

Abstract Submitted
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A Symbolic and Graphical Computer Representation of Dynamical Systems LAURENCE I. GOULD, CHRISTOPHER J. MAHAR, Physics Department, University of Hartford — AUTONO is a Macsyma/Maxima program, designed at the University of Hartford, for solving autonomous systems of differential equations as well as for relating Lagrangians and Hamiltonians to their associated dynamical equations. AUTONO can be used in a number of fields to decipher a variety of complex dynamical systems with ease, producing their Lagrangian and Hamiltonian equations in seconds. These equations can then be incorporated into VisSim, a modeling and simulation program, which yields graphical representations of motion in a given system through easily chosen input parameters. The program, along with the VisSim differential-equations graphical package, allows for resolution and easy understanding of complex problems in a relatively short time; thus enabling quicker and more advanced computing of dynamical systems on any number of platforms—from a network of sensors on a space probe, to the behavior of neural networks, to the effects of an electromagnetic field on components in a dynamical system. A flowchart of AUTONO, along with some simple applications and VisSim output, will be shown.

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