

Computer Science Department Annual Report 2002-2003

Summary

For the period July 1, 2002, through June 30, 2003, the resident faculty of the Computer Science Department included 19 full time faculty members (9 Professors, 5 Associate Professors, 5 Assistant Professors) and 2 part-time Instructors. Permanent professional persons associated with the department included 3 secretarial staff members, 3 technical support personnel, and one undergraduate advisor.

As of Fall 2002, there were 96 graduate students enrolled in degree programs (31 in the doctoral program, 64 in the MS, and 1 in the MAMS), and 341 declared undergraduate majors. Additionally, there were a total of 1,632 seats offered in service courses, taken primarily by non-majors. During the past fiscal year, 2 students were awarded Ph.D. degrees, 20 graduated with M.S, and 1 student received the MAMS degree. Also, despite the drop in the total number of undergraduates, a record 65 bachelor's degrees were awarded.

As a group, the faculty authored or co-authored 111 research articles and gave 25 presentations at professional meetings. Many of the faculty members have served on editorial boards of distinguished journals. Our faculty were PI, CO-PI, or contributors to 22 externally funded grants. The amount of the external funding totaled \$3,820,022. Also, the faculty received 5 internal grants for the total amount of \$72,139.

Dr. Liming Cai was welcomed to our faculty in August 2002. Also, our 2002-03 faculty search ended with the hiring of Dr. Kang Li. Dr. Li obtained his Ph.D. from Oregon Graduate Institute and will begin his position as Assistant Professor in August 2003. Dr. Li is one of our faculty members funded by Georgia's *Yamacraw Initiative*. However, Drs. Bishop, Chandra, and Gries have left the University during the past year. Dr. Krysz Kochut succeeded Dr. Rod Canfield as Head of the Department. Dr. Canfield stepped down after nine years of dedicated service as Head, marked by tremendous growth of the Department.

A. Major Accomplishments

External Research Funding

2002-2003 has been a good year for the faculty of the Computer Science Department. Several of the faculty members have held externally funded research grants as PIs or CO-PIs. For additional details, please see the Appendix B, beginning on page 15.

Dr. Suchi Bhandarkar received funding from the US Dept. of Agriculture to work on *Novel Statistical Methods for Generation of Integrated Genomic Maps*. The grant will last three years. He also received funding from University of Georgia and Medical College of Georgia Joint Research Program for the project entitled *Computer-assisted External Reduction and Internal Fixation of Complex Craniofacial Fractures*. Dr.

Bhandarkar has continued work on two ongoing externally sponsored projects (from US Department of Agriculture and from NSF as a CO-PI).

Dr. Eileen Kraemer received funding from NSF for her new project *Program Visualization: Using Perceptual and Cognitive Concepts to Quantify Quality, Support Instruction, and Improve Interactions*. This project will last three years. She has continued work on the ongoing project *An Infrastructure in Support of Configurable, Consistent, Interactive Computational Steering* funded by NSF (a CAREER Grant).

Dr. David Lowenthal obtained external funding for a new project *HC-MPI: A System for Out-of-Core, Heterogeneous Data Distributions*. The project has been funded by NSF and will last for three years. He has continued research on his NSF CAREER Award entitled *An Integrated Compiler/Run-Time System for Global Data Distribution*.

Drs. David Lowenthal and R.W. Robinson have continued work as CO-PIs on a joint project on *ITR/ACS: Stochastic Summation of High-Order Feynman Graph Expansions* with the Physics Department (Dr. Bernd Schüttler, PI) which was funded by NSF.

Dr. Don Potter has continued work on a project entitled *SAGA-STP Aerial Spray Treatment Planner, Extension* funded by the USDA Forest Service.

Dr. Khaled Rasheed has continued his research (as a CO-PI) on a project entitled *Data Driven Design Optimization in Engineering Using Concurrent Integrated Experiment and Simulation*. The project has been funded by the National Science Foundation (the PI is Dr. Doyle Knight of Rutgers University).

Drs. Amit Sheth, Budak Arpinar, and Krys Kochut have received funding from NSF for a project entitled *Semantic Association Identification and Knowledge Discovery for National Security Applications*. The project will last three years.

Drs. Amit Sheth, Krys Kochut, and John Miller received funding from NIH for a project entitled *Bioinformatics of Glycan Expression*. This is a part of a large five year project originating from the Complex Carbohydrates Research Center (Dr. Michael Pierce, PI).

Scholarly Publishing

The Computer Science faculty members have been very productive in publishing their research results. We have authored or co-authored 111 articles in 2002-2003, which is an increase from the previous year. They were published or submitted to high quality journals and conference proceedings. Our faculty gave 25 presentations at conferences, 2 of which were presented abroad. Also, we have given 3 invited talks and one keynote address. For the list of publications, please see the Appendix C, beginning on page 19.

Conference Organization

Dr. Hamid Arabnia organized the 2003 International MultiConference on Computer Science and Computer Engineering. The Conference was held in June 2003, Las Vegas. Dr. Arabnia served as the General Chair of the MultiConference.

Dr. Thiab Taha organized the *Third IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory*. The conference was held in Athens, Ga., April 7-10, 2003. Dr. Taha received funding for the organization of the conference from NSF.

B. Strategic Planning

Computer Science Education

We have made big strides in improving the undergraduate program in Computer Science. As projected in our five-year strategic plan (1999-2004), we have increased the number of offered courses. Also, in the Fall of 2002, the department has started offering a Certificate in Computing, available to students majoring in other disciplines, but with a strong concentration in computing. The Certificate has proved to be popular, and in the first year we have awarded 12 certificates. The department has continued awarding Yamacraw Certificates to students who specialize in the areas of Computer Science emphasized by the Georgia's Yamacraw Initiative, a major strategic initiative to promote growth in the broadband telecommunications industry. In the past year, we have awarded 38 Yamacraw Certificates.

Our graduate programs in Computer Science (Ph.D., M.S., and M.A.M.S) have experienced rapid growth. As of Fall 2002, there were 96 graduate students enrolled in graduate degree programs: 31 in the doctoral program, 64 in the MS, and 1 in the MAMS.

Faculty Recruitment

Dr. Liming Cai joined our faculty in the Fall 2002. Dr. Cai's research interests concentrate in Computational Biology, an area of emphasis identified by the University of Georgia. During the 2002-2003 recruiting period, the department hired Dr. Kang Li. Dr. Li brings in his expertise in computer networks and network security. Both areas have been considered as primary needs in the department. Dr. Li is one of the Yamacraw Faculty, funded by the above mentioned Georgia's Yamacraw Initiative. The department has two more Yamacraw-funded positions to be filled in Fall 2004. This will bring the number of Ph.D. faculty to 21, fewer than the 24 projected in our 1999-2004 Strategic Plan. However, we should point out that the plan was created at the time of a rapid economic expansion in the US, but the recent downturn and associated budgetary difficulties have trimmed considerably the amount of funding dedicated to hiring new faculty, both within the University and the Yamacraw Initiative.

Space

The department has an insufficient amount of space, especially in view of the recently hired faculty with research interests in experimental Computer Science. Even though the department acquired additional offices in Barrow Hall, the space available as experimental research labs is limited and several members of the new faculty have been forced to share lab space. The anticipated hires of the two Yamacraw faculty members in Fall 2004 will require additional lab space. An unwelcome implication of our current

space allocation is that our faculty are now located in three different buildings (Boyd, Hardman, and Barrow), not a good situation for fostering cohesiveness among the faculty body.

C. Short-Term Goals for FY 2004

Program Review

In the 2003-2004 academic year, the Computer Science Department will undergo the first Program Review and Assessment. This is an important process, which will involve our entire faculty throughout the upcoming year.

Faculty Recruitment

The department has two Yamacraw-funded positions to be filled in FY04. Our plan is to hire two high quality faculty members, preferably in the research areas complementing those of our current faculty, more specifically in such areas as computer networks, mobile communications, communication protocols, and embedded systems.

