



UGA Computer Science

**Summaries of
Faculty Expertise**

March 2009

CONTACT INFO:

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RESEARCH ACTIVITIES AND INTERESTS:

Parallel and distributed processing techniques and algorithms, interconnection networks, and applications in image processing, signal processing, and other computational intensive problems (including: digital mammography, 3D construction from image stereo-pairs and image slices, information extraction from pathways for security use). I am currently learning about "brain waves" as they relate to deception detection and possibly education.

KEYWORDS:

Interconnection networks, parallel/distributed algorithms, image/signal processing, education.

EDUCATION AND TRAINING:

B.Sc.	Mathematics & Computing- Honors	Polytechnic of Wales (now, University of Glamorgan), Wales, United Kingdom	1983
PhD	Computer Science	University of Kent, Canterbury, England	1987

POSITIONS:

Professor	Computer Science, University of Georgia, Athens, GA	Oct. 1987 -
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SELECTED PUBLICATIONS:

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. Valafar, H. R. Arabnia, and G. Williams, "Distributed Global Optimization and Its Development on the MultiRing Network", *International Journal of Neural, Parallel & Scientific Computations* (Dynamic Publishers), Vol 12, No. 4, December 2004, pp. 465-490.

Arabnia Hamid R., Junfeng Qu, Yinglei Song, Khaled Rasheed, and Byron Jeff, "Clustering Time Series Online in a Transformed Space", *Ubiquitous Computing and Communication Journal (UBICC; <http://www.ubicc.org/>)*, 7 pages, January 15, 2008.

Jafri Rabia, Hamid R. Arabnia, and Kathy J. Simpson, "An Integrated Face-Gait System for Automatic Recognition of Humans", *Proc. of the Int'l. Conference on Security & Management (SAM'08, July 2008, USA)*, ISBN #: 1-60132-085-X, pp. 580-591, 2008.

Luper David, Muthukumar Chandrasekaran, Khaled Rasheed, and Hamid R. Arabnia, "Path Normalcy Analysis Using Nearest Neighbor Outlier Detection", Proc. of the Int'l. Conf. on Artificial Intelligence (ICAI'08) & Proc. of the Int'l. Conf. on Machine Learning, Models, Technologies & Applications (MLMTA'08), USA, ISBN #: 1-60132-072-8, pp. 776-783, 2008.

Kavitha Anandan and Hamid R. Arabnia, "Comparison of Statistical Based Thresholding Methods for Nanostructure Images", Proc. of the Int'l. Conf. on Image Processing, Computer Vision, & Pattern Recognition (IPCV'08, July 2008, USA), ISBN #: 1-60132-078-7, pp. 715-721, 2008.

Himanshu Thapliyal, Hamid R. Arabnia, and M. B. Srinivas, "Efficient Reversible Logic Design of BCD Subtractors", *Transactions in Computational Science (Springer)*, 5300 LNCS, in press, 24 pages, 2009.

HONORS: (Since Year 2006)

Distinguished Service Award in recognition and appreciation of contributions to the profession of computer science and assistance and support to students and scholars from all over the world (presented by Prof. Barry Vercoe, MIT Media Lab Founding member) – 2006.

Outstanding Achievement Award in Recognition of Leadership and Research Contributions to the Field of Supercomputing (presented at Harvard University Medical School by Dr. Lawrence O. Hall, President of IEEE/SMC; Zhi-Pei Liang, Vice President of IEEE/EMB; Jack. Y. Yang, General Chair of IEEE BIBE and Harvard University; Mary Qu Yang, Chair of Steering Committee, IEEE BIBE and NIH) – 2007.

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Member, Advisory Board, IEEE Technical Committee on Scalable Computing (TCSC)

Editor-in-Chief, The Journal of Supercomputing (Springer)

SELECTED ADVISEES:

Gita C. Williams, Ph.D., University of Georgia, graduated in 2003.

Junfeng Qu, Ph.D., University of Georgia, graduated in 2006.

Rabia Jafri, Ph.D., University of Georgia, graduated in 2008.

David Luper, Ph.D. University of Georgia, in progress.

Kim Ruiz, Ph.D., University of Georgia, in progress.

CURRENT AND PENDING SUPPORT:

None.

I. Budak Arpinar, ASSOCIATE PROFESSOR

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RESEARCH ACTIVITIES AND INTERESTS:

Key areas of my research interests and contributions are: information fusion, informatics, workflow management, semantic web, and web services. Key areas of applications of my research and technology development include life sciences, defense and intelligence, financial services, and GIS. My current research focuses on developing new semantic-based techniques for providing better information integration and search experiences for the web users. This research direction is critical for building the next generation of web, called semantic web.

KEYWORDS:

Information integration, informatics, semantic web, web services, databases, and workflows.

EDUCATION AND TRAINING:

BA	Computer Eng.	Middle East Technical University, Turkey	91
MS	Computer Eng.	Middle East Technical University, Turkey	93
PhD	Computer Eng.	Middle East Technical University, Turkey	98

POSITIONS:

Associate Professor	Computer Science, University of Georgia, Athens, GA (promoted August, 2007).	01 – present
Research Comp. Biologist	Genetics, University of Georgia, Athens, GA.	01
Post-Doc Assoc.	LSDIS Lab, Computer Science, UGA, Athens, GA.	98 –01
Project Director	AYDIN Software and Electronics Industry Co., Ankara, Turkey (acquired by L-3).	97 –98
Principal Research Scientist	Software Research and Development Center (SRDC), Middle East Technical University, Turkey.	92 –97
DB & Sys Admin.	Scientific and Technical Research Council of Turkey	91 –92

SELECTED PUBLICATIONS:

B. Aleman-Meza, M. Nagarajan, L. Ding, A. P. Sheth, I. B. Arpinar, A. Joshi, and T. Finin, "Scalable Semantic Analytics on Social Networks for Addressing the Problem of Conflict of Interest Detection", *ACM Transactions on the Web*, Vol. 2, No. 1, February 2008.

