



CONGRESO INTERNACIONAL VIRTUAL SOBRE LAS TECNOLOGÍAS DEL APRENDIZAJE Y DEL CONOCIMIENTO

Enseñanza y Aprendizaje de Robótica Industrial desde la Virtualidad

VII   **CIVTAC**



PONENTE: Wilmer Sanz F.

Hola!



Mi nombre es Wilmer Sanz

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Redes sociales:

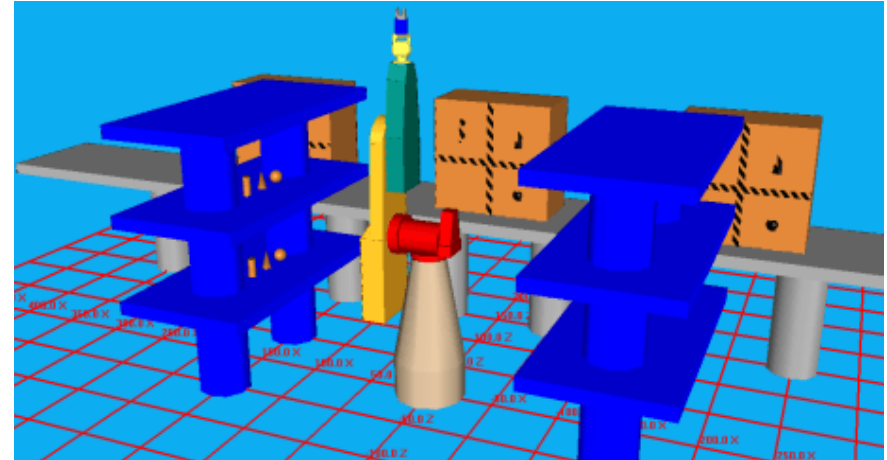


@wilmersanz



@wsanzf

Uso de herramientas libres para facilitar la modelación de RI y simulación de tareas en un ambiente 3D.