Space

With the anticipated addition of the new faculty, we would like to increase our space available for experimental CS research labs. Typically, experimental research labs need space for the installation of several (sometimes 20 or even more) computers to perform experiments in such areas of research as distributed computing, wireless communication, and network security.

D. Effectiveness Assessment

In the 2003-2004 academic year, the Computer Science Department will undergo the first Program Review and Assessment, conducted by Office of the Vice President for Instruction. This will be a very good opportunity to review all of our programs and conduct a thorough assessment of their effectiveness.

The Computer Science Department is in the process of modifying its undergraduate assessment procedures. A committee composed of Drs. Dan Everett, Liming Cai, and Suchendra Bhandarkar has created a new Computer Science Undergraduate Assessment model. The model has been approved and the new procedures will be created in the upcoming year. Also, we intend to collect measurements and analyze the results.

E. Student Retention and Graduation Rates

As of Fall 2002, there were 350 declared undergraduate CS majors, 124 less than this time one year ago. (This drop is typical of many Computer Science departments across the country, which is mostly attributed to the worsened economic conditions and fewer jobs awaiting CS graduates.) Many of these declared undergraduate majors students have not yet taken a course with a CSCI prefix. However, despite the drop in the total number of undergraduates, a record 65 bachelor's degrees were awarded.

Our graduate programs have continued to grow. As of Fall 2002, there were 96 students enrolled in graduate degree programs: 31 in the doctoral program, 64 in the MS, and 1 in the MAMS. Availability of funding for graduate students is a very important factor in the overall health of the graduate program. In Fall 2002, 46 graduate students received financial support (it is a typical number), as follows: Graduate Laboratory Assistants, 54%; Graduate Teaching Assistants (in charge of a course), 7%; Research Assistants supported by external funding, 30%; University Wide Assistantships, 9%. During the past fiscal year, 2 students were awarded Ph.D. degrees, 20 graduated with M.S., and 1 student received the MAMS degree, specializing in Computer Science.

In addition to graduate students and majors, the department taught several courses of a service nature, including CSCI 1100 (Introduction to Personal Computing), CSCI 1210 (Introduction to Computational Science), CSCI 1301 (Introduction to Computing and Programming). A total of 1,632 seats were offered in these courses.

The Department has decided to modify the undergraduate entrance requirements, which were in effect since Fall 1998. The students were required to receive the grade of B or better in CSCI 1301 and two “gateway” courses (CSCI 1302 and CSCI 2610). The faculty have reviewed the requirements and concluded that the grade requirement for all of the courses needed for the entrance into the Computer Science major should be set at a C minimum. The reasoning behind this change was twofold. First, it was our observation that some students may take a bit longer to realize their talents and potential for the discipline of computing. Disqualifying them from the Computer Science major at such an early stage may be premature. Second, as the number of students interested in majoring in Computer Science has decreased, it was not essential to maintain the stringent entrance requirements as one of the elements of the overall enrollment management. The change has resulted in an increase of students admitted to the Computer Science major (as a percentage of the students finishing all of the entrance requirement courses). At the same time, we will keep monitoring the quality of our majors to ensure that the change does not have an adverse affect on the quality of our graduates.

F. Overall Status

The overall record of the faculty in instruction and research is excellent. Similarly, our graduates are very well trained and are able to find quality employment. We have continued to provide quality education to a large number of students, both majors and non-majors. Moreover, this was possible without significant changes to teaching loads or class sizes and as a result, our research record has continued to improve both in scholarly publishing and in external research funding. We have added an excellent faculty member this year. At the same time, the resignations of some of our faculty members and the difficulty of filling all of our available positions serves as a reminder that we are still in a period of intense competition for recruitment of high quality faculty within the profession. Nevertheless, we believe that the professional environment for computer science at UGA is very good and we will continue our efforts to recruit highest quality faculty. The department looks forward to future opportunities for growth to strengthen our stature in economically and academically important sub-areas of Computer Science.

APPENDICES

Attached are detailed listings of professional activities, grants, publications, and presentations of the faculty during the past year.

A. PROFESSIONAL HONORS AND RECOGNITIONS

H. R. Arabnia

Editor-in-Chief, Journal of Supercomputing (Kluwer Publishing), Nov. 1997 – present.

Associate Editor, International Journal of Parallel and Distributed Systems and Networks (IASTED), IJPDSN, published by ACTA Press since 1999, 1996 – present.

Member of American Association for the Advancement of Science, 1999 – present.

Member of World Occam and Transputer User Group (WoTUG), 1986 – present.

Member of the Editorial Board of the International Journal of Parallel and Distributed Systems and Networks (IJPDSN), 1996 – present.

Chair, North American Transputer Users Group, NATUG Association, 1996 – present.

Member of Advisory Board of Virtual Medical Worlds - an on-line magazine by Euromed (European Commission in Telemedicine), <http://www.hoise.com/project/VMW>, 1997 – present.

Member, Editorial Advisory Board, The International Journal of Communication Systems (IJCS), published by John Wiley, since 2000.

Member, Editorial Board, Computing Letters, Cambridge International Science Publishing Ltd., since 2001.

General Chair, The 2003 International MultiConference on Computer Science and Computer Engineering Las Vegas, June 23-26, 2003.

Member, Scientific Committee, International Arab Conference on Information Technology; University of Qatar; Doha-Qatar, Dec. 2002.

Member, Program Committee, IEEE and ACM-SIGARCH International Workshop on Performance Modeling, Evaluation and Optimization of Parallel and Distributed Systems (PMEO_PDS'02 and '03).

Member, Program Committee, The International Symposium on Parallel and Distributed Processing and Applications (PDPA/ISPA2002/03), University of Aizu, Japan.

Member, Scientific Committee, International Conference of Computational Methods in Sciences and Engineering (ICCMSE), 2002.

Member, Scientific Committee, International Conference of Computational Methods in Sciences and Engineering (ICCMSE 2003), Kastoria, Greece, 2003.

Member, Program Committee, 41st Annual ACM Southeast Conference (ACM-SE'03), Armstrong Atlantic State Univ., Georgia, 2003.

Member, Program Committee, IEEE - The International Conference on "Parallel and Distributed Computing, Applications, and Technologies (PDCAT 2003)", Chengdu, P. R. China, August 2003.

Member, Program Committee, International Conference on Computing and Information Sciences - ICCIS'2004, University of Qatar, Doha - Qatar.

Member of Site Visit Team (1 of 7 team members), National Science Foundation (NSF); Evaluating an NSF funded research center, 2002 and 2003.

I. Budak Arpınar

Member, IEEE Computer Society.

Member, ACM Sigmod.

Program Committee Member, 2nd International Semantic Web Conference, Sanibel-Captiva Islands, FL., October 20-24, 2003.

Web Chair, IEEE International Conference On Electronic Commerce (CEC'03), Newport Beach, CA., June 2003.

S. M. Bhandarkar

Program Committee Member, IEEE Computer Society Bioinformatics Conference, Stanford University, CA, August 2003.

Program Committee Member, Intl. Wkshp. Parallel and Distributed Computing in Image Processing, Video Processing and Multimedia, (PDIWM 2003), Nice, France, April 2003.

Program Committee Member, Intl. Wkshp. High Performance Computational Biology (HiCOMB2003), Nice, France, April 2003.

Associate Editor, International Journal of Applied Intelligence, November 99 - present.

Associate Editor, The Computer Journal, May 1999 - present.

Member, Technical Committee on Multimedia Computing, IEEE Computer Society, 1998-present.

Member, Technical Committee on Pattern Analysis and Machine Intelligence, IEEE Computer Society, 1992-present.

Member, Association for Computing Machinery (ACM), 1990-present.

Member, International Society of Photo-optical and Instrumentation Engineers (SPIE), 1987-present.

