ITOU

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Converte o formato interno (matriz de transformação homogênea) para o formato de saída de dados do usuário (x, y, θ) para um manipulador RRR planar.

Calling Syntax

uform = itou(iform)

I/O Variables

`IN Double Matrix` **iform**: *Internal form* Homogeneous Transformation Matrix 4x4

`OU Double Array` **uform**: *User form* [x y theta] [meters meters degrees]

Example

```
iform = [0 -1 0 1;
         1  0 0 0;
         0  0 1 0;
         0  0 0 1]
uform = itou(iform)
uform =

   1     0    90
```

Hypothesis

RRR planar robot.

Version Control

1.0; Leonardo da Cunha Menegon, Michel Kagan, Vinícius Nardelli; 01/05/2023; First issue.

Function

```
function [uform] = itou(iform)
```

Validity

```
        arguments
            iform {functions.mustBeHomTransfR}
        end
```

Main Calculations

```
        x = iform(1, 4);
        y = iform(2, 4);
        theta = atan2d(iform(2, 1), iform(1, 1));
```

Output Data

```
        uform = [x, y, theta];

    end
```

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