Cortesía: Lab. de Robótica Industrial, UJAP

MÉTODO

Constructivista

UNIVERSO

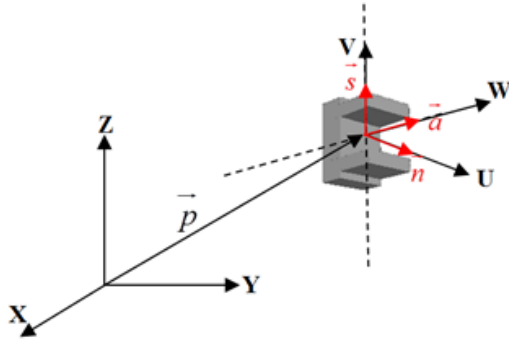
Plataformas de programación de RI

METODOLOGÍA

Top-Down Design

ANÁLISIS

Simulación 3D

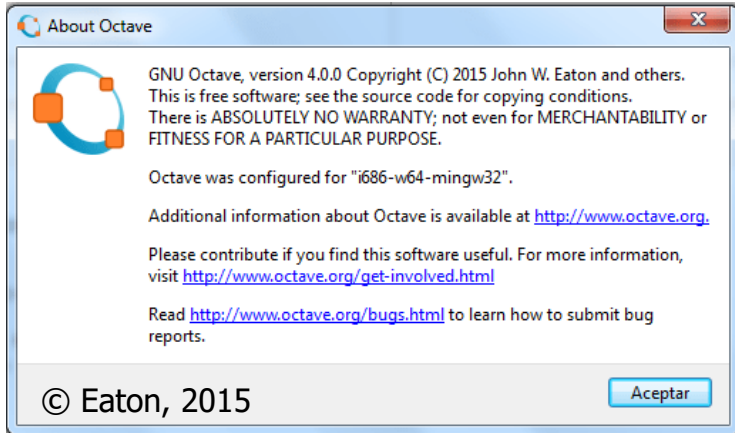


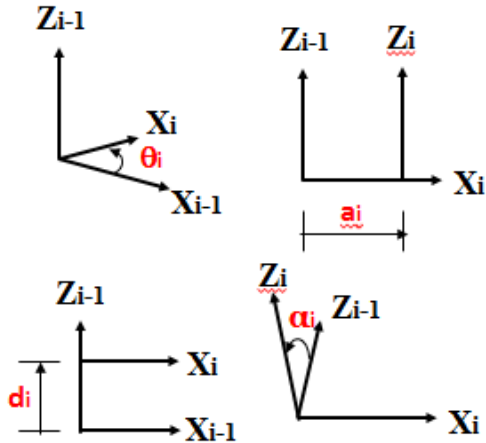
$$\vec{p}_f = T_H * \vec{p}_f$$

$$T(x, \alpha) \Rightarrow Rotx$$

$$T((y, \varphi), p) \Rightarrow Rotytrans$$

$$T(p, (z, \theta)) \Rightarrow Transrotz$$





$$A_i^{i-1} = \begin{bmatrix} C\theta_i & -C\alpha_i S\theta_i & S\alpha_i S\theta_i & aC\theta_i \\ S\theta_i & C\alpha_i C\theta_i & -S\alpha_i C\theta_i & aS\theta_i \\ 0 & S\alpha_i & C\alpha_i & d_i \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$T = A_1^0 * A_2^1 *** A_n^{n-1}$$

