

PACKAGE ID - 001203I303300 AKIMA'S-SPLINE

KWIC TITLE - Akima's Interpolation Program Package

AUTHORS - Ise, T
Tokai Research Establishment, Tokyo (Japan)

Tsutsui, T
Tokai Research Establishment, Tokyo (Japan)

Saitoh, N
Tokai Research Establishment, Tokyo (Japan)

LIMITATION CODE -UNL **AUDIENCE CODE** - UNL

COMPLETION DATE - 07/01/1980 **PUBLICATION DATE** - 07/01/1980

DESCRIPTION - Interpolation from a given set of data points in a plane
and fitting a smooth curve to the points.

PACKAGE CONTENTS - Media Directory; Software Abstract; User
Instructions; Reference Article; Media Includes Source Code,
Sample Problem Input and Output, Readme File;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 3.5 Diskette

METHOD OF SOLUTION - The method is based on a piecewise function
composed of a set of polynomials, each of degree three, at most,
and applicable to successive intervals of the given points. The
slope of the curve is determined at each given point locally, and
each polynomial representing a portion of the curve between a pair
of given points is determined by the coordinates of and the slopes
at the points. Comparison indicates that the curve obtained by this
method is closer to a manually drawn curve than curves found using
other mathematical methods.

COMPUTER - IBM3033

OPERATING SYSTEMS - Machine dependent

PROGRAMMING LANGUAGES - FORTRAN-IV

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - The method requires only straight forward procedures
rather than iterative solutions of equations with preassigned
error tolerances which are required by some other methods.

OTHER PROG/OPER SYS INFO - The code contains the following subroutines:
INTRPL Interpolates for uni-variate functions, CURVFT Curve fits
for uni-variate functions, ITPLBV Interpolates for bi-variate

PACKAGE ID - 001203I303300 AKIMA'S-SPLINE

OTHER PROG/OPER SYS INFO - (CONT) functions, SFCFIT Surface fits for
bi-variate functions.

HARDWARE REQS - The number of words required for each subroutine is:
INTRPL 600, CURVFT 800, ITPLBV 1600, SFCFIF 1400.

TIME REQUIREMENTS - 0.065 secs for INTRPL with L=10, N=46. 0.070 secs
for CURVFT with L=10, N=46, MD=1, M=5. 0.1 secs for ITPLBV with
N=17, LX=11, LY=9. 0.2 secs for SFCFIT with MX=2, MY=2, LX=11, LY=9.

ABSTRACT STATUS - Released Tested 3/3/98.

SUBJECT CLASS CODE - OP

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
A CODES
DATA PROCESSING
INTERPOLATION
POLYNOMIALS

EDB SUBJECT CATEGORIES -
990200

SPONSOR - NEA

PACKAGE TYPE - TESTED