

# NISA - Dymes

A general purpose program for static, kinematic, and dynamic analyses of constrained multibody mechanical systems undergoing large, nonlinear, three-dimensional displacements. DYMES/Control has been integrated with DYMES for controlled mechanical system simulations.



Air Plenum Door Operating Mechanism



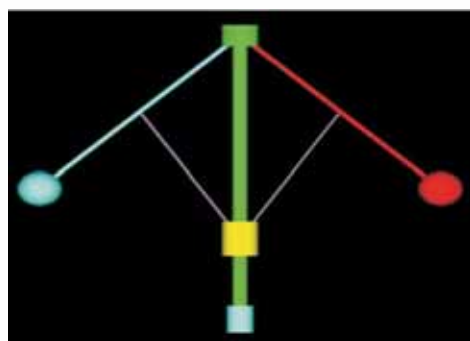
Controlled Motion of Puma Robot

## HIGHLIGHTS

- Well organized free format input with excellent readability and flexibility for modification
- Integrated with DISPLAY III/IV for model creation and graphical results interpretation
- Enhanced graphics with animation in the post-processor for easy visualization of highly nonlinear motion of complicated mechanisms
- Sophisticated full vehicle or suspension system modeling
- Large library of standard and composite joints for modeling mechanical systems
- Many sophisticated force elements to simulate cables, springs, dampers, actuators, beams, bushings, etc.
- DYMES/Control for controlled mechanical system simulation

## SALIENT FEATURES IN DYMES/Control

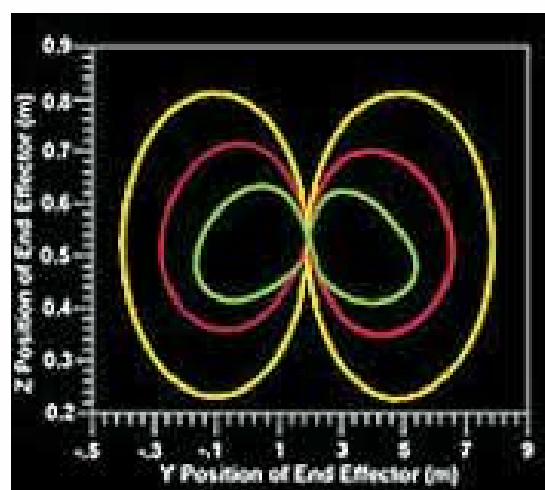
- Single-Input Single-Output (SISO) and Multiple-Input Multiple-Output (MIMO) control system modeling
- Actuation of mechanical system according to controller commands
- Feedback of variables from mechanical system to control system
- Transfer function matrix generation
- Vector import and export of control blocks
- Accessibility of all node and state variables
- Parameter variation study
- Pure control system simulation



Governor Mechanism Motion Analysis

## ANALYSIS CAPABILITIES

- Assembly Analysis
- Redundancy Analysis
- Static Equilibrium Analysis
- Quasi-Static Equilibrium Analysis
- Dynamic Analysis
- Kinematic Analysis
- Inverse Dynamic Analysis



End Effector Trajectories with Different Gain Settings

Cranes Software International Limited is a leading provider of Computer Aided Engineering (CAE) services to the Automotive, Aerospace, Energy & Power, Civil, Electronics and Sporting Goods industries. Over 70 dedicated scientists, technology architects and software engineers providing NISA based solutions have helped major engineering companies reduce analysis turnaround time, improve user productivity, and ensure faster return on investments. The Company has its presence in 33 countries across the world and has a user base of more than 350,000.

With a mission statement to provide its customers the best in scientific technology and to enable its customers to define new limits, Cranes is setting new standards in the scientific and engineering field. For more information, please visit [www.nisasoftware.com](http://www.nisasoftware.com) Email: [nisa@cranesssoftware.com](mailto:nisa@cranesssoftware.com)



### USA

Cranes Software, Inc.  
1133 E Maple Road, Suite 103,  
Troy, Michigan 48083 USA  
P.O. Box 696, Troy, MI, 48099, USA  
Tel: (248) 689-0077. Fax: (248) 689-7479  
E-mail: [sales@nisasoftware.com](mailto:sales@nisasoftware.com)

### INDIA

Cranes Software International Ltd.  
CAE R&D Services Division #104, Jatti Building,  
1st Main Road, 5th Block, Koramangala Industrial  
Area, Bangalore 560095, Karnataka, India.  
Tel: +91 (080) 40105200. Fax: +91 (080) 40105300  
E-mail: [nisa@cranesssoftware.com](mailto:nisa@cranesssoftware.com)