Matriz de Transformación del Robot

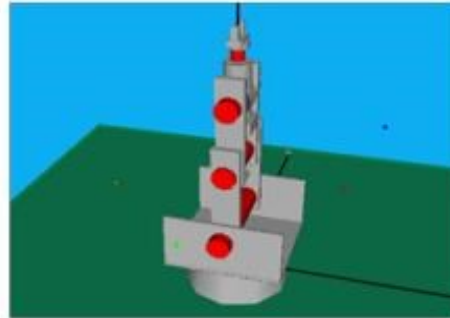
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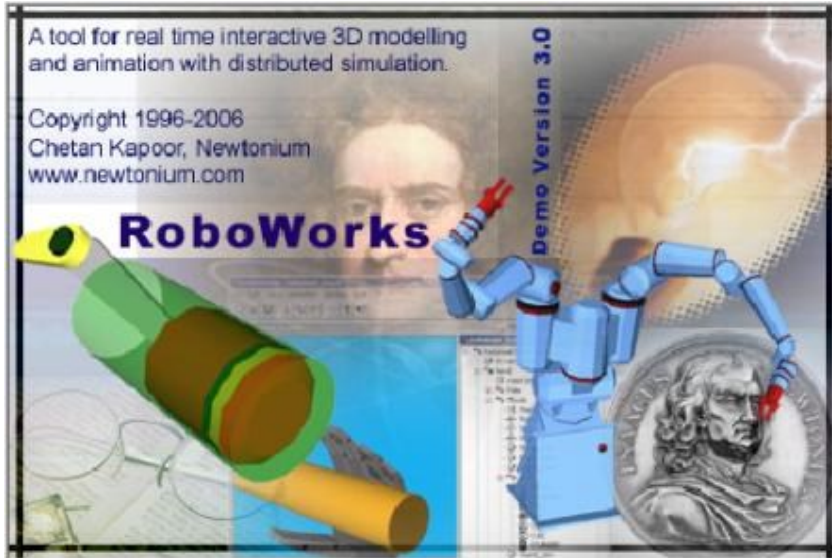
init.try - Notepad
File Edit Format View Help
home 0000 0090 0000 -090 0000
move 0045 0053 -055 -082 0000
clos
move 0090 0053 -055 -082 0000
move 0150 0060 -055 -082 0000
move 0214 0072 -030 -180 0000
open
move 0000 0090 0000 -090 0000
.end
  
```



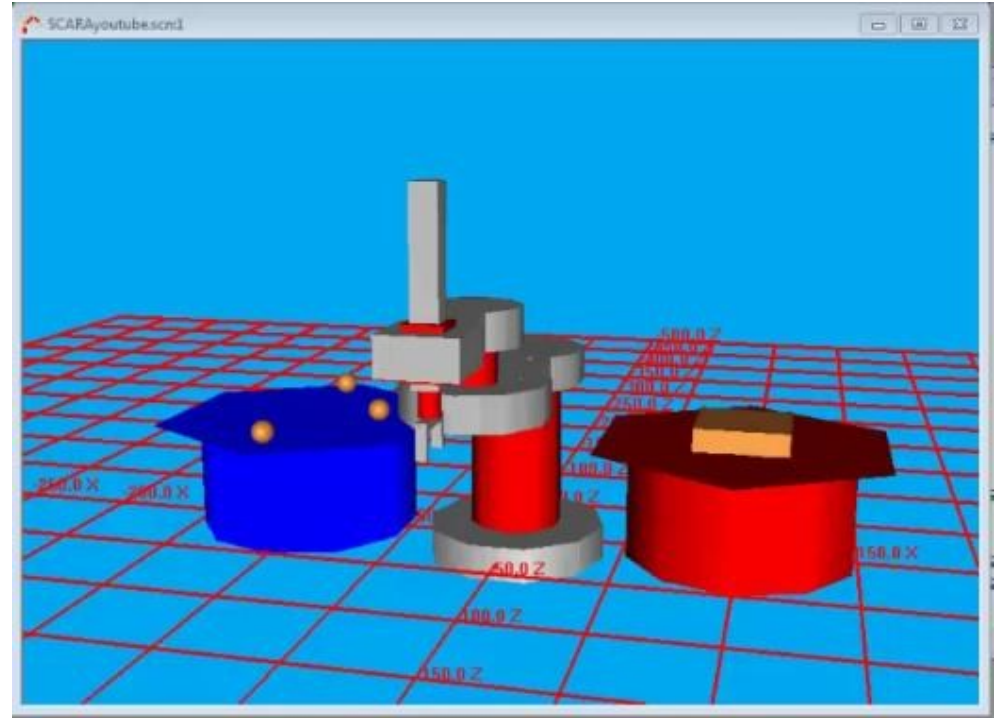
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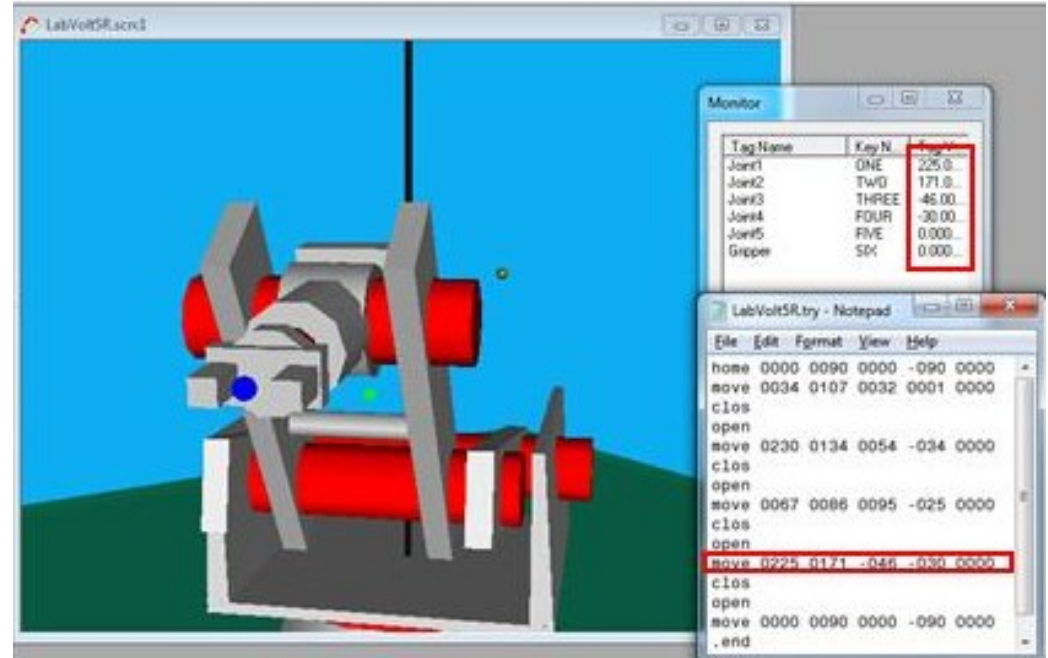
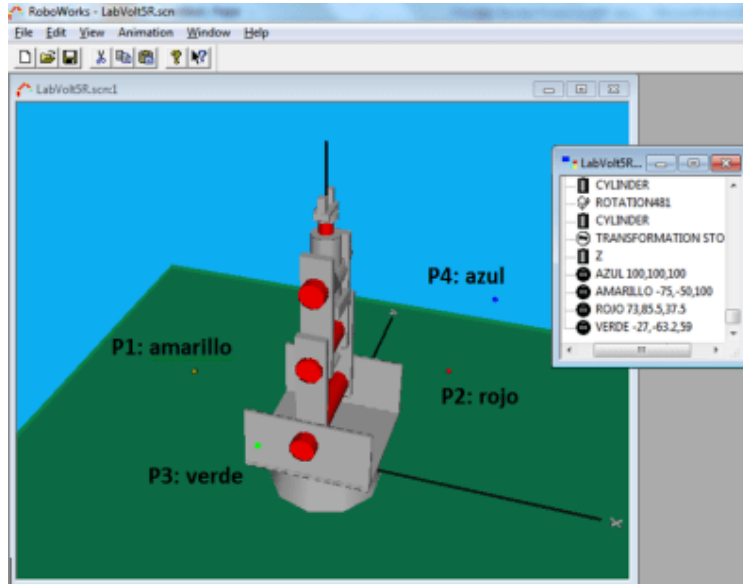
init.dat - Notepad
File Edit Format View Help
Joint1 Joint2 Joint3 Joint4 Joint5 Gripper
0.00 0.00 0.00 0.00 0.00 0.00
3.60 0.00 0.00 0.00 0.00 0.00
7.20 0.00 0.00 0.00 0.00 0.00
10.80 0.00 0.00 0.00 0.00 0.00
