
COROLIS

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Calcula a matriz $V(\theta, \dot{\theta})$ para determinação do vetor de forças dinâmicas τ . Derivada das equações da dinâmica do movimento a partir da seção 6.7 do Craig.

Calling Syntax

coriolis=coriolis(theta,dtheta)

I/O Variables

IN Double Array **theta**: *Joint angles* [$\theta_1 \theta_2 \theta_3$] [degrees degrees degrees]

IN Double Array **dtheta**: *Joint angular velocities* [$\dot{\theta}_1 \dot{\theta}_2 \dot{\theta}_3$] [degrees/seg degrees/seg degrees/seg]

OU Double Array **coriolis**: $V(\theta, \dot{\theta})$ 3x3 Coriolis array

Example

```
theta = [10 20 30];
```

```
dtheta = [-30 30 10];
```

```
coriolis=coriolis(theta,dtheta)
```

Hypothesis

RRR planar robot.

Limitations

A "Forma do usuário" é específica para o exercício de simulação e não tem validade para qualquer configuração de robô. Considera o robô planar com os valores de comprimentos dos ligamentos = {0.5, 0.3, 0} e Massas = {4.6, 2.3, 1} fixos.

Version Control

1.0; Grupo 04; 2025/31/05 ; First issue.

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Function

```
function coriolis=coriolis(theta,dtheta)
```

Validity

Not apply

Main Calculations

```
L = [0.5,0.3,0];  
M = [4.6,2.3,1];
```

Output Data

```
coriolis(1,:) = [- dtheta(2)*L(1)*(2*L(2)*M(2)*sin(theta(2)) +  
L(2)*M(3)*sin(theta(2)) + L(3)*M(3)*sin(theta(2) + theta(3))) -  
dtheta(3)*L(3)*M(3)*(L(1)*sin(theta(2) + theta(3)) + L(2)*sin(theta(3))), -  
dtheta(1)*L(1)*L(3)*M(3)*sin(theta(2) + theta(3)) -  
dtheta(2)*L(1)*L(3)*M(3)*sin(theta(2) + theta(3)) -  
dtheta(3)*L(1)*L(3)*M(3)*sin(theta(2) + theta(3)) -  
2*dtheta(1)*L(1)*L(2)*M(2)*sin(theta(2)) -  
dtheta(1)*L(1)*L(2)*M(3)*sin(theta(2)) -  
2*dtheta(2)*L(1)*L(2)*M(2)*sin(theta(2)) -  
dtheta(2)*L(1)*L(2)*M(3)*sin(theta(2)) -  
dtheta(3)*L(2)*L(3)*M(3)*sin(theta(3)), -L(3)*M(3)*(L(1)*sin(theta(2) +  
theta(3)) + L(2)*sin(theta(3)))*(dtheta(1) + dtheta(2) + dtheta(3))];  
coriolis(2,:) = [ dtheta(1)*L(1)*L(3)*M(3)*sin(theta(2) +  
theta(3)) + 2*dtheta(1)*L(1)*L(2)*M(2)*sin(theta(2)) +
```

```
dtheta(1)*L(1)*L(2)*M(3)*sin(theta(2)) -  
dtheta(3)*L(2)*L(3)*M(3)*sin(theta(3)),  
  
-dtheta(3)*L(2)*L(3)*M(3)*sin(theta(3)),  
-L(2)*L(3)*M(3)*sin(theta(3))*(dtheta(1) + dtheta(2) + dtheta(3))];  
    coriolis(3,:) =  
=[  
                                L(3)*M(3)*(dtheta(1)*L(2)*sin(t  
heta(3)) + dtheta(2)*L(2)*sin(theta(3)) + dtheta(1)*L(1)*sin(theta(2) +  
theta(3))),  
  
                                L(2)*L(3)*M(3)*sin(theta(3))*(dtheta(1) +  
dtheta(2)),  
                                0];  
  
end
```

coriolis =

24.8984	-0.0000	0
24.8984	0	0
0	0	0

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