Member, American Association for Artificial Intelligence (AAAI), 1985-present.

Member, Institute for Electrical and Electronic Engineering (IEEE), 1982-present.

L. Cai

Member, ACM.

Member, SIGACT.

Member, EATCS.

E. R. Canfield

Member, the Association for Computing Machinery.

Editor, Electronic Journal of Combinatorics.

M. Hybinette

Member, Association for Computing Machinery.

Member, Institute of Electrical and Electronics Engineers.

D. R. Gries

Steering Group, AAAS Section on Information Computing, and Communication (T), 2000-present

Editorial Board: Acta Informatica, 1970-present; Information Processing Letters, 1973-present

K. J. Kochut

Member, Association for Computing Machinery.

Member, SIGMOD.

Member, SIGCOMM.

E. T. Kraemer

Participant, Grant Proposal Review Panel, National Science Foundation.

Participant, Grant Proposal Review Panel, National Institute of Health.

Software Area Chair, Technical Papers Committee, SC03 Conference.

Program Committee Member, ACM Symposium on Software Visualization, 2003.

Member, Program Committee for Supercomputing 2003.

Member, Program Committee for SoftViz, 2003.

Finance Chair, 2002 IEEE Symposia on Human Centric Computing, Languages and Environments.

Member, Program Committee, Workshop on Bio-Inspired Solutions to Parallel Processing Problems (BIOSP3), 2000, 2001, 2002, 2003.

Member, Nominating Committee, International Society for Computational Biology, 2000, 2001, 2002.

D. K. Lowenthal

Program Committee Member, Workshop on Languages, Compilers, and Run-Time Systems for Scalable Computing.

Program Committee Member, Workshop on High-Level Programming and Supportive Environments.

Member, ACM, 1992-present.

Member SIGPLAN, 1992-present.

Member, SIGOPS, 1992-present.

Member, IEEE.

National Science Foundation Grant Review Panel Member, "Advanced Computational Research Program", October 2002.

J. A. Miller

Associate Editor, ACM Transactions on Modeling and Computer Simulation (TOMACS), 1999-present.

Associate Editor, IEEE Transactions on Systems, Man and Cybernetics (TSMC), 1999-present.

Track Coordinator, The 2002 Winter Simulation Conference (WSC'02), Modeling Methodologies Track, San Diego, California (December 2002).

Member, Association for Computing Machinery.

Member, IEEE Computer Society.

Member, Society for Computer Simulation (SCS).

W. D. Potter

Associate Editor, Journal of Intelligent and Fuzzy Systems, since January, 2003.

Associate Editor, IEEE Transactions on Systems, Man, and Cybernetics, since summer 2001.

Program Committee Member, International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, (IEA/AIE'2003), June, 2003; UK.

Program Committee Member and Robotics Competition Chairman, International Conference on Artificial Intelligence (IC-AI'2003), June, 2003, Las Vegas, Nevada.

Program Committee Member, Genetic and Evolutionary Computation Conference (GECCO-2002), July, 2002, New York.

Member of: American Association of Artificial Intelligence (AAAI), Association of Computing Machinery (ACM), Institute of Electrical and Electronics Engineers: Computer Society (IEEE: CS), Institute for the Certification of Computer Professionals (ICCP), Certified Data Processor: 1980, International Society of Applied Intelligence (ISAI), American Society of Agricultural Engineers (ASAE).

K. M. Rasheed

Member, Institute of Electrical and Electronics Engineers (IEEE)

Member, IEEE Computer Society

Member, IEEE Neural Network Society

Member, American Association for Artificial Intelligence (AAAI)

Member, International Society of Genetic & Evolutionary Computation (ISGEC)

Workshop Co-organizer, Genetic and Evolutionary Computation Conference (GECCO'2003). Workshop on Learning and Adaptation in Evolutionary Computation.

Program Committee Member, Genetic and Evolutionary Computation Conference (GECCO'2003).

Session Chair, Genetic and Evolutionary Computation Conference (GECCO'2002)

Journal Guest Editor, Soft Computing Journal, special issue on approximation and learning in evolutionary computation, 2002

R. W. Robinson

Organizing Committee, SIAM/ACM workshop on Algorithms for Listing Counting and Enumeration, Baltimore, MD, January 2003.

Editorial Board, Journal of Combinatorial Mathematics and Combinatorial Computing, 1987-present.

Foundation Fellow, Institute of Combinatorics and its Applications.

Member, American Mathematical Society.

Member, Association for Computing Machinery (ACM) and the ACM special interest group SIGACT.

Member, Combinatorial Society of Australasia.

A. P. Sheth

Editor, IEEE Multimedia, November 1998 - present.

Member of the Editorial Board, Information Systems - an Intl. Journal, 1993 – present.

Member of the Editorial Board, Journal on Web Semantics: Science, Services and Agents on the World Wide Web, 2003 - present.

Member of the Editorial Advisory Board, International Journal of Engineering Intelligent Systems, 1993 - present.

Member of the Editorial Board, Journal on Distributed and Parallel Databases, 1992 - present.

Associate Editor, SIGMOD Record, 1988 - present.

Member, Association for Computing Machinery, SIGMOD and other SIGs.

Member, IEEE Computer Society, including Technical Committee on Database Engineering.

Member of the Board and Founding Member, International Foundation on Cooperative Information Systems, 1996-present.

Editorial Board, International Journal of Cooperative Information Systems, 1996-present.

Editorial Board, Information systems-An International Journal, 1998-present.

Advisory Board, Coca-Cola Center for Marketing Studies, Terry College of Business, 2001-present.

Program Committee Member, 4th International Conference on Web Information Systems Engineering (WISE'03), Roma, December 10-12, 2003.

Program Committee Member, 2nd International Conference on Ontologies, DataBases, and Applications of Semantics for Large Scale Information Systems (ODBASE'03), Sicily. November 3-7 2003.

Program Committee Member, 12th International Conference on Information and Knowledge Management (CIKM 2003), New Orleans, LA, November 2-8 2003.

Program Committee Member, 2nd International Semantic Web Conference, Sanibel, Florida, October 20-24, 2003. (Senior PC Member)

Program Committee Member, The 2003 IEEE/WIC International Conference on Intelligent Agent Technology (IAT 2003), Beijing, China, October 13-17, 2003.

Program Committee Member, IEEE Conference on E-Commerce (CEC03), Newport Beach, CA, June 24-27 2003.

Program Committee Member, 7th International Workshop CIA-2003 on Cooperative Information Agents, Helsinki, Finland, August 27 - 29, 2003.

Program Committee Member, 4th Annual International Conference on Object-Oriented and Internet-based Technologies, Concepts, and Applications for a Networked World, Thuringia, Germany, September 22-25, 2002.

Program Committee Member, Workshop on Semantic Web and Databases, Berlin, Germany, September 13-14, 2004.

Program Committee Member, 7th International Workshop on Cooperative Information Agents (CIA 2003), Helsinki, Finland, August 27 - 29, 2003.

Program Committee Member, IEEE International Conference on Electronic Commerce (CEC'03), Newport Beach, CA, June, 2003.

Program Committee Member, 13th International World Wide Web Conference (WWW2003), Budapest, Hungary, May 20-24, 2003.

Program Committee Member, 3rd Annual International Conference on Object-Oriented and Internet-based Technologies, Concepts, and Applications for a Networked World, Thuringia, Germany, October 7-10, 2002.

J. W. Smith

Reviewer for Computing Reviews, 1978 - 1986, 1990, 1994 - present.

T. R. Taha

Member, Association of Computing Machinery (ACM).

Member, Society for Industrial and Applied Mathematics (SIAM).

Member, SIAM SEAS.

Member, International Association for Mathematics and Computers in Simulation (IMACS).

Member, SIAM Activity Group on Supercomputing.

Member, Middle East Advisory Panel on the Fulbright Senior Scholar Program for CIES (Council for International Exchange of Scholars), 1999 – present.