14.40 0.00 0.00 0.00 0.00 0.00
18.00 0.00 0.00 0.00 0.00 0.00
21.60 0.00 0.00 0.00 0.00 0.00
25.20 0.00 0.00 0.00 0.00 0.00
28.80 0.00 0.00 0.00 0.00 0.00
32.40 0.00 0.00 0.00 0.00 0.00
36.00 0.00 0.00 0.00 0.00 0.00
39.60 0.00 0.00 0.00 0.00 0.00
43.20 0.00 0.00 0.00 0.00 0.00
46.80 0.00 0.00 0.00 0.00 0.00
50.40 0.00 0.00 0.00 0.00 0.00
54.00 0.00 0.00 0.00 0.00 0.00
57.60 0.00 0.00 0.00 0.00 0.00
61.20 0.00 0.00 0.00 0.00 0.00
64.80 0.00 0.00 0.00 0.00 0.00
68.40 0.00 0.00 0.00 0.00 0.00
72.00 0.00 0.00 0.00 0.00 0.00
75.60 0.00 0.00 0.00 0.00 0.00
79.20 0.00 0.00 0.00 0.00 0.00
82.80 0.00 0.00 0.00 0.00 0.00
86.40 0.00 0.00 0.00 0.00 0.00
90.00 0.00 0.00 0.00 0.00 0.00
93.60 0.00 0.00 0.00 0.00 0.00
97.20 0.00 0.00 0.00 0.00 0.00
100.80 0.00 0.00 0.00 0.00 0.00
  