I. B. Arpinar, R. Zhang, B. Aleman-Meza, and A. Maduko, "Ontology-Driven Web Services Composition Platform", *Journal of Information Systems and e-Business Management*, Special issue on Service oriented enterprise IT applications and Web Services, Vol. 3, Issue 2, July 2005.

I. B. Arpinar, U. Halici, S. Arpinar, and A. Dogac, "Formalization of Workflows and Their Correctness Issues in the Presence of Concurrency", *International Journal of Distributed and Parallel Databases (DAPD)*, Vol. 7, No. 2, April 1999.

B. Aleman-Meza, C. Halaschek-Wiener, I.B. Arpinar, C. Ramakrishnan, and A.P. Sheth, "Ranking Complex Relationships on the Semantic Web", *IEEE Internet Computing*, 9(3), 2005.

S. Tartir, B. McKnight, and I. B. Arpinar, "SemanticQA: Web-based Ontology-Driven Question Answering", *24th Annual ACM Symposium on Applied Computing (SAC)*, Honolulu, Hawaii, 2009.

S. Tartir and I. B. Arpinar, "Ontology Evaluation and Ranking using OntoQA", *The First IEEE International Conference on Semantic Computing*, Irvine, CA, September 17-19, 2007.

J. Hassell, B. Aleman-Meza, and I. B. Arpinar, "Ontology-Driven Automatic Entity Disambiguation in Unstructured Text", *5th International Semantic Web Conference (ISWC'06)*, Athens, GA, November 5-9, 2006.

L. Lin, and I. B. Arpinar, "Discovery of Semantic Relations between Web Services", *2006 IEEE International Conference on Web Services (ICWS 2006)*, Chicago, IL, 2006.

SELECTED MEMBERSHIPS/ASSOCIATIONS:

IEEE Computer Society, ACM SIGMOD

SELECTED ADVISEES:

Boanerges Aleman-Meza, PhD, University of Georgia, 2007

Bobby McKnight, MS, University of Georgia, 2008

COLLABORATORS:

Amit Sheth, John Miller, Krys Kochut, Khaled Rasheed, Prashant Doshi, Tim Finin, Anupam Joshi, and others.

CURRENT AND PENDING SUPPORT:

Collective Association Discovery in a Dynamic Peer to Peer Network, NSF - pending.

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RESEARCH ACTIVITIES AND INTERESTS:

Computer Vision and Pattern Recognition – design of computational models and algorithms for analysis and interpretation of image and video data. Applications include bioinformatics, biomedicine, video surveillance, multimedia, intelligent transportation, robotics and automation.

KEYWORDS:

Computer vision, pattern recognition, multimedia systems, visual information systems

EDUCATION AND TRAINING:

B.Tech.	Electrical Engineering	Indian Institute of Technology, Bombay, India	1983
M.S.	Computer Engineering	Syracuse University, Syracuse, New York	1985
PhD	Computer Engineering	Syracuse University, Syracuse, New York	1989

POSITIONS:

Professor	Computer Science, University of Georgia, Athens, GA	2000 – present
Associate Professor	Computer Science, University of Georgia, Athens, GA	1995 – 2000
Assistant Professor	Computer Science, University of Georgia, Athens, GA	1989 – 2000

SELECTED PUBLICATIONS:

- ◆ S.M. Bhandarkar and X. Luo, “Integrated Detection and Tracking of Multiple Faces Using Particle Filtering and Optical Flow-based Elastic Matching”, *Computer Vision and Image Understanding (CVIU)*, in press.
- ◆ W-L. Zheng and S.M. Bhandarkar, “Face Detection and Tracking Using A Boosted Adaptive Particle Filter”, *Journal Visual Communication and Image Representation*, Vol. 20, No. 1, January 2009, pp. 9-27.
- ◆ Y. Wei, S.M. Bhandarkar, and K. Li, “Client-centered Multimedia Content Adaptation”, *ACM Trans. Multimedia Computing, Communications and Applications (ACM TOMCCAP)*, in press.
- ◆ A.S. Chowdhury, S.M. Bhandarkar, R.W. Robinson and J.C. Yu, “Virtual Multi-Fracture Craniofacial Reconstruction Using Computer Vision and Graph Matching”, *Journal of Computerized Medical Imaging and Graphics (CMIG)*, 2009, in press.

- ◆ S.M. Bhandarkar, X. Luo, R. Daniels and E.W. Tollner, "Automated Planning and optimization of Lumber Production Using Machine Vision and Computer Tomography", *IEEE Trans. Automation Science and Engineering*, Vol. 5, No. 4, October 2008, pp. 677-695.
- ◆ S. Tewari, J. Arnold and S.M. Bhandarkar, "Likelihood of a Particular Order of Genetic Markers and the Construction of Genetic maps", *Journal of Bioinformatics and Computational Biology*, Vol. 6, No. 1, 2008, pp. 125-162.
- ◆ S.M. Bhandarkar, A.S. Chowdhury, Y. Tang, J. Yu and E.W. Tollner, "Computer Vision Guided Virtual Craniofacial Reconstruction", *Computerized Medical Imaging and Graphics*, Vol. 31, No. 6, September 2007, pp. 418-427.
- ◆ S. Tewari, S.M. Bhandarkar and J. Arnold, "Design and Analysis of an Efficient Recursive Linking Algorithm for Constructing Likelihood-based Genetic Maps for a Large Number of Markers", *Journal of Bioinformatics and Computational Biology*, Vol. 5, No. 2(a), 2007, pp. 201-250.
- ◆ S. Chattopadhyay, S.M. BHANDARKAR and K. Li, "Model-based Power Aware Compression Algorithms for MPEG-4 Virtual Human Animation in Mobile Environments", *IEEE Transactions on Multimedia*, Vol. 9, No. 1, January 2007, pp. 1 – 8.