Member, IMACS technical committee on Dynamical Systems and Nonlinear Science, 1992 - present.

Member, Institute of Electrical and Electronics Engineers (IEEE), Inc.

Session Chair, Introducing the first key speaker at the Third IMACS International Conference on "Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory", Athens, GA, April 7-10, 2003.

Program chair and conference coordinator of the Third IMACS International Conference on "Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory", Athens, GA, April 7-10, 2003.

Guest Editor of the Special Issue of the Journal Mathematics and Computers in Simulation on "Nonlinear Waves: Computation and Theory-II", Vol. 62, Issues 1-2, 2003.

Member, Editorial Board of The International Arab Journal of Information Technology (IAJIT), 2002-present.

Member, Review Committee of Applied Mathematics, Operational Research and Optimization Symposium to be held under the CESA'2003 in Lille, France, July 9-11, 2003.

S. Watterson

Member, Association for Computing Machinery.

Member, ACM SIGMICRO.

Member, IEEE.

B. GRANTS AWARDED OR CURRENT

EXTERNALLY FUNDED GRANTS

Bhandarkar, S.M. (PI), Design and Prototype Development of a Computer Vision-based Lumber Production Planning System, US Department of Agriculture, \$190,000, Dec. 15, 2000 - Dec. 30, 2003. (In addition, \$30,000 matching funds from VP for Research.)

Paterson, A. (PI), S. M. Bhandarkar, R. Dean, J. Kececioglu, L. Pratt, M.M. Pratt, S. Kresovich, and R. Wing (Co-PI's) Cross-linked Sorghum and Rice Physical Maps as a Foundation for Analyzing Genome Structure, Function and Variation in C4 Grasses, NSF, \$3,246,755 (CS portion \$164,932), Oct. 1, 1998 - Sept. 30, 2002.

Bhandarkar, S.M. (with Dr. J. Arnold, Co-PI), US Dept. of Agriculture, Novel Statistical Methods for Generation of Integrated Genomic Maps, \$280,644, Sept. 1, 2002 - Aug. 31, 2005.

Bhandarkar, S.M. (with Dr. Jack Yu, MD, University of Georgia and Medical College of Georgia Joint Research Program, Medical College of Georgia, Co-PI) Computer-assisted External Reduction and Internal Fixation of Complex Crainofacial Fractures, \$53,340, Sept. 1, 2002 - June 30, 2003.

Kraemer, E. (PI), "An Infrastructure in Support of Configurable, Consistent, Interactive Computational Steering," NSF CAREER Award, \$201,617, May 1998 - April 2003.

Kraemer, E. and E. Davis "Program Visualization: Using Perceptual and Cognitive Concepts to Quantify Quality, Support Instruction, and Improve Interactions," NSF, \$303,606, June 15, 2003 – June 14, 2006.

Lowenthal, D. (PI), E. Kraemer and S.M. Bhandarkar (Co-Pi's), National Science Foundation Major Research Instrumentation Grant, "Instrumentation Grant for Research in Parallel and Distributed Computing", Experimental and Integrative Activities, \$114,000, March 2000-February 2004 (includes matching from the University of Georgia Research Foundation).

Canfield, E.R. (PI), J.W. Smith and H.R. Arabnia, University of Georgia Yamacraw Program (2002-2003), Georgia Governor's office, \$608,402, continued support for permanent/continued staff and faculty positions for the Department of Computer Science.

Schuttler, B. (PI), Co-PIs: D. Lowenthal, R.W. Robinson, and J. Corcoran, National Science Foundation Information Technology Research Program, "ITR/ACS: Stochastic Summation of High-Order Feynman Graph Expansions", \$487,000. (CS portion – approximately \$236,195), September 2000-February 2004.

Lowenthal, D. (PI), "An Integrated Compiler/Run-Time System for Global Data Distribution", National Science Foundation CAREER Award, Computer and Communications Research, \$200,000, July 1, 1998 - June 30, 2003.

Lowenthal, D. (PI), "HC-MPI: A System for Out-of-Core, Heterogeneous Data Distributions", National Science Foundation Advanced Computational Research Program (ACR), \$150,000, May 2003 - June 30, 2005.

Lowenthal, D. (PI), "A Power-Aware Scheduler for Streaming Multimedia Clients", National Science Foundation REU Program, \$2,000, July 1, 2003 – June 30, 2004.

Lowenthal, D., S. Watterson and S.M. Bhandarkar, "An Integrated Scalable Client-Server System for Energy-aware Computing," State of Georgia Yamacraw Research Program, \$75,000 July 1, 2002 - June 30, 2003.

Potter, W.D., "SAGA-STP Aerial Spray Treatment Planner, Extension", USDA Forest Service, \$20,600, 7/2001 – 8/2002.

Knight, D. (PI), Khaled Rasheed (Co-PI) and 3 other Co-PIs, National Science Foundation (NSF), "Data Driven Design Optimization in Engineering Using Concurrent Integrated Experiment and Simulation", \$1,200,000 (UGA's portion \$137,295), October 1, 2001 - September 30, 2004.

Sheth, A., B. Arpinar, K. Kochut, National Science Foundation, "ITR: Semantic Association Identification and Knowledge Discovery for National Security Applications", (IDM Program), CISE-ITR-0219649, \$200,000, August 15, 2002 - July 31, 2005.

Sheth, A., K. Kochut, J.A. Miller, "Bioinformatics of Glycan Expression," National Institutes of Health, \$709,401, July 1, 2003 – July 31, 2008. This is a part of a project originating from the Complex Carbohydrates Research Center at UGA (Dr. Michael Pierce, PI).

Sheth, A. (PI), "Database and Information Systems Research for Semantic Web and Enterprises," National Science Foundation, \$20,000, January 2, 2002 – December 31, 2002.

Sheth, A. (PI), "Database and Information Systems Research for Semantic Web and Enterprises," EU Thematic Network Onto Web, \$5,000, March 15, 2002 – March 14, 2003.

Sheth, A., donations from various sources to support research activities in the LSDIS Lab at University of Georgia, current funding, \$90,000.

Sheth, A., Clemens Bertram, Kshitij Shah, "Video Anywhere: A System to Search, Access and Manage Any Type of Video Assets Anywhere", Royalty research proceeds from invention, \$4,849, 2001-2003.

Taha, T., NSF, Support for the Third IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory Conference", \$15,000, August 1, 2002 - October 31, 2003.

INTERNALLY FUNDED GRANTS

Arpinar, I.B. (PI) "ONTOS: Ontology-driven Web Services Integration Platform", UGA Faculty Research grant, \$11,500, January 1, 2002 – December 31, 2002.

Canfield, E.R. (PI), Donation to support graduate education in the CS Dept., \$20,089, 2002-2003.

Hybinette, M., The University of Georgia Research foundation, "Re-Active Simulations", \$4,000, December 2002 - December 2003.

Taha, T., UGA, President Venture Fund, "Support for the Third IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, \$2000, April 2003.

Potter, W.D., UGA Office of Instructional Support and Development: Learning Technologies Grant Program, "Artificial Intelligence In Action: An Introduction to Robotics - Phase 2," \$34,550, 2002 - 2003.

C. FACULTY PUBLICATIONS AND PRESENTATIONS

PUBLISHED ARTICLES AND CHAPTERS IN BOOKS: (senior author listed first)

H. R. Arabnia, Co-Editor, Vol I, Proceedings of The 2003 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03). CSREA Press, ISBN #: 1-892512-41-6, June, 2003, 500 pages.

H. R. Arabnia, Co-Editor, Vol II, Proceedings of The 2003 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03). CSREA Press, ISBN #: 1-892512-42-4, June, 2003, 480 pages.

H. R. Arabnia, Co-Editor, Vol III, Proceedings of The 2003 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03). CSREA Press, ISBN #: 1-892512-43-2, June, 2003, 488 pages.

