
disp('Size of Y')
```

```
Size of Y
```

```
size(Y)
```

```
ans = 1×2  
      3      4
```

```
disp('Size of Z')
```

```
Size of Z
```

```
size(Z)
```

```
ans = 1×3  
      2      3      4
```

```
% 配列のタイプ  
% (Array type)
```

```
disp('Type of X')
```

Type of X

```
class(X)
```

```
ans =  
'double'
```

```
L = zeros(2,3,'logical');  
disp('Type of L')
```

Type of L

```
class(L)
```

```
ans =  
'logical'
```

```
U = zeros(2,3,'uint8');  
disp('Type of U')
```

Type of U

```
class(U)
```

```
ans =  
'uint8'
```

```
I = zeros(2,3,'int16');  
disp('Type of I')
```

Type of I

```
class(I)
```

```
ans =  
'int16'
```

```
S = zeros(2,3,'single');  
disp('Type of S')
```

Type of S

```
class(S)
```

```
ans =  
'single'
```

ワークスペース内の変数のリスト

(List variables in workspace)

whos

Name	Size	Bytes	Class	Attributes
I	2x3	12	int16	
L	2x3	6	logical	
S	2x3	24	single	
U	2x3	6	uint8	
X	2x3	48	double	
Y	3x4	96	double	
Z	2x3x4	192	double	
ans	1x6	12	char	

© Copyright, Shogo MURAMATSU, All rights reserved.