Basic Numerical Analysis Routines

Brent Seidel
Phoenix, AZ

July 11, 2024

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Chapter 1

Introduction

Back in the 1980s when I was an undergraduate, I took a numerical analysis course and quite enjoyed it. Then my first job out of college was working on a numerical analysis library for a small startup that went the way of most startups. I was recently inspired to dig out my old textbook and try implementing some of the routines. This collection includes some of those, plus others.

Note that some packages are for complex numbers and some are for real numbers. At some point, they may be combined. Most packages are generic. The packages are:

1.1 BBS.Numerical.complex_real

This is an object oriented collection of complex number routines. After writing this, I discovered `Ada.Numerics.Generic_Complex_Types`. So this package is deprecated in favor of the Ada package.

1.2 BBS.Numerical.derivative_real

This package contains functions to compute the derivative of real valued functions.

1.3 BBS.Numerical.functions_real

This package contains some functions that are used by other packages.

1.4 BBS.Numerical.integration_real

1.5 BBS.Numerical.interpolation

1.6 BBS.Numerical.ode_real

1.7 BBS.Numerical.polynomial_complex

1.8 BBS.Numerical.polynomial_real

1.9 BBS.Numerical.quaternion

1.10 BBS.Numerical.random

1.11 BBS.Numerical.regression

1.12 BBS.Numerical.roots_complex

1.13 BBS.Numerical.roots_real

1.14 BBS.Numerical.statistics

1.15 BBS.Numerical.vector_real

Chapter 2

How to Obtain

This collections is currently available on GitHub at `https://github.com/BrentSeidel/Numerical`.

2.1 Dependencies

2.1.1 Ada Libraries

2.1.2 Other Libraries

Chapter 3

Build Instructions

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API Description

4.1 BBS.Numerical.complex_real

This package is deprecated in favor of the Ada package `Ada.Numerics.Generic_Complex_Types`.