

L. RIDGWAY SCOTT

Born 27 March 1948

Marital status married (three children)

Degrees

B. S., Tulane University, 1969

Ph. D., Massachusetts Institute of Technology, 1973.

Previous Employment

University of Chicago: Instructor, 1973–1975

Brookhaven National Laboratory: Associate Mathematician, 1975–1977, Mathematician, 1977–1978

University of Michigan: Assistant Professor of Mathematics, 1978–1980, Associate Professor of Mathematics, 1980–1984, Professor of Mathematics, 1984–1986

Pennsylvania State University: Professor of Computer Science and of Mathematics, 1986–1989

University of Houston: Professor of Computer Science and of Mathematics, 1989–1998. M. D. Anderson Professor 1995–1998.

Current Positions

Professor

Department of Computer Science and Department of Mathematics, and the College, University of Chicago, since 1998. Louis Block Professor since 2001.

Member

Institute for Biophysical Dynamics (IBD), University of Chicago, since 1998.

Senior Fellow

Computation Institute, University of Chicago & Argonne National Laboratory, since 1999. (Founding co-director, 1999-2002.)

Administrative Experience

Member of the Committee of the Council of the Senate of the University of Chicago, 2002-2004. Spokesman of the Committee of the Council in 2003-2004. The Committee of the Council of the Senate meets every two weeks with the President and Provost to plan University policy and deal with emergency issues. The Spokesman is the chair of that Committee and interacts more frequently with the Administration.

Founding Chairman of the Local Academic Advisory Committee, Toyota Technological Institute at Chicago (TTI-C), 2000–2004. The Toyota Technological Institute at Chicago was established with a \$100 Million fund from Toyota Motor Corporation co-located with the University of Chicago. TTI-C is devoted primarily to computer science and has an operating budget in excess of \$5 Million per year. Initially, my duties included site selection and planning as well as faculty recruitment.

Founding member, Scientific Advisory Board, Functional Genomics Facility, 2000-2006. The Functional Genomics Facility provides microarray core capabilities to the Chicago research community, including an Affymetrix system. My responsibilities concerned setting up the bioinformatics systems used by the Facility.

Founding Co-director, Computation Institute, University of Chicago & Argonne National Laboratory, 1999-2002. Interdisciplinary research at the University of Chicago is orga-

nized via Institutes, such as the Fermi Institute. The CI is devoted to fostering computational research in all areas of the University and Laboratory.

Director, Texas Center for Advanced Molecular Computation (TCAMC), 1992-1998. The TCAMC began as a Grand Challenge Application Group devoted to parallel computation in biomolecular design, funded by the National Science Foundation and ARPA for \$3 Million over five years. Its budget grew to over \$1 Million per year, with over forty full-time participants, focusing broadly on parallel computing and scientific simulation.

Management Committee, Keck Center for Computational Biology, 1992-1998. The Keck Center started as a collaboration among the University of Houston, Baylor College of Medicine, and Rice University. The Management Committee administered several millions of dollars in federal grants for pre-doctoral and post-doctoral interdisciplinary training in the emerging field of Computational Biology.

Member editorial board of

SIAM Journal for Numerical Analysis, 1979–1997
 R. A. I. R. O. Numerical Analysis (new name: M^2AN), 1981–2005
 Mathematics of Computation, 1984–1999
 Houston Journal of Mathematics, 1990–1999
 Notices of the AMS, 1991–1994
 SIAM Review, 1995–1999.

Honors and Awards

B. S. *Magna Cum Laude*, Tulane University, 1969
 Phi Beta Kappa
 Woodrow Wilson Fellowship Designate, 1969
 Sloan Graduate Fellowship, MIT, 1969–1973
 Invited Hour Speaker, American Mathematical Society Regional Meeting, 1987
 Ordway Visiting Distinguished Professorship, University of Minnesota, March, 1997.

Visiting Fellowships

University of Bonn, West Germany, 1976, 1978, 1979 (one month each time)
 I C A S E, NASA Langley Research Center, 1979 (three months)
 Mathematics Research Center, University of Wisconsin, 1980–1981 (9 months), 1985 (3 months)
 Centre de Mathématiques Appliquées, Ecole Polytechnique, Paris, 1981–1982 (nine months)
 Center for Nonlinear Studies, Los Alamos National Laboratory, 1985 (three months)
 Institute for Mathematics and Its Applications, University of Minnesota, 1986 (four months), 1997 (one month), 2008-9 (ten months)
 Mittag-Leffler Institute, 1998 (one month).

Consultant to

Los Alamos National Laboratory, 1985–1986
 KMS Fusion (Ann Arbor, Michigan), 1985–1989
 US Army White Sands Missile Range, 1990–1996
 Open Channel Software, 1999–2002
 Toyota Technological Institute at Chicago, 2000–present

Blue Operations, 2001–2003.

Organizing/Scientific Committees

Theory vs. Practice in the Finite Element Method, AAAS Meeting, 1974

Finite Element Circus, 1976 (Brookhaven), 1980 (Michigan), 1987 (Penn State), 1991 (Houston)

NSF Workshop on Scientific Computing in the Mathematical Sciences, Boulder, 1984

International Conference on Spectral and High-Order Methods (ICOSAHOM), 1992, 1995 (Chairman of the Scientific Committee and Host in 1995), 1998, 2001

Mini-track on Computer Design: A New Grand Challenge, in the Architecture Track of the 27th Hawaii International Conference on System Sciences, 1994

Mini-tracks on Grand-Challenge Computation In Computer Design, in the Architecture Track, and on Computational Biology and Parallel Computing, in the BioTechnology Track, of the 28th Hawaii International Conference on System Sciences, 1995

Frontiers of Massively Parallel Computation (Program Vice Chair, Applications), 1995
Program in the Mathematics of High-Performance Computing at the Institute of Mathematics and Its Applications, University of Minnesota, 1996-1997 (Chairman of the Organizing Committee)

International Parallel and Distributed Processing Symposium 2000 Program Committee

Advances in Scientific Computing, a conference held in honor of Todd Dupont's 65th birthday, University of Chicago, 2007

Program in Mathematics and Chemistry at the Institute of Mathematics and Its Applications, University of Minnesota, 2008-2009.