H. R. Arabnia, Co-Editor, Vol IV, Proceedings of The 2003 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03). CSREA Press, ISBN #: 1-892512-44-0, June, 2003, 510 pages.

H. R. Arabnia, Co-Editor, Vol I, Proceedings of The 2003 International Conference on Imaging Science, Systems, and Technology (CISST'03). CSREA Press, ISBN #: 1-892512-46-7, June, 2003, 410 pages.

H. R. Arabnia, Co-Editor, Vol II, Proceedings of The 2003 International Conference on Imaging Science, Systems, and Technology (CISST'03). CSREA Press, ISBN #: 1-892512-47-5, June, 2003, 390 pages.

H. R. Arabnia, Co-Editor, Vol I, Proceedings of The 2003 International Conference on Artificial Intelligence (IC-AI'03). CSREA Press, ISBN #: 1-932415-12-2, June, 2003, 388 pages.

H. R. Arabnia, Co-Editor, Vol II, Proceedings of The 2003 International Conference on Artificial Intelligence (IC-AI'03). CSREA Press, ISBN #: 1-932415-13-0, June, 2003, 392 pages.

H. R. Arabnia, Co-Editor, Vol I, Proceedings of The 2003 International Conference on Internet Computing (IC'03). CSREA Press, ISBN #: 1-932415-00-9, June, 2003, 405 pages.

H. R. Arabnia, Co-Associate Editor, Vol II, Proceedings of The 2003 International Conference on Internet Computing (IC'03). CSREA Press, ISBN #: 1-932415-01-7, June, 2003, 405 pages.

H. R. Arabnia, Co-Editor, Proceedings of The 2003 International Conference on Embedded Systems and Applications (ESA'03) CSREA Press, ISBN #: 1-932415-15-7, June, 2003, 270 pages.

H. R. Arabnia, Co-Editor, Proceedings of The 2003 International Conference on Wireless Networks (ICWN'03). CSREA Press, ISBN #: 1-932415-03-3, June, 2003, 460 pages.

H. R. Arabnia, Co-Editor, Proceedings of The 2003 International Conference on Machine Learning; Models, Technologies and Applications (MLMTA). CSREA Press, ISBN #: 1-932415-11-4, June, 2003, 280 pages.

H. R. Arabnia, Co-Associate Editor, Proceedings of The 2003 International Conference on Mathematics and Engineering Techniques in Medicine and Biological Sciences (METMBS'03). CSREA Press, ISBN #: 1-932415-04-1, June, 2003, 475 pages.

H. R. Arabnia, Co-Associate Editor, Proceedings of The 2003 International Conference on Communications in Computing (CIC'03) CSREA Press, ISBN #: 1-932415-06-8, June, 2003, 310 pages.

H. R. Arabnia, Co-Editor, Proceedings of The 2003 International Conference on VLSI (VLSI'03). CSREA Press, ISBN #: 1-932415-10-6, June, 2003, 360 pages.

H. R. Arabnia, Editor, Vol II, Proceedings of The 2003 International Conference on Information and Knowledge Engineering (IKE'03) CSREA Press, ISBN #: 1-932415-08-4, June, 2003, 405 pages.

H. R. Arabnia, Co-Editor, Vol I, Proceedings of The 2003 International Conference on Software Engineering Research and Practice (SERP'03). CSREA Press, ISBN #: 1-932415-19-X, June, 2003, 440 pages.

H. R. Arabnia, Co-Editor, Vol II, Proceedings of The 2003 International Conference on Software Engineering Research and Practice (SERP'03). CSREA Press, ISBN #: 1-932415-20-3, June, 2003, 410 pages.

H. R. Arabnia, Co-Editor, Vol I, Proceedings of The 2003 International Conference on Security and Management (SAM'03). CSREA Press, ISBN #: 1-932415-16-5, June, 2003, 450 pages.

H. R. Arabnia, Co-Editor, Vol II, Proceedings of The 2003 International Conference on Security and Management (SAM'03). CSREA Press, ISBN #: 1-932415-17-3, June, 2003, 380 pages.

H. R. Arabnia, Co-Associate Editor, Proceedings of The First International Conference on Web Services (ICWS'03). CSREA Press, ISBN #: 1-892512-49-1, June, 2003, 470 pages.

M. A. Shahin, E. W. Tollner, R. W. McClendon and H. R. Arabnia, "Apple Classification Based on Surface Bruises Using Image Processing and Neural Networks," *Transactions of the American Society of Agricultural Engineering (ASAE)*, Vol. 45, No. 5, pp. 1619-1627, 2002.

H. R. Arabnia Guest Co-Editor (with Prof. G. A. Gravvanis), *Journal of Mathematical Modelling and Algorithms* (JMMA - Kluwer Academic Publishers), 2002.

M. Arif Wani and H. R. Arabnia; Parallel Edge-Region-Based Segmentation Algorithm Targeted at Reconfigurable Multi-Ring Network; *The Journal of Supercomputing*, Vol. 25, No. 1, pp. 43-63, 2003.

H. R. Arabnia; Report - The 2002 International MultiConference in Computer Science and Engineering; *The Journal of Supercomputing*, Vol. 23, No. 3, pp. 106, 2002.

M. I. Marin and H. R. Arabnia, "Problems in Algebra and Mathematical Problems"; Elliot & Fitzpatrick Inc., to appear.

H. Valafar, H. R. Arabnia, G. Williams and Xiangjian He; "Distributed Global Optimization and Its Potential Implementation on the MultiRing Network"; *Journal of Mathematical Modelling and Algorithms* (JMMA - Kluwer Academic Publishers), submitted.

R. Zhang, B. Arpinar, and B. Aleman-Meza, "Automatic Composition of Semantic Web Services," Intl. Web Services Conference, Las Vegas NV, to appear.

X. Zheng, B. Lance, C. Vargas, I. B. Arpinar, E. Kraemer, K. Kochut, J. Miller, J. Wagner, M. Weise, J. Wunderlich, J. Stringer, G. Smulian, M. Cushion, and J. Arnold, "Mapping by Sequencing the Pneumocystis Genome Using the Ordering DNA Sequences V3 Tool", *Genetics*, 63(4):1299-1313, 2003.

J. Huang and S.M. Bhandarkar, A Comparison of Physical Mapping Algorithms Based on the Maximum Likelihood Model, *Bioinformatics*, to appear.

S. M. Bhandarkar, T. D. Faust and M. Tang, Design and Prototype Development of a Computer Vision-based Lumber Production Planning System, *Intl. Journal of Image and Vision Computing*, Vol. 20, No. 3, 2002, pp. 167-189.

S.M. Bhandarkar, J. Huang and J. Arnold, Parallel Monte Carlo Methods for Physical Mapping of Chromosomes, *Proc. IEEE Bioinformatics Conference*, Stanford University, Palo Alto, CA, August 14-16, 2002, pp. 64-75.

J. Arnold, H.-B. Schuttler, D.A. Logan, D. Battogtokh, J. Griffith, B. Arpinar, S.M. Bhandarkar, S. Datta, K.J. Kochut, E. Kraemer, J.A. Miller, A. Sheth, G. Strobel, T. Taha, B. Aleman-Meza, J. Doss, L. Harris, and A. Hyong, Metabolomics, in *Handbook of Industrial Mycology*, Marcel-Dekker, New York, NY, 2004, in press.

A. Faulkner and S.M. Bhandarkar, An Interactive Tool for Segmentation, Visualization and Navigation of Magnetic Resonance Images, *Proc. IEEE Conference Computer-based Medical Systems*, New York, NY, June 26-27, 2003, to appear.

L. Cai, R.L. Malmberg, and Y. Wu, "Stochastic Modeling of RNA Pseudoknotted Structures: A Grammatical Approach", *Bioinformatics*, to appear.

