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The Enthought Tool Suite for Scientific Applications

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The Enthought tool suite (ETS) is a collection of packages for developing scientific applications. It includes a variety of tools ranging from Envisage, a framework for building scriptable and extensible applications, to Mayavi, a general 3D visualization package. This talk provides an overview of the collection's capabilities and demonstrates their use in a variety of applications. Here is a quick description of the several packages we will cover:

Traits

Traits forms the foundation of almost every other package in ETS. It allows developers to specify type information for Python class members. This information is used for initializing and validating these members as well as building user interfaces for an object via Traits UI. Additionally, traits supports an observer pattern where "listener" methods are called whenever a member trait changes.

Kiva

Kiva is a platform independent vector based drawing library for rendering 2D graphics. It is path and affine transform based, and supports alpha transparency. Kiva is used extensively by both the enable and the chaco libraries.

Enable

Chaco

Chaco is Enthought's package for building interactive 2D plots. It is architected to support customizable interaction with scientific data as well as efficient rendering of large data sets.

Tvtk

Tvtk is a "traitsified" layer on the VTK visualization library. In addition to the facilities provided by traits, tvtk provides a more convenient interface as well as more efficient sharing of data between VTK and Python Numeric/NumPy data structures.

Mayavi

Mayavi is a general purpose 3D visualization plugin for Envisage applications developed by Prabhu Ramachandran. This tool is actually 3rd generation of the original Tk based Mayavi application. Mayavi is built on top of Vtk.

Envisage

Envisage is a plugin based architecture for developing scriptable and extensible applications. There are a number of plugins that come with ETS including a text editor, python shell, mayavi, and others that can be combined together along with domain specific plugins to develop full features applications.

More information on ETS is available at <http://code.enthought.com/ets>.

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