Member, Review Panels

External Review Committee, Mathematics and Computer Sciences Division, Argonne National Laboratory, 1986 and 1988

Application Review Committee, 1992 National Defense Science and Engineering Fellowship Program

Committee on Mathematical Challenges from Computational Chemistry, National Research Council, 1993-1994

Board of Governors, Institute for Mathematics and Its Applications, University of Minnesota, 1997–1999

Advisory Board, NIH Research Resource on Multiscale Modeling Tools for Structural Biology, The Scripps Research Institute, 1997–2005

Advisory Board, National Center for Molecular Imaging, Baylor College of Medicine, 2000–2004

Community Relations Committee, Institute for Mathematics and Its Applications, University of Minnesota, 2009–present.

Professional memberships

Association for Computing Machinery (SIGGRAPH, SIGNUM, SIGPLAN), American Mathematical Society, IEEE Computer Society, The International Society for Computational Biology, Society for Industrial and Applied Mathematics (Activity Group on Supercomputing).

Ph. D. Students

Susanne Brenner, Ph. D. in Mathematics, University of Michigan, 1988, currently Professor at Louisiana State University. Shangyou Zhang, Ph. D. in Mathematics, Penn State University, 1988, currently Associate Professor at the University of Delaware. Cristina Draghicescu, Ph. D. in Mathematics, Penn State University, 1991, currently at IBM in Portland, OR. Babak Bagheri, Ph. D. in Computer Science, Penn State University, 1994, currently at Pros, Inc., Houston, TX. Dexuan Xie, Ph. D. in Mathematics, University of Houston, 1995, currently Associate Professor at the University of Wisconsin–Milwaukee. Hector Juarez, Ph. D. in Mathematics, University of Houston, 1996, currently at Universidad Autónoma Metropolitana Iztapalapa, México. Terry Clark, Ph. D. in Computer Science, University of Houston, 1996, currently at Institute for Molecular Biosciences, University of Queensland, Brisbane, Australia. Suming Wu, Ph. D. in Mathematics, University of Houston, 1998. Currently at Knowledge Systems, Inc., Stafford, TX. Sanjay Datta, Ph. D. in Mathematics, University of Houston, 2000. Andrei Draganescu, Ph.D. in Mathematics, University of Chicago, 2004, currently Assistant Professor at University of Maryland-Baltimore County. Ernesto Gomez, Ph. D. in Computer Science, University of Chicago, 2005, currently Associate Professor at the California State University at San Bernadino. Jing Liu, Ph. D. in Computer Science, University of Chicago, 2006. Currently at Alexa, Inc.

Postdoctoral Associates

Dr. Simon Tavener, Penn State University, 1987–1989. Currently Professor of Mathematics, Colorado State University. Dr. Mircea Draghicescu, University of Houston, 1993–1995. Currently at Intel. Dr. Andrew Ilin, University of Houston, 1992–1996. Currently at Lockheed-Martin, Inc. Dr. Z. Hong Zhou, University of Houston, 1995–1997. Currently Professor at UCLA. Dr. Kristina Rogale Plazonic, University of Chicago, 2003–2005. Currently at Princeton Univ. Dr. Christopher M. Fraser, University of Chicago, 2008–2009. Currently at Bioanalytical Computing, LLC.

Courses Introduced

Mathematical Theory of Finite Element Methods, University of Michigan (Math 671), 1983, Penn State University, 1986, University of Houston (Math 7394), 1989.

Lecture notes for this course formed the basis for the book *The Mathematical Theory of Finite Element Methods*, Springer-Verlag, 1994, written jointly with Susanne C. Brenner. The finite element method is the most widely used technique for engineering design and analysis. The course provides an introduction to basic functional analysis, approximation theory and numerical analysis, while building upon and applying basic techniques of real variable theory. It is both a fundamental part of the applied mathematics curriculum and a substantial contribution to the pure mathematics curriculum.

Parallel Scientific Computing, Penn State University, 1988, University of Houston (Math 6378), 1990, University of Chicago (CS 340), 1999.

Lecture notes for this course form the basis for the a forthcoming book being written jointly with Babak Bagheri and Terry Clark. The course provides an introduction to the fundamental concepts and algorithms of parallel computing. The prerequisites are kept to a minimum to make the subject accessible to a wide

audience of scientists and engineers.

Structured Scientific Computing, University of Houston, 1996.

This course introduced the idea of automating software for solving partial differential equations, a precursor to the development of the FEniCS project.

Honors Intro Computing, University of Chicago 2000.

This is the honors version of the introductory programming course based on the Scheme programming language.

Applied Math Literacy, University of Chicago 2002.

This course was modelled on the Geometric Literacy course and presents topics in applied mathematics to second-year graduate students in mathematics.

Digital Biology, University of Chicago 2004.

This course attempts to explain how proteins work as a digital information system despite the analog nature of their environment. It has been attended by students at different levels (undergraduates through post-docs) with a very wide range of interests.

Software Automation, University of Chicago 2007.

This course explores a new paradigm in computing involving the automation of the process of writing software based on precise mathematical models.

Publications

can be found at <http://people.cs.uchicago.edu/~ridg/lrsbib.html>

5 August 2009