L. Cai and D. Juedes, "On the existence of subexponential-time parameterized algorithms", *Journal of Computer and System Sciences*, to appear.

L. Cai, D. Juedes, and I. Kanj, "On the inapproximability of non NP-hard optimization problems", *Theoretical Computer Science*, 289 (2002), 553-571.

L. Cai, R.L. Malmberg, and Y. Wu, " Stochastic modeling of RNA pseudoknotted structures: a grammatical approach", *Proceedings of the 11th International Conference on Intelligent Systems for Molecular Biology*, to appear.

L. Cai, R.L. Malmberg, and J. Zhao "Parameter Estimation for Stochastic Grammar Models of RNA Pseudoknots", *European Conference on Computational Biology*, submitted.

L. Cai, C.He, C. Liu, and R. Malmberg, "Memory-efficient Pseudoknot Prediction with Stochastic Grammar Modeling", *IEEE Computer Society Conference on Bioinformatics*, submitted.

E.R. Canfield (with Carl Pomerance), "On the problem of uniqueness for the maximum Stirling number of the second kind, *Integers*", 2 (2002) A1, 13 pages.

E. R. Canfield (with E. A. Bender, L. B. Richmond, and H. S. Wilf), "A discontinuity in the distribution of fixed point sums," *Electronic J. of Combinatorics*, to appear.

E. R. Canfield, "Integer partitions and the Sperner property", *Theoretical Computer Science*, to appear.

K. Kochut, J. Arnold, A. Sheth, J. Miller, E. Kraemer, I. B. Arpinar, and J. Cardoso, "IntelliGEN: A Distributed Workflow System for Discovering Protein-Protein Interactions", *International Journal of Distributed and Parallel Databases (DAPD)*, Special issue on Bioinformatics, Volume 13, No. 1, January 2003.

Jinhua Guo, Eileen Kraemer and David Miller, "Consistency Detection in a Transaction-Based Interactive Steering System" *Distributed Computations: Optimistic v. Conservative*, *Journal of Parallel and Distributed Computing*, submitted.

Jinhua Guo and Eileen Kraemer, "Consistent, Interactive Steering of Computations: Optimistic vs. Conservative Approaches," *IPDPS 2003, International Parallel and Distributed Processing Symposium*, submitted.

Mihail Tudoreanu and Eileen Kraemer, "A Study of the Performance of Steering Tasks under Spatial Transformation of Input," *ACM Transactions on Computer-Human Interaction*, submitted.

Kamyar Farahi, William B. Whitman, Eileen T. Kraemer, "RED-T: Utilizing the Ratios of Evolutionary Distances for Determination of Alternative Phylogenetic Events", *Bioinformatics*, to appear.

Jian Wang and Eileen Kraemer, "GFPE: Gene-Finding Program Evaluation", *Bioinformatics*, to appear.

Ashley George Hamilton-Taylor and Eileen Kraemer, "Designing an Algorithm Animation System to Support Instructional Tasks", *International Multimedia Electronic Journal of Computer-Enhanced Learning (IMEJ)*, October 2002.
<http://imej.wfu.edu/articles/2002/2/04/index.asp>.

Jinhua Guo, David Miller, Arumugaraja Selvaraj, and Eileen Kraemer, "Computational Steering: Optimistic v. Conservative", *2003 International Conference on Supercomputing*, submitted.

Mihail Tudoreanu, Rong Wu, Ashley Hamilton-Taylor, Eileen Kraemer, "Empirical Evidence that Algorithm Animation Promotes Understanding of Distributed Computations", Proceedings, *IEEE 2002 Symposia on Human Centric Computing Languages and Environments*, Arlington, VA, pp 236-243, Sep. 3-6, 2002.

David K. Lowenthal and Ragavan Subramanian, "HyFi: Architecture-Independent Parallelism on Networks of Multiprocessors", *International Journal of Parallel and Distributed Systems and Networks*, to appear.

David K. Lowenthal, Gregory M.S. Howard, Donald G. Morris III, D. Brent Weatherly, and Franklin Lowenthal, "SUIF-Adapt: An Integrated Compiler/Run-Time System for Global and Dynamic Data Distributions", submitted to *IEEE Transactions on Parallel and Distributed Systems*, 2002.

Amit Karwande, Xin Yuan, and David K. Lowenthal, CC-MPI: A Compiled Communication Capable MPI Prototype for Ethernet Switched Clusters, submitted to *ACM Transactions on Programming Languages and Systems*, 2003.

D. Brent Weatherly, David K. Lowenthal, Mario Nakazawa, and Franklin Lowenthal, Dyn-MPI: Supporting MPI on a Nondedicated Cluster of Workstations, to appear in *IEEE/ACM Supercomputing 2003 (SC'03)*.

Mario Nakazawa and David K. Lowenthal, I/O-Aware Gang Scheduling, to appear, *16th International Conference on Parallel and Distributed Computing Systems (PDCS)*, August 2003.

Haijin Yan and David K. Lowenthal, Popularity-Aware Cache Replacement in Streaming Environments, to appear, *16th International Conference on Parallel and Distributed Computing Systems (PDCS)*, August 2003.

Amit Karwande, Xin Yuan, and David K. Lowenthal, CC-MPI: A Compiled Communication Capable MPI Prototype for Ethernet Switched Clusters, *9th ACM Symposium on Principles and Practice of Parallel Programming (PPOPP)*, pp. 95-106, June 2003.

Haijin Yan, Scott A. Watterson, and David K. Lowenthal, Client-Centered Energy Savings for Concurrent Web Connections, submitted to *11th IEEE International Conference on Network Protocols (ICNP)*.

Gregory W. Price and David K. Lowenthal, "A Comparative Analysis of Fine-Grain Threads Packages", *Journal of Parallel and Distributed Computing*, to appear.

Haijin Yan, Scott A. Watterson, David K. Lowenthal and Larry L. Peterson, Client-Centered Energy Savings for TCP Downloads, Technical Report, June 2003.

Chris Bentley, Scott A. Watterson and David K. Lowenthal, Operating System Support for Low Cost Array Bounds Checking on 64-bit Architectures, Technical Report, June 2003.

Amit P. Sheth and John A. Miller, "Web Services: Technical Evolution yet Practical Revolution?" *IEEE Intelligent Systems (IEEEIS)*, Vol. 18, No. 1, pp. 78-80, IEEE Computer Society Press, 2003.

Chris Halaschek and John A. Miller, Native XML Databases Today," *XML Journal (XMLJ)*, Vol. 4, No. 1, pp. 22-27, SYS-CON Publications, Inc, 2003.

Sudhanshu Sipani, John A. Miller, Kunal Verma and Boanerges Aleman-Meza, "Designing a High Performance Database Engine for the 'Db4XML' Native XML Database System," *Journal of Systems and Software (JSS)*, Elsevier Science, to appear.

Kemafor Anyanwu, Amit P. Sheth, Jorge Cardoso, John A. Miller and Krys J. Kochut, "Healthcare Enterprise Process Development and Integration," *Journal of Research and Practice in Information Technology (JRPIT)*, to appear.

Xiang Fang, John A. Miller and Jonathan Arnold, "J3DV: A Java-Based 3D Database Visualization Tool," *Software: Practice and Experience (SPE)*, John Wiley & Sons, to appear.

Andrew F. Seila, John A. Miller and Senthilanand Chandrasekaran, "Java: A Quick Tour," *Encyclopedia of Information Systems*, R. Lee, Editor (2002), Addison-Wesley, submitted.

Maria Chinwala and John A. Miller, "Algebraic Languages for XML Databases", *Information Systems (IS)*, Elsevier Science, submitted.

David Hall, John A. Miller, Jonathan Arnold, Krys J. Kochut, Amit P. Sheth and Michael J. Weise, "Using Workflow to Build an Information Management System for a Geographically Distributed Genome Sequence Initiative," *Genomics of Plants and Fungi*, R.A. Prade and H.J. Bohner, Editors (2003) pp. 359-371, Marcel Dekker, Inc. New York, NY.