PATENTS:

S.M. Bhandarkar and E.W. Tollner, *Virtual Surgical Systems and Methods*, April 2005, (Serial No. 60/561,584), patent pending. Revised and re-submitted in 2006.

HONORS:

University Fellowship, Syracuse University, 1986 – 1988.
Member of Honor Societies: Phi Kappa Phi, Phi Beta Delta

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Institute for Electrical and Electronic Engineering (IEEE), Association for Computing Machinery (ACM), American Association for Artificial Intelligence (AAAI)

SELECTED ADVISEES:

Susanta Tewari, Ph.D., Post-Doctoral Research Associate, University of Georgia, 2008.
Siddhartha Chattopadhyay, Ph.D., Google Inc., 2007.
Ananda Chowdhury, Ph.D., Post-Doctoral Research Associate, NIH, 2007.
Yong Wei, Ph.D., Assistant Professor, North Georgia College and State University, 2007.
Xingzhi Luo, Ph.D., NVIDIA Corp., 2006.

COLLABORATORS:

Jack C. Yu, Medical College of Georgia; Surendar Chandra, Notre Dame University; John Kececioglu, University of Arizona; David Lowenthal, University of Arizona; Jonathan Arnold, University of Georgia; E. William Tollner, University of Georgia, Kang Li, University of Georgia; Lakshmish Ramaswamy, University of Georgia.

CURRENT AND PENDING SUPPORT:

S. M. Bhandarkar (PI), J. C. Yu, E. W. Toller and T. Liu (Co-PIs), "Computer Vision-based Surgical Simulator for Ex Vivo Planning of Craniofacial Surgery", Department of Defense, \$2,689,528, August 15, 2009 – August 14, 2014, pending.

CONTACT INFO:

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RESEARCH ACTIVITIES AND INTERESTS:

Investigation of (intractable) computation problems in genomics, proteomics, and systems biology with the following approaches: combinatorial optimization algorithms, algorithmic graph theory, parameterized algorithms, probabilistic models, and theory of computation.

KEYWORDS:

Algorithms, bioinformatics, computational biology, algorithmic graph theory, and theory of computation.

EDUCATION AND TRAINING:

BS	Computer Science	Tsinghua University, Beijing	1984
MS	Computer Science	Tsinghua University, Beijing	1986
PhD	Computer Science	Texas A&M University, College Station	1994

POSITIONS:

Professor	Computer Science, University of Georgia, (promoted to Professor in 2007)	2001 – present
Associate Professor	Computer Science, Ohio University (promoted to Associate Professor in 2000)	1996 – 2001
Assistant Professor	Computer Science, East Caroline University	1994 – 1996

SELECTED PUBLICATIONS:

L. Cai and D. Juedes, On the existence of subexponential time parameterized algorithms, *Journal of Computer and System Sciences*, 67:4, pp. 789-807, 2003.

L. Cai and R. Malmberg, Stochastic modeling of RNA pseudoknotted structures: a grammatical approach, *Bioinformatics*, 19, pp. 66-73, 2003.

Y. Song, C. Liu, X. Huang, R. Malmberg, Y. Xu, and L. Cai, Efficient parameterized algorithms for bipolymer structure-sequence alignment, *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 3:4, pp. 423-431, 2006.

L. Cai, M. Fellows, D. Juedes, and F. Rosamond, The complexity of polynomial-time approximation, *Theory of Computing Systems* (formerly *Mathematical Systems Theory*), 41:3, pp. 459-477, 2007.

HONORS:

ENT Best Research Paper Award, Ohio University, 2004.

East Carolina Microcomputer Award, 1994-1995.

SELECTED ADVISEES:

Dongsheng Che, Ph.D. UGA, 2008, Currently Assistant Professor of Computer Science, East Stroudsburg University, PA.

Chunmei Liu, Ph.D. UGA, 2006, Currently Assistant Professor of Computer Science, Howard University, DC

Yinglei Song, Ph.D. UGA, 2006, Currently Assistant Professor of Computer Science, University of Maryland, Eastern Shore, MD.

Jizhen Zhao, Ph.D. UGA, 2006, Currently Post-doc Research Scientist, University of North Carolina, Chapel Hill, NC.

COLLABORATORS:

Russell Malmberg, University of Georgia, 2001- present, joint research grants, publications.

Ying Xu, University of Georgia, 2003 – present, joint research grants, publications.

Michael R. Fellows, University of New Castle, 1993 – present, joint research publications.

David Juedes, Ohio University, 1996 – present, joint research publications.

Michael McEachern, University of Georgia, 2006 – present, joint research grants, publications.

CURRENT AND PENDING SUPPORT:

Searching genomes for non-coding RNAs by their structures, National Institutes of Health (NIH), 2006-2009, (PI, current).

MRI: Acquisition for a computer cluster for bioinformatics research at UGA, National Science Foundation (NSF), 2008-2011, (co-PI, current).

Accurate protein threading via tree decomposable graph modeling, National Science Foundation (NSF), 2009-2012, (PI, pending).

Summer school on quantitative methods for biology, National Institutes of Health (NIH), 2009-2014, (PI, pending).

A bioinformatics training program at the University of Georgia, National Institutes of Health (NIH), 2009- 2014, (co-PI, pending).