```



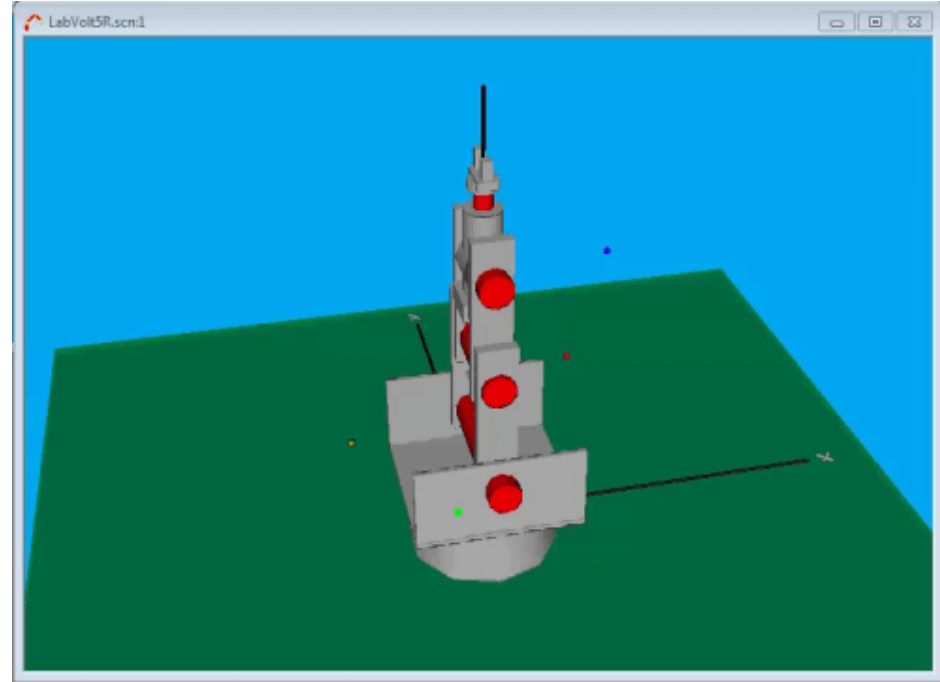


© Kapoor, 2006





Amarillo -> Rojo -> Verde -> Azul



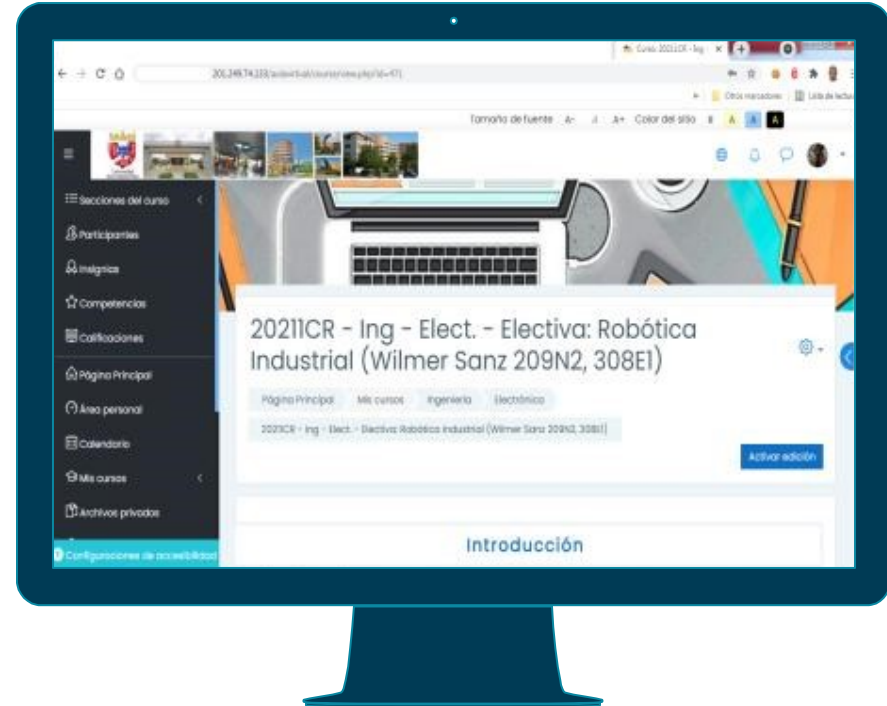
Amarillo -> Rojo -> Verde -> Azul



PGIBOTMat es una plataforma que simplifica la modelación



Se puede practicar la programación de RI en un simulador 3D.

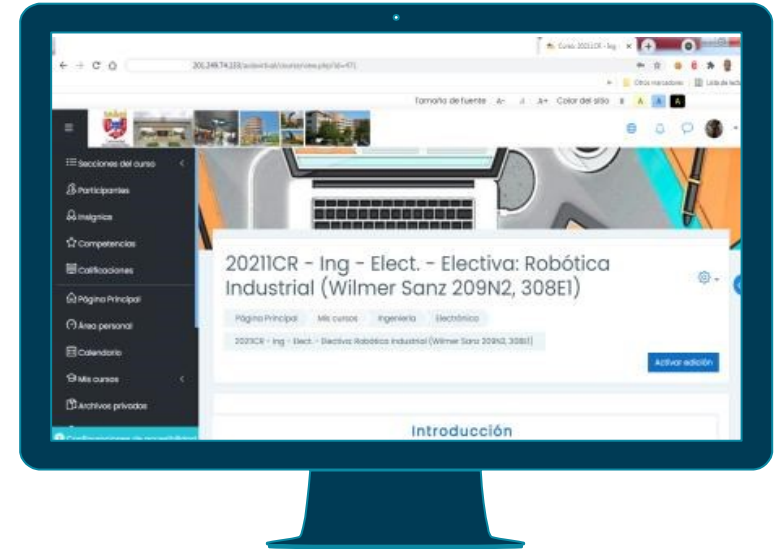




Se demuestra la exactitud de los modelos cinemáticos obtenidos mediante formulaciones matemáticas.



Las experiencias pueden reproducirse en entornos de simulación para robots de última generación (COBOTS).



Gracias!

Alguna Pregunta?

Me puedes contactar a través de:



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wsanzf@gmail.com

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