J. Cardoso, A. Sheth and J. Miller, "Workflow Quality of Service", *Enterprise Inter- and Intra-Organizational Integration - Building International Consensus*, K. Kosanke, R. Jochem, J. Nell and A. Bas, Editors (November 2002) pp. 303-312. Book Series: IFIP International Federation for Information Processing: Vol. 236, Kluwer Academic Publishers, Boston, MA.

N. Roy, W.D. Potter, D. Landau, "Designing Polymer Blends Using Neural Networks, Genetic Algorithms, and Markov Chains", *Applied Intelligence: The International Journal of Artificial Intelligence, Neural Networks, and Complex Problem Solving Technologies*, to appear.

L. Wu, W.D. Potter, K. Rasheed, J. Ghent, D. Twardus, H. Thistle, and M. Teske, "A Comparison of Genetic Algorithm Methods in Aerial Spray Deposition Management," *2002 Genetic and Evolutionary Computation Conference (GECCO-2002)*, New York, July 2002.

Potter, W.D., D. Nute, J. Wang, F. Maier, M.J. Twery, H.M. Rauscher, P. Knopp, S. Thomasma, D. Chinthamalla, H. Muthyala, M. Dass and H. Uchiyama, "The NED IIS Project – Forest Ecosystem Management," *IFIP World Computer Congress: Intelligent Information Processing (IIP-2002)*, Montreal, Canada, August 2002.

C.T. Moore, M.J. Conroy, K. Boston, and W.D. Potter, "A Genetic Algorithm for Dynamic Optimal Control of Wildlife Harvests," *Ecological Modeling: The International Journal on Ecological Modeling and Systems Ecology*, Elsevier Science Publ., under revision.

L. Wu, W.D. Potter, K. Rasheed, J. Ghent, D. Twardus, H. Thistle, and M. Teske, "Nature Inspired Heuristics in Aerial Spray Deposition Management", *Journal of Applied Systems Studies* (special issue on Real Life Applications of Nature Inspired Combinatorial Heuristics), to appear.

D. Nute, W.D. Potter, F. Maier, J. Wang, M. Twery, H.M. Rauscher, P.D. Knopp, S.A. Thomasma, M. Dass, H. Uchiyama, and Astrid Glende, "NED-2: An Agent-Based

Decision Support System for Forest Ecosystem Management,” *Environmental Modelling and Software*, Vol. 14, No. 5, 2003, Special Issue on Binding Environmental Sciences and Artificial Intelligence, (U. Cortes, M. Marre, Eds.), to appear.

N. Roy, W.D. Potter, D. Landau, “Designing Polymer Blends Using Neural Networks, Genetic Algorithms, and Markov Chains”, *Applied Intelligence: The International Journal of Artificial Intelligence, Neural Networks, and Complex Problem Solving Technologies*, to appear.

Khaled Rasheed, Xiao Ni and Swaroop Vattam, "Comparison of Methods for Developing Dynamic Reduced Models for Design Optimization", *The Soft Computing Journal*, to appear.

Anil Bahuman, Khaled Rasheed, and Benjamin Bishop, "Evolutionary Design Automation of VLSI Standard Cells", *The Journal of Applied Systems Studies*, to appear.

Deepti Chafekar, Jiang Xuan and Khaled Rasheed, "Constrained Multi-objective Optimization Using Steady State Genetic Algorithms", *The Genetic and Evolutionary Computation Conference (GECCO'2003)*, to appear.

R.W. Robinson (with B.D. McKay, E.M. Palmer and R.C. Read) The Asymptotic Number of Claw-free Cubic Graphs, *Discrete Mathematics*, to appear.

R.W. Robinson (with E.M. Palmer and R.C. Read) "Counting claw-free cubic graphs", *SIAM J. Discrete Math.*, **16** (2002), 65-73.

J. Cardoso, R. P. Bostrom and A. Sheth, "Workflow Management Systems and ERP Systems: Differences, Commonalities, and Applications, " *Information Technology and Management Journal*, Kluwer Publishers, to appear.

R. Boyd, K. Murdison, J. Baffa, M. Brumund, A. Sheth, W. Karp. J. Bhatia, "A Low-Cost Web-Based Tool for Pediatric Echocardiographic Consultations", *Clinical Pediatrics*, to appear.

Amit Sheth, I. Budak Arpinar, and Vipul Kashyap, “Relationships at the Heart of Semantic Web: Modeling, Discovering, and Exploiting Complex Semantic Relationships,” *Enhancing the Power of the Internet Studies in Fuzziness and Soft Computing*, M. Nikraves, B. Azvin, R. Yager and L. Zadeh, Springer-Verlag, 2003 (in print).

S. Chadrasekaran, J. A. Miller, G. Silver, I. B. Arpinar and A. Sheth, "Composition, Performance Analysis and Simulation of Web Services," *Electronic Markets: The International Journal of Electronic Commerce and Business Media (EM)*, to appear.

Z. Luo, A. Sheth, K. Kochut, and I. B. Arpinar, "Exception Handling for Conflict Resolution in Cross-Organizational Workflows", *International Journal of Distributed and Parallel Databases (DAPD)*, to appear.

A. Sheth and J. A. Miller, "Web Services: Incremental Technical Advance with Huge Practical Impact," *IEEE Intelligent Systems, Trends & Controversies, (IEEEIS)*, January/February, 2003.

Sanjeev Thacker, Amit Sheth and Suchi Patel, Book Chapter, "Complex Relationships for the Semantic Web" *Spinning the Semantic Web*, D. Fensel, J. Hendler, H. Liebermann, and W. Wahlster (eds.), MIT Press, pp. 297-316, 2003.

A. Sheth and R. Meersman, "Amicaloloa Report: Database and Information Systems Research Challenges and Opportunities in Semantic Web and Enterprises," *ACM SIGMOD Record*, Vol. 31, No. 4, December 2002.

K. Anyanwu and A. Sheth, "The ? Operator: Discovering and Ranking Associations on the Semantic Web", *SIGMOD Record*, Vol. 31, No. 4, December 2002.

A. Sheth, S. Thacker and S. Patel, Complex Relationship and Knowledge Discovery Support in the InfoQuilt System, *VLDB Journal*, September 25, 2002 (on-line publication; ISSN: 0949-877X), 12 (1) 2003 (print publication; ISSN: 1060-8888).

A. Sheth, C. Bertram, D. Avant, B. Hammond, K. Kochut, Y. Warke, Semantic Content Management for Enterprises and the Web, *IEEE Internet Computing*, pp. 80-87, 2002.

B. Hammond, A. Sheth, and K. Kochut, "Semantic Enhancement Engine: A Modular Document Enhancement Platform for Semantic Applications over Heterogeneous Content," in *Real World Semantic Web Applications*, V. Kashyap and L. Shklar, Eds., IOS Press, pp. 29-49, 2002.

Bratsos, A. G., Ismail, M. S., and Taha, T. R., "A Predictor-Corrector Method for the Numerical Solution of the Kadomtsev-Petviashvili Equation", *Journal Mathematics and Computers in Simulation*, submitted.

Guo, J. and Taha, T.R., "Parallel Fourier Algorithms for Solving Higher KdV Equations", Special Issue of *The Journal Mathematics and Computers in Simulation on "Nonlinear Waves: Computation and Theory-II"*, Vol. 62, Issues 1-2, pp. 41-52, 2003.

A.-M. Wazwaz and Taha, T.R., "Compact and noncompact structures in a class of nonlinearly dispersive equations", Special Issue of *The Journal Mathematics and Computers in Simulation on "Nonlinear Waves: Computation and Theory-II"*, Vol. 62, Issues 1-2, pp. 171-190, 2003.