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RESEARCH ACTIVITIES AND INTERESTS:

Combinatorics, asymptotic and probabilistic methods in combinatorics, theory of computing, quantum computing, cryptography, algorithms and data structures, applied discrete mathematics

KEYWORDS:

Enumeration, analysis of algorithms, bijections, asymptotics, quantum algorithm, sorting, graphs, networks, cryptography

EDUCATION AND TRAINING:

ScB	Mathematics	Brown University, Providence, Rhode Island	1971
PhD	Mathematics	UCSD, La Jolla, California	1975

POSITIONS:

Faculty member	Computer Science, University of Georgia	1975 – present
Department Head	Computer Science, UGA	1993 – 2002

SELECTED PUBLICATIONS:

1. The asymptotic number of labeled connected graphs with a given number of vertices and edges, *Random Structures and Algorithms* 1 (1990) 127-169. (with E. A. Bender and B. D. McKay)
2. An algorithm for calculating the roots of a general quintic equation, *Journal of Mathematical Physics*, 32 (1991) 823-825. (with R. B. King)
3. A Sequential Sorting Network Analogous to the Batchmer Merge, *Journal of Linear and Multilinear Algebra*, Vol. 29, (1991) 43-51. (with S. G. Williamson)
4. Large antichains in the partition lattice, *Random Structures and Algorithms*, 6 (1995) 89-104. (with L. H. Harper)
5. The end of pumping?, *Theoretical Computer Science*, 174 (1997) 275-279. (with G.-Q. Zhang)

PATENTS:

U. S. Patent 5,319,788: "Modified Batcher Network for Sorting N Unsorted Input Signals in Log N Sequential Passes", 1992. (with S. G. Williamson)

HONORS:

UGA Creative Research Award, 1981

UGA Senior Teaching Fellow, 1992-93

Outstanding Mentor, 2003/2004 Siemens Westinghouse. (Mentoree B. Alexeev was 2nd place, nationally)

SELECTED ADVISEES:

Supoat Charenkavonich, PhD, 1986. (MedImmune Pharmaceuticals)

James Haglund, PhD, 1993. (University of Pennsylvania)

Guangming Xing, PhD, 2001. (Western Kentucky University)

Aaron Andrew Windsor, PhD, 2004. (Application Security, Inc)

Jacob Gilmore Martin, PhD, 2005. (Postdoc, Georgetown U. Neuroscience)

Tarsem Singh Purewal, PhD, 2006. (College of Charleston)

COLLABORATORS: (partial list)

Edward A. Bender, University of California, San Diego.

Jacob Martin, Georgetown University.

Brendan D. McKay, Australia National University.

Bruce Richmond, University of Waterloo.

Carla Savage, North Carolina State University.

Herb Wilf, University of Pennsylvania.

S. Gill Williamson, University of California, San Diego.

CURRENT AND PENDING SUPPORT:

"Asymptotic Methods in Combinatorics", National Security Agency, Mathematical Sciences Program, 2007-2009.

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RESEARCH ACTIVITIES AND INTERESTS:

1. Artificial Intelligence: Multiagent decision making, planning for single and multi-agent domains, probabilistic reasoning over time, particle filters
2. Services-oriented Computing: semantic Web services discovery, dynamic workflow composition, adaptation
3. Semantic Web: ontology alignment, merging, engineering

KEYWORDS:

Decision making, composition, adaptation, Web services, ontology alignment

EDUCATION AND TRAINING:

PhD	July, 2005	University of Illinois, Chicago	PhD
MS	June, 2001	Drexel University	MS
BE	May, 1999	V.J. Tech. Inst., Univ. of Mumbai, India	BE

POSITIONS:

Assistant Professor	University of Georgia, Athens, GA	2005 – Present
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SELECTED PUBLICATIONS:

1. Prashant Doshi, Christopher Thomas, Ravikanth Kolli, "Inexact Matching of Ontology Graphs Using Expectation-Maximization", *Journal of Web Semantics (JWS)*, Elsevier Publishing, DOI: 10.1016/j.websem.2008.12.001, 2009.
2. Prashant Doshi and Piotr Gmytrasiewicz, "Monte Carlo Sampling Methods for Approximating Interactive POMDPs", *Journal of Artificial Intelligence Research (JAIR)*, Vol. 34: 297-337, 2009.
3. Prashant Doshi, Yifeng Zeng, Qiongyu Chen, "Graphical Models for Interactive POMDPs: Representations and Solutions", *Journal of Autonomous Agents and Multiagent Systems (JAAMAS)*, Springer Publishing, Vol. 18(3):376-416, 2009.
4. John Harney, Prashant Doshi, "Selective Querying For Adapting Web Service Compositions Using the Value of Changed Information", *IEEE Transactions on Services Computing (TSC)*, Vol. 1(3):169-185, 2008.

5. Piotr Gmytrasiewicz, Prashant Doshi, "A Framework for Sequential Planning in Multiagent Settings", *Journal of Artificial Intelligence Research (JAIR)*. Vol. 24:49-79, 2005.
6. Prashant Doshi, Richard Goodwin, Rama Akkiraju, Kunal Verma, "Dynamic Workflow Composition Using Markov Decision Processes", *International Journal of Web Services Research (JWSR)*, IGI Global Publishing, Vol. 2(1):1-17, 2005.

HONORS:

NSF CAREER AWARD, 2009-2014.

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Association for the Advancement of Artificial Intelligence (AAAI)

SELECTED ADVISEES:

Dennis Perez, M.S., University of Georgia, 2007

Ravikanth Kolli, M.S., University of Georgia, 2008

Haibo Zhao, Ph.D., University of Georgia, in progress

John Harney, Ph.D., University of Georgia, in progress

COLLABORATORS:

Adam Goodie, Psychology Department, University of Georgia

Amit Sheth, Computer Science Department, Wright State University

CURRENT AND PENDING SUPPORT:

NSF CAREER, "Scalable Algorithms for Individual Decision Making in Multiagent Settings", Prashant Doshi (PI), May 2009 – April 2014, \$481,711 [to be awarded]

AFOSR BAA 2008-1, "Individual Decision-Making in Uncertain and Large-Scale Multi-Agent Settings", Prashant Doshi (PI), Adam Goodie (Co-PI), May 2008 – April 2010, \$237,990

NIH PAR 05-063 R01, "Semantics and Services Enabled Problem Solving Environments for Trypanosoma Cruzi", Amit Sheth (WSU: PI), Rick Tarleton (Sr. I), Prashant Doshi (Sr. I), Mark Musen (Stanford: Sr. I.), Natalya Noy (Stanford: Sr. Res. Sc.), May 2008 – March 2012, Amount: \$1,515,656

