Alan Kaylor Cline
David Bruton, Jr. Professor of Computer Sciences,
Professor of Mathematics,
Distinguished Teaching Professor, and
Director, The Deans Scholars Program
The University of Texas at Austin

Areas of Interest: Numerical Analysis, Scientific Computing, and Mathematical Software

Education

The University of Michigan
B.S. in Applied Mathematics, 1967.
M.A. in Mathematics, 1968.
Ph.D. in Mathematics, 1970.

Employment

The University of Texas at Austin
Professor of Computer Sciences and of Mathematics, September 1, 1984 - present.
Professor of Computer Sciences, September 1, 1982 -August 31, 1984.
Associate Professor of Computer Sciences, September 1, 1978 - August 31, 1982.
Assistant Professor of Computer Sciences, September 1, 1976 - August 31, 1978.
Assistant Professor of Computer Sciences and of Mathematics, September 1, 1975 - August 31, 1976.

Institute for Computer Applications in Science and Engineering, NASA Langley Research Center, Hampton, Virginia
Visiting Scientist, September 1, 1973 - August 31, 1975.

The University of Colorado, Boulder
Adjunct Associate Professor of Computer Science, September 1, 1973 - August 31, 1975.
Visiting Assistant Professor of Computer Science, September 1, 1972 - August 31, 1973.

National Center for Atmospheric Research, Boulder, Colorado, Computing Facility
Senior Scientist, August 20, 1970 - August 31, 1973.

International Business Machines, Houston Scientific Center
Student Researcher, April 25, 1968 - August 15, 1968.

Editorships

Member of Editorial Board, SIAM Journal on Scientific and Statistical Computing, 1984 - 1992.

Associate Editor, ACM Transactions on Mathematical Software, 1975 - 1976.

Algorithms Editor, Communications of the Association for Computing Machinery, 1973 - 1975.

Offices in National Organizations

Southern Regional Director, Computer Professionals for Social Responsibility, 1987- 1989.

Director, ACM Special Interest Group on Numerical Mathematics, 1981-1984.

Major Offices in University Organizations

Chair, The Faculty Senate, The University of Texas at Austin, 1993-1994.

Chair, The University of Texas Faculty Advisory Council, 1996-1997.

Secretary, The University of Texas Faculty Advisory Council, 1998-1999.

Chair, Committee of Counsel on Academic Freedom and Responsibility, 2000-2002.

Major University Administrative Positions

Director, The Dean's Scholars Honors Program, The College of Natural Sciences, The University of Texas at Austin, 1991-present.

Chairman, Graduate Studies Committee, Computational and Applied Mathematics Program, University of Texas at Austin, 1994-1997.

Major Teaching Awards

Election to the Academy of Distinguished Teachers – 2005

Jean Holloway Award for Excellence in Teaching – 2009

The University of Texas System Board of Regents' Outstanding Teaching Award – 2010

Doctoral Students Supervised

Robert Renka: *Triangulation and Bivariate Interpolation for Irregularly Distributed Data Points* (1981).
Ronald Morgan: *Preconditioning Eigenvalue Problems* (1986)
(jointly supervised with David Scott).
Carol Hazlewood: *A Divide-and-Conquer Approach to D-Dimensional Triangulations* (1988).
Eric Hartman: *A Large Storage Capacity Neural Network Content-Addressable Memory* (1989)
(jointly supervised with Vipin Kumar and Carsten Peterson).
Thomas Rowan: *Functional Stability Analysis of Numerical Algorithms* (1990).
Suzanne Fox Buchele: *Bounded Solid CSG Construction from Algebraic Boundary Representations* (1999).
(jointly supervised with Don Fussell).

Masters Students Supervised

Christopher Hall: *Alternative Algorithms for Computing Singular Values* (1972).
Jo Francis Walsh: *A Regression Analysis Subroutine Package* (1974).
Carlton Niblack: *Computing the Singular Value Decomposition Using Relaxation with Application to Image Matrices* (1976)
Russell Lynch: *A Method for Choosing a Tension Factor for Spline Under Tension Interpolation* (1982)
Gary Linn: *Models and Software for Solar Ponds* (1986).
Clayton Coker: *Correction of Cycle Slips in Nondifferenced Phase Data from the TI 4100 Receiver* (1986).
Suzanne Fox Buchele: *Optimal Fan Configuration Determination for the On-Line Inspection of Steady Stream Metal Goods* (1991)

Sources of Research Support

J. S. Nolen and Associates
Microelectronics and Computer Technology Corporation
National Aeronautics and Space Administration
National Center for Atmospheric Research
National Science Foundation
Opcon
Sematech
U.S. Coast Guard Research and Development Center
U.S. Geological Survey

Selected Publications

Books

1. *FITPACK–A Software Package for Curve and Surface Fitting Employing Splines Under Tension,* Pleasant Valley Software, Austin, 1984.

Book Chapters

1. (with Inderjit S. Dhillon*) Computation of the Singular Value Deconposition,* Chapter 45 of Handbook of Linear Algebra*,* edited by Leslie Hogben et al, CRC Press, 2006*,*

Selected Refereed Journal Articles

1. (with D. H. King and J. M. Meyering) *Routing and Scheduling Coast Guard Buoy Tenders* Interfaces, Vol. **22**, pp. 56-72, 1992.

2. (with R. J. Renka) *A Constrained Two Dimensional Triangulation and the Solution of Closest Node Problems in the Presence of Barriers*, SIAM J. Numerical Analysis, Vol. **27**, pp. 1305-1321, 1990.

3. (with R. J. Renka) *A Triangle-based* C_1 *Interpolation Method*, Rocky Mountain Journal of Mathematics, Vol. **14**, pp. 223-238, 1984.

4. (with R. J. Renka) *A Storage-efficient Method for Construction of a Thiessen Triangulation*, Rocky Mountain Journal of Mathematics, Vol. **14**, pp. 119-140, 1984.

5. (with R. K. Rew) *A Set of Counter-examples to Three Condition Number Estimators*, SIAM J. Scientific and Statistical Computing, Vol. **4**, pp. 602-611, 1983.

6. (with C. B. Moler, G. W. Stewart and J. H. Wilkinson) *An Estimate for the Condition Number of a Matrix*, SIAM J. Numerical Analysis, Vol. **16**, pp. 368-375, 1979.

7. *A Descent Method for the Uniform Solution to Over-determined Systems of Linear Equations*, SIAM J. Numerical Analysis, Vol. **13**, pp. 294-309, 1976.

8. (with L. A. Kurtz and D. G. Weinmann) *The Solution of a Fourth-order Partial Differential Equation using the Method of Lines*, J. Applicable Analysis, Vol. **5**, pp. 201-206, 1976.

9. (with P. Julian) *The Direct Estimation of Wave-number Spatial Spectra of Atmospheric Variables*, J. Atmos. Sciences, Vol. **31**, No. 6, August 1974.