B. Aleman-Meza, B. Schuttler, J. Arnold, and T. Taha, "KINSOLVER: A simulator for biochemical and gene regulatory networks", submitted.

Taha, Thiab R. and Xu, Xiangming, "A Parallel Split-Step Method for the CNLS Equation", *Proceedings of the International Arabic Conference on Information Technology ACIT'2002*, University of Qatar, Doha - Qatar, December 16-19, 2002.

Taha, Thiab R. and Xu, Xiangming, "Parallel Split-Step Fourier Methods for the Coupled Nonlinear Schrödinger Type Equations", Special Issue on Parallel and Distributed Processing of the *Journal of Supercomputing*, submitted.

Xu, Xiangming and Taha, Thiab R., "Parallel Split-Step Fourier Methods for Nonlinear Schrödinger Type Equations", Special issue on Computational Science and Applications of the *Journal of Mathematical Modeling and Algorithms (JMMA)*, submitted.

T. Taha and R.Liu, "Parallel Split-Step Fourier Methods for the CMKdV Equation", *Proceedings of The 2003 International Conference on Parallel and Distributed Processing Techniques and Applications*, (PDPTA'03), Las Vegas, Nevada, to appear.

Thiab Taha, Foreword for the special issue of the *Journal Mathematics and Computers in Simulation on "Nonlinear Waves: Computation and Theory II"*, Vol. 62, No. 1-2, March 2003.

Nan Li and Scott Watterson, "Energy-Efficient Program Layout for Multi-bank Memory Architectures", *CODES & ISSS 2003*, submitted.

Chris Bentley, Scott Watterson and David Lowenthal, "Operating System Support for Low-Cost Array Bounds Checking on 64-bit Architectures", *19th ACM Symposium on Operating System Principles*, submitted.

Haijin Yan, Scott Watterson, David Lowenthal and Larry Peterson, "Client-Centered Energy Savings for TCP Downloads", *9th Annual International Conference on Mobile Computing and Networking (MOBICOM)*, submitted.

Michael Gundlach, Sarah Doster, David Lowenthal, Scott Watterson and Surender Chandra, "Dynamic, Power-Aware Scheduling for Mobile Clients Using a Transparent Proxy", *9th Annual International Conference on Mobile Computing and Networking (MOBICOM)* submitted.

Chris Bentley, Scott Watterson and David Lowenthal, "Implicit Java Array Bounds Checking on 64-bit Architectures", *12th International Conference on Parallel Architectures and Compilation Techniques PACT*, submitted.

PRESENTATIONS AT MEETINGS

H. R. Arabnia, Committee Reports (IT Task Forces) and Conference Opening; The 2003 International Multiconference in Computer Science, Las Vegas, Nevada, June 23, 2003.

S.M. Bhandarkar, "Statistical Methods for Chromosome Reconstruction," Bioinformatics Colloquium, Oak Ridge National Laboratory, Oak Ridge, TN, January 10, 2003.

S.M. Bhandarkar, "Parallel Monte Carlo Methods for Physical Mapping of Chromosomes," IEEE Bioinformatics Conference, Stanford University, Palo Alto, CA, August 14-16, 2002.

S.M. Bhandarkar, "Automated Analysis of DNA Hybridization Images for High-Throughput Genomics," IEEE Bioinformatics conference, Stanford University, Palo Alto, CA, August 14-16, 2002

Liming Cai, "A stochastic grammar to model RNA pseudoknotted structures," Department of Computer Science, the University of Kentucky, October 2002.

E.R. Canfield, "The Number of Bipartite Graphs," Colloquium, Department of Computer Science, University of Kentucky, January 2003.

E.R. Canfield, "Locally Restricted Compositions," AMS/MAA Southeastern Regional Meeting, Special Session on Combinatorics, March 2003.

E.R. Canfield, "Integer Partitions," Research Experience for Undergraduates, Clemson University, S.C., May 2003.

Eileen Kraemer, "Gene Expression Analysis and Bioinformatics" at the *11th Annual Suddath Symposium and Annual Georgia Cancer Coalition Spring Symposium* on March 29, 2003.

Eileen Kraemer, "Empirically Evaluating Software Visualization Technology", tutorial presentation at the ACM Symposium on Software Visualization, June 11, 2003.

John A. Miller, "Web Service Technologies and their Synergy with Simulation", *Proceedings of the 2002 Winter Simulation Conference (WSC'02)*, San Diego, CA, December 2002.

Khaled Rasheed, "GADO: A Genetic Algorithm for Design Optimization," invited seminar, Georgia Institute of Technology, 2003.

Robert W. Robinson, "Counting Feynman Diagrams", SIAM/ACM Workshop on Algorithms for Listing, Counting and Enumeration, Baltimore, MD, January 2003.

Robert W. Robinson, "Generating Feynman Diagrams", 16th Cumberland Conference on Combinatorics, Graph Theory and Computing, Atlanta, GA, May 2003.

Thiab Taha, "A Parallel Split-Step Method for the CNLS Equation", The International Arabic Conference on Information Technology ACIT'2002, University of Qatar, Doha – Qatar, December 16-19, 2003.

Thiab Taha, "Parallel Numerical Simulation of Nonlinear Schrödinger Type Equations", the Third IMACS International Conference on Nonlinear Evolution equations and Wave Phenomena: Computation and Theory, Athens, GA, April 7-10, 2003.

Amit P. Sheth, "Ontology-driven Integration and Analysis for Semantic Applications in Business Intelligence and National Security", Ontology and Semantic Web Technical Exchange Meeting, MITRE , McLean, VA June 12-13, 2003.

Amit P. Sheth, "Ontology Driven Information Systems in Action (Capturing and Applying Existing Knowledge to Semantic Applications)", invited talk at Sharing the Knowledge- International CIDOC CRM Symposium, Washington, DC, March 26-27, 2003.

Amit P. Sheth, "Database and Information Systems Research for Semantic Web and Enterprises: Review of the Amicalola Workshop," and "Snapshot of the Semantic Web Commercial State of the Art," Invited talk at the Science on the Semantic Web, Building a New Generation of Environmental Information Systems, Rutgers University, Newark, NJ, October 24, 2002.

Amit Sheth, Tutorial: Semantic Web Services and Processes: Semantic Composition and Quality of Service, Jorge Cardoso, Christoph Bussler, Amit Sheth and Dieter Fensel, On the Move to Meaningful Internet Computing and Ubiquitous Computer 2002, Irvine CA, October 2002.

Amit Sheth, "Semantic Content Management for Enterprises and National Security," Keynote at the Content and Semantic-based Information Retrieval – in conjunction with the 6th World Multi-conference on Systemics, Cybernetics, and Informatics (SCI 2002), Orlando, Florida, July 14-18, 2002.

Amit P. Sheth, "Semantic Web Process Lifecycle: Role of Semantics in Annotation, Discovery, Composition and Orchestration", Invited Talk, WWW 2003 Workshop on E-Services and the Semantic Web, Budapest, Hungary, May 20, 2003.

Amit P. Sheth, "Relationships at the Heart of Semantic Web: Modeling, Discovering, Validating and Exploiting Complex Semantic Relationship", Keynote address, SOFSEM 2002 (29th Annual Conference on Current Trends in Theory and Practice of Informatics), Milovy, Czech Republic, November 2002.

PRESENTATIONS AT INTERNATIONAL MEETINGS

Amit P. Sheth, "Relationships at the Heart of Semantic Web: Modeling, Discovering, Validating and Exploiting Complex Semantic Relationship", Keynote address, SOFSEM 2002 (29th Annual Conference on Current Trends in Theory and Practice of Informatics), Milovy, Czech Republic, November 2002.

Amit P. Sheth, "Semantic Web Process Lifecycle: Role of Semantics in Annotation, Discovery, Composition and Orchestration", Invited Talk, WWW 2003 Workshop on E-Services and the Semantic Web, Budapest, Hungary, May 20, 2003.