Microsoft SensorMap RFP, "Semantic Reconciliation with Disparate Sensor Meta-Data for Automatic Publication", Prashant Doshi (PI), May 2007 – April 2008, Amount: \$53,864

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RESEARCH ACTIVITIES AND INTERESTS:

Web Software development, including client-side and server-side technologies and usability

KEYWORDS:

Model-View-Controller, Object-Relational Mapping, Agile Software Development, Web 2.0

EDUCATION AND TRAINING:

BA	Engineering Mathematics	Colorado School of Mines, Golden CO	1970
MS	Mathematics	University of Wisconsin, Madison, WI	1972
PhD	Mathematics	University of Wisconsin, Madison, WI	1976

POSITIONS:

Assistant Professor	Computer Science, University of Georgia, Athens, GA	1983 – present
Assistant Professor	Stockton State College, Atlantic City, NJ	1980- 1983

SELECTED PUBLICATIONS:

"Embedding theorems for decomposition spaces", *Houston J. Math*, 3 (1977) pp. 351-368.

"Shrinking countable decompositions of E^3 into points and tame cells", *Geometric Topology* (J. Cantrell, ed.), Academic Press (1979) pp. 53-72.

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Computer Professionals for Social Responsibility

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RESEARCH ACTIVITIES AND INTERESTS:

Real-Time Systems – Efficient online real-time scheduling algorithms, where efficiency may be measured in terms of low system overhead or in terms of low power consumption. Feasibility tests for multiprocessor real-time systems.

KEYWORDS:

Real-time systems, multiprocessor scheduling, uniform multiprocessors, schedulability testing, power-aware scheduling

EDUCATION AND TRAINING:

BS	Mathematics	University of Maryland, College Park	1989
MS	Mathematics	University of North Carolina, Chapel Hill	2000
MS	Computer Science	University of North Carolina, Chapel Hill	2001
PhD	Computer Science	University of North Carolina, Chapel Hill	2004

POSITIONS:

Assistant Professor Computer Science, University of Georgia, Athens, GA 2004 – present

SELECTED PUBLICATIONS:

Shelby Funk, A New Task Model and Utilization Bound for Uniform Multiprocessors, Conference on Design and Architectures for Signal and Image Processing 2008 (DASIP 2008), Special Session on Resource Management Techniques for RTOS in a Codesign Framework, pp. 106 – 111, November 2008

Barry Rountree, David K. Lowenthal, Shelby H. Funk, Vincent W. Freeh, Bronis R. de Supinski, and Martin Schulz, Bounding Energy Consumption in Large-Scale MPI Programs, 20th International Conference for High Performance Computing, Network, Storage and Analysis, IEEE/ACM Supercomputing 2007 (SC'07), pp. 1 – 9, November 2007

Shelby Funk and Sanjoy Baruah, Restricting EDF migration on uniform heterogeneous multiprocessors, *Technique et Science Informatiques*, Vol. 4, No. 8, pp. 917 – 938, 2005

Joël Goossens, Shelby Funk, and Sanjoy Baruah, Priority-driven scheduling of periodic task systems on multiprocessors, *Real-time Systems*, Vol. 25 No. 2-3, pp. 187 – 205, September-October, 2003

HONORS:

1989 Received the Higginbotham Award for most outstanding senior math major at the University of Maryland, College Park

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Association of Computer Machinery (ACM)

Institute of Electrical and Electronics Engineers (IEEE)

SELECTED ADVISEES:

Archana Meka, M.S., University of Georgia, 2008

Chiahsun Ho, Ph.D., University of Georgia, in progress

COLLABORATORS:

John Carpenter, Shelby Funk, Phil Holman, Anand Srinivasan, Jim Anderson, and Sanjoy Baruah, University of North Carolina at Chapel Hill, 2002 – 2003, book chapter

CURRENT AND PENDING SUPPORT:

II-NEW: Acquisition of a Multicore System for Research and Training in Simulation and Power Management, Thiab R. Taha (PI), Shelby Funk (Co-PI), Maria Hybinette (Co-PI), Krys J. Kochut (Co-PI), John A. Miller (Co-PI), National Science Foundation (NSF), pending

CONTACT INFO:

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RESEARCH ACTIVITIES AND INTERESTS:

High Performance Simulation – How can we make simulation, faster, more effective and easier to use? These are the questions that motivate my research.

KEYWORDS:

Simulation, model execution, agent-based simulation, concurrency, distributed and parallel computation.

EDUCATION AND TRAINING:

BS	Math and Computer Science	Emory University, Atlanta, Georgia	1991
MS	Computer Science	Georgia Institute of Technology, Atlanta, GA	1994
PhD	Computer Science	Georgia Institute of Technology, Atlanta, GA	2000

POSITIONS:

Assistant Professor	Computer Science, University of Georgia, Athens, GA	2002 -present
Research Scientist I & II	Georgia Institute of Technology, Atlanta, GA	1995 - 1996 1998 - 2001

SELECTED PUBLICATIONS:

Cloning Parallel Simulations, Maria Hybinette and Richard M. Fujimoto, ACM Transactions on Modeling and Computer Simulation, October 2001 (Volume 11, Number 4)

Latency Hiding with Optimistic Computations, Maria Hybinette and Richard M. Fujimoto, Journal of Parallel and Distributed Computing, March 2002 (Volume 62, Number 3)

Computing Global Virtual Time in Shared-Memory Multiprocessors, Richard M. Fujimoto and Maria Hybinette, ACM Transactions on Modeling and Computer Simulation, October 1997

Quantitative Assessment of an Agent-Based Simulation on a Time Warp Executive, George Vulov, Tianhao He and Maria Hybinette, 2008 Winter Simulation Conference (accepted) (WSC-2008), Miami, CA, USA, December 2008

Transparent and Adaptive Computation-Block Caching for Agent-Based Simulation on a PDES Core, Yin Xiong, Maria Hybinette and Eileen Kraemer, 2008 Winter Simulation Conference (accepted) (WSC-2008), Miami, CA, USA, December 2008

Panel: What makes good research in modeling and simulation: Sustaining the growth and vitality of the M & S discipline, Particular subtopic addressed by Maria Hybinette and John Miller: Should M&S become its own discipline? John Miller and Maria Hybinette, 2008 Winter Simulation Conference (invited) (WSC-2008), Miami, CA.

Real-time tracking of multiple targets using multiple laser scanners, Adam Feldman, Summer Adams, Maria Hybinette, Tucker Balch, 6th International Conference on Methods and Techniques in Behavioral Research (Measuring Behavior 2008)

Social Potentials for Scalable Multi-Robot Formations, Tucker Balch and Maria Hybinette, 2000 IEEE International Conference on Robots and Automation (ICRA-2000), San Francisco, California, April 2000

PATENT:

Financial Instrument Price Prediction Using Matching and Related User Interfaces, in review, submitted December 2008.

SELECTED ADVISEES:

Vinay Sachdev, M.S., "Overcoming over-optimism in Time Warp via aggregation of fast processes", 2004

Abhishek Chugh, M.S., "Towards Adaptive Caching for Discrete Event Simulation", 2004

Abhishek Agarwal, M.S., "Merging Parallel Simulation Programs", 2004

Tianhao He, M.S., "Interest Manager Mechanisms for Distributed Multi-Agent Based Simulations", 2004

Jaim Ahmed, M.S., "Efficient Execution of Learned K-Nearest Neighbor Classification Using Clustering with Caching", in progress expected 2009.

Abhishek Gupta, M.S., "Message Clustering & Distributed Agent Based Simulation", in progress

Siva Ganesan, M.S., "Learning to improve Agent Based Simulation Execution", in progress

Yin Xiong, Ph.D., "Transparent and Dynamic Block-Caching", in progress

CURRENT AND PENDING SUPPORT:

"Microsoft Institute for Instructional Robotics", Institute for Personal Robotics in Education, Microsoft Grant, Multi-Institutional Grant. June 2008-August 2009.

CONTACT INFO:

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RESEARCH ACTIVITIES AND INTERESTS:

Semantic Web, Workflow systems and Web Services, Bioinformatics, Distributed Systems and protocols for component communication, Database Systems

KEYWORDS:

Semantic Web, ontologies, web services, bioinformatics, databases

EDUCATION AND TRAINING:

MS	Computer Science	University of Warsaw, Poland	1982
PhD	Computer Science	Louisiana State University, Louisiana	1987

POSITIONS:

Professor	Computer Science, University of Georgia	2001 – present
Professor and Head	Computer Science, University of Georgia	2002 – 2008
Associate Professor	Computer Science, University of Georgia	1995 – 2001
Assistant Professor	Computer Science, University of Georgia	1988 – 1995

SELECTED PUBLICATIONS:

M. Janik, K. Kochut, “Wikipedia in Action: Ontological Knowledge in Text Categorization,” Second IEEE International Conference on Semantic Computing, ICSC 2008, Santa Clara, CA, USA, August 2008, pp. 268-275.

M. Eavenson, M. Janik, S. Nimmagadda, J.A. Miller, K.J. Kochut, and W.S. York, “GlycoBrowser: A Tool for Contextual Visualization of Biological Data and Pathways Using Ontologies,” 4-th International Symposium on Bioinformatics Research and Applications, Atlanta, Ga., 2008, pp. 305-316.

K. Kochut, M. Janik, “SPARQLer: Extended Sparql for Semantic Association Discovery,” Fourth European Semantic Web Conference, ESWC 2007, Innsbruck, Austria, 2007, pp. 145-159.

M. Janik and K. Kochut, "BRAHMS: A WorkBench RDF Store And High Performance Memory System for Semantic Association Discovery," Fourth International Semantic Web Conference, Galway, Ireland, 6-10 November 2005; published in Lecture Notes in Computer Science (LNCS), Vol. 3729, Springer Verlag, Heidelberg, Germany, 2005, pp. 431-445.

W.S. York, A. Sheth, K. Kochut, J. Miller, C. Thomas, K. Gomadam, X. Yi, and M. Nagarajan, "Semantic Integration of Glycomics Data and Information," 1st Workshop on Human Disease Glycomics/Proteome Initiative: Functional Glycomics in Disease, Osaka, Japan, 2004, pp. 23-24.

X. Yi and Krys J. Kochut, "A CP-nets-based Design and Verification Framework for Web Services Composition", Proceedings of 2004 IEEE International Conference on Web Services, San Diego, California, USA, pp. 756-760, 2004.

K. Kochut, J. Arnold, A. Sheth, J. Miller, E. Kraemer, B. Arpinar and Jorge Cardoso, "IntelliGEN: A Distributed Workflow System for Discovering Protein-Protein Interactions," International Journal on Distributed and Parallel Databases, Vol. 13, No. 1, 2003, pp. 43-72.

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Association for Computing Machinery
Special Interest Group on Software Engineering, ACM
Special Interest Group on Management of Data, ACM

SELECTED ADVISEES:

Xiaochuan Yi (PhD/CS), "A CPNets-based Design and analysis framework for service oriented distributed systems", August 2005.

Maciej Janik (PhD/CS), "Training-Less Ontology-Based Text Categorization", August 2008.

Amrita Basu (MS/CS), "Automatic Workflow Process and Data Annotation: Design and Execution Environment", December 2008.

Liren Ding (MS/CS), "Glycosylation sites prediction", December 2008.

Matthew Eavenson (PhD/CS), Gurinder Gosal (PhD/CS), Arpan Sharma (MS/CS), Rohit Mullangi (MS/CS), Justin Martin (MS/CS), Ankur Oberai (MS/CS), Chinmay Kale (MS/CS), Sonu Swaika (MS/CS), all in progress.

CURRENT AND PENDING SUPPORT:

M. Pierce (PI), Integrated Technology Resource for Biomedical Glycomics; K. Kochut, and J. Miller (Co-PI's of the Bioinformatics part of the grant), National Institutes of Health, August 2008 – July 2013, \$7,181,510 (Computer Science part is \$625,860).

Thiab Taha (PI), S. Funk, (Co-PI), M. Hybinette (Co-PI), K. Kochut (Co-PI), and J. Miller (Co-PI), II-NEW: Acquisition of a multicore system for research and training in simulation and power management, National Science Foundation, 01/01/09-12/31/11, \$204,525 (pending).

CONTACT INFO:

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email: eileen@cs.uga.edu

RESEARCH ACTIVITIES AND INTERESTS:

Human-Computer Interaction – Visualization and interaction to support the comprehension and management of complex systems and processes, with applications in the Software Engineering of Concurrent Systems and Bioinformatics.

KEYWORDS:

Visualization, usability, software engineering, concurrency, bioinformatics

EDUCATION AND TRAINING:

BA	Biology	Hofstra University, Hempstead, New York	1980
MS	Computer Science	Polytechnic University, Brooklyn, New York	1985
PhD	Computer Science	Georgia Institute of Technology, Atlanta, GA	1995

POSITIONS:

Professor and Head	Computer Science, University of Georgia, Athens, GA (Head since 2008, promoted to Professor in 2007)	1998 – present
Assistant Professor	Computer Science, Washington University in St. Louis St. Louis, MO	1995- 1998

SELECTED PUBLICATIONS:

M. Eduard Tudoreanu and Eileen Kraemer, "Balanced cognitive load significantly improves the effectiveness of algorithm animation as a problem-solving tool", *JVLC (Journal of Visual Languages and Computing)*, October 2008, 19:5(598-616).

Xie, S., Kraemer, E., Stirewalt, R.E.K., Dillon, L.K. and Fleming, S.D., "Assessing the Benefits of Synchronization-Adorned Sequence Diagrams: Two Controlled Experiments", in Proceedings, *SoftVis '08: Proceedings of the 4th ACM Symposium on Software Visualization*, September 16-17, 2008, Ammersee, Germany, pp. 9-18.

Scott D. Fleming, Eileen Kraemer, R.E.K. Stirewalt, Laura K. Dillon and Shaohua Xie, "Refining Existing Theories of Program Comprehension During Maintenance for Concurrent Software",

16th IEEE International Conference on Program Comprehension (ICPC 2008), Amsterdam, June 2008, pp. 22-32.

Susanne Warrenfeltz, Stephen Pavlik, Susmita Datta, Eileen T. Kraemer, Benedict Benigno, John F McDonald, "Gene expression profiling of epithelial ovarian tumors correlated with malignant potential", *Molecular Cancer* 2004 3:27 (October 7, 2004).

HONORS:

NSF CAREER Award, 1998.

SELECTED ACTIVITIES/MEMBERSHIPS/ASSOCIATIONS:

General Chair, SoftVis'06 (ACM Symposium on Software Visualization)

Member, Program Committee: ACM Symposium on Software Visualization, VISSOFT, ICPC

Member, IEEE and ACM

SELECTED ADVISEES:

- Delbert Hart, DSc, *Supporting Exploratory Visualization of Distributed Computations*, Washington University in St. Louis, August, 2000.
- Mihail Tudoreanu, DSc, *Economy of Interaction in Program Visualization: Designing Effective Visualization Tools for Reducing User's Cognitive Effort*, Washington University in St. Louis, May 2002.
- Jinhua Guo, Ph.D., University of Georgia, *Consistent, Interactive Steering of Distributed Computations: Algorithms and Implementation*, August 2002.
- Ashley Taylor, Ph.D., *The Study and Design of Algorithm Animations*, August 2006.
- Phillipa Rhodes, Ph.D., *Software Visualization: Using Perceptual, Attentional, and Cognitive Concepts to Quantify Quality and Improve Effectiveness*, August 2007.
- Shaohua Xie, Ph.D., *Evaluating and Refining Diagrams that Support the Comprehension of Concurrency and Synchronization*, August 2008.
- Current PhD advisees: Zhen Li, Kelly Storm, Rui Wang, Zhao Zhe
- Current MS advisees: Matthew Tanner, Joseph Hohenstern, Naveed Ahmed

SELECTED COLLABORATORS:

R.E.K. Stirewalt(CS), Laura K. Dillon(CS), Zach Hambrich (Psychology), Michigan State University

Elizabeth Davis(Psychology), Georgia Institute of Technology

CURRENT AND PENDING SUPPORT:

Using Perceptual and Cognitive Concepts to Quantify Quality, Support Instruction, and Improve Interactions, NSF, with E. Davis, 2003-2007.

Evaluating the Development of Expertise in the Design and Maintenance of Concurrent Software", NSF, with Stirewalt, Dillon, Hambrick, 2009-2012.

CONTACT INFO:

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RESEARCH ACTIVITIES AND INTERESTS:

Computer System, Network, and Security – provide system solutions to practical challenges faced by ordinary Internet users with data-intensive network applications. Examples of these applications include malware and spam resistance, scalable video delivery, and privacy protection in social networks.

KEYWORDS:

Security, Network, Operating System, Multimedia, Video Streaming

EDUCATION AND TRAINING:

BA	Computer Science and Engineering	Tsinghua University, Beijing, China	1995
PhD	Computer Science and Engineering	Oregon Graduate Institute of Science and Technology at OHSU, Portland, Oregon	2002

POSITIONS:

Assistant Professor	Computer Science, University of Georgia, Athens, GA	2003 – present
Research Scientist	College of Computing, Georgia Tech, Atlanta, GA	2002 – 2003

SELECTED PUBLICATIONS:

Kang Li, Zhenyu Zhong, and Lakshmith Ramaswamy, “Privacy-Aware Collaborative Spam Filtering”, in *IEEE Transactions on Parallel and Distributed Systems (IEEE TPDS)*, 2009.

Siddhartha Chattopadhyay, Suchendra Bhandarkar, and Kang Li, “Model-based Power Aware Compression Algorithms for MPEG-4 in Mobile Environments”, in *IEEE Transactions on Multimedia*, Vol 9, Issue 1, pp. 1 – 8, 2007.

Haijin Yan, David Lowenthal, Kang Li, Rupa Krishnan, and Larry Peterson, “Client-Centered, Energy-Efficient Wireless Communication on IEEE 802.11b Network”, in *IEEE Transaction on Mobile Computing*, Volume 5, pp. 1575 – 1590, 2006.

Kang Li and Zhenyu Zhong, "Fast Statistical Spam Filter by Approximate Classifications", in *ACM SIGMETRICS 06* and *ACM Performance Evaluation Review*, Vol. 34, No. 1. June 2006.

PATENTS:

"Apparatus, System, and Method for Authenticating Users of Digital Communication Devices"
Provisional Patent, USPTO Number: 11/867,355

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Association for Computing Machinery (ACM)

IEEE and Computer Society

SELECTED ADVISEES:

Zhenyu Zhong, Ph.D., University of Georgia, 2007

Krishna Bhargav, M.S., University of Georgia, 2008

Michael Moore, M.S., University of Georgia, 2006

Aura Morris, M.S., University of Georgia, 2005

Bryan Veal, M.S., University of Georgia, 2005

COLLABORATORS:

Calton Pu, Georgia Tech, 2002-2008, research project

Cheolwoo Park, University of Georgia, 2006-2008, research project

Richard Segal, IBM Research, 2006-2007, conference on email and anti-spam

Kai Chen, Google Inc, 2006-2008, research on web spam and CEAS conference

Francis Change, Intel Inc, 2002-2006, research on high speed network processor.

CURRENT AND PENDING SUPPORT:

Adaptive Attacks and Defenses in Denial of Information, National Science Foundation (NSF), CNS-0716357, 2007-2010.

High Performance Anti-Spam System, ISC and Georgia Research Alliance (GRA) 2007-present.

CONTACT INFO:

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RESEARCH ACTIVITIES AND INTERESTS:

Bioimaging – Neuroimaging, human brain mapping, computational neuroscience, biomedical image analysis, biomedical informatics, bioimaging informatics.

KEYWORDS:

Bioimaging, biomedical image analysis, computational neuroscience

EDUCATION AND TRAINING:

BA	Automation	Northwestern Polytechnical Univ. Xi'an, China	1998
MS	Automation	Northwestern Polytechnical Univ. Xi'an, China	1999
PhD	Computer Science	Shanghai Jiaotong Univ. Shanghai, China	2002

POSITIONS:

Assistant Professor	Computer Science, University of Georgia	2008 – present
Assistant Professor	Weill Medical College of Cornell University	2007 – 2008
Instructor	Harvard Medical School	2005-2007
Postdoc	University of Pennsylvania	2002-
Researcher		2004

SELECTED PUBLICATIONS:

Tianming Liu, Dinggang Shen, and Christos Davatzikos. Deformable Registration of Cortical Structures via Hybrid Volumetric and Surface Warping. *NeuroImage*. 2004;22(4):1790-801.

Tianming Liu, Geoffrey Young, Ling Huang, Nan-Kuei Chen, Stephen Wong. 76-space Analysis of Grey Matter Diffusivity: Methods and Applications. *NeuroImage*. 2006;15(31):51-65.

Tianming Liu, Hai Li, Kelvin Wong, Ashley Tarokh, Lei Guo, Stephen Wong, Brain Tissue Segmentation Based on DTI Data, *NeuroImage*, 38(1):114-23, 2007.

Tianming Liu, Jingxin Nie, Ashley Tarokh, Lei Guo, Stephen TC Wong, Reconstruction of Central Cortical Surface from MRI Brain Images: Method and Application. NeuroImage, Dec 27, 2008.

Gang Li, Lei Guo, Tianming Liu, Automatic Cortical Sulcal Parcellation Based on Surface Principal Direction Flow Field Tracking, NeuroImage, in press, 2009.

PATENTS:

HongJiang Zhang and Tianming Liu; Microsoft. Method and system for extracting key frames from video using a triangle model of motion based on perceived motion energy. 20060093040. 2006 May 4.

HongJiang Zhang and Tianming Liu; Microsoft. Extracting key frames from video using a triangle model of motion based on perceived motion energy. 20060165382. 2006 Jul 27.

HONORS:

NIH Career Award, 2007-2011

Microsoft Fellowship, Microsoft Research, 2000-2002

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Senior Member, IEEE, 2008-present

Member, ACM, 2008-present

Member, Society for Neuroscience, 2008-present

Member, MICCAI, 2004-present

SELECTED ADVISEES:

Dajiang Zhu, Qian Ma, graduate student, Department of Computer Science, UGA

COLLABORATORS:

Dinggang Shen, UNC Chapel Hill

Bernard Chang, Harvard Medical School

Stephen Miller, UGA

Qun Zhao, UGA

CURRENT AND PENDING SUPPORT:

Principal Investigator

NIH Career Award: Computer aided diagnosis and follow-up of Alzheimer's disease,
08/2007-07/2011

CONTACT INFO:

URL: <http://www.cs.uga.edu/~jam>

Phone: (706) 542-3440

email: jam@cs.uga.edu

RESEARCH ACTIVITIES AND INTERESTS:

Database Systems; Workflow/Web Services; Modeling & Simulation; Bioinformatics.

KEYWORDS:

Database systems, transactions, object-oriented, semi-structured, ontology; workflow/Web services, discovery, composition, semantics; modeling & simulation, simulation languages, environments, Web-based simulation; bioinformatics, on-line databases, repositories and Web services.

EDUCATION AND TRAINING:

B.S.	Applied Mathematics	Northwestern University, Evanston, IL	1980
M.S.	Computer Science	Georgia Institute of Technology, Atlanta, GA	1982
Ph.D.	Computer Science	Georgia Institute of Technology, Atlanta, GA	1