
WARREN WECKESSER,

VFGEN: A Code Generation Tool for Vector Fields

VFGEN is a program that generates computer code for ordinary and delay differential equations. From a single definition file of the user's equations, VFGEN can generate code for: IVP solver libraries such as CVODE, LSODA and DDE.SOLVER; numerical continuation and bifurcation analysis programs such as AUTO, MATCONT and PDDE-CONT; and general purpose computing environments such as MATLAB, Octave and Scilab. VFGEN automates the tedious and error-prone task of implementing the vector field in computer code. Symbolic differentiation is used to generate Jacobians and higher derivatives. For many of the output formats, VFGEN can also generate a working demonstration program.

In this talk, I will give an overview of VFGEN. Demonstrations will show how VFGEN makes it easy to use a wide variety of computational tools in the numerical study of a system of ordinary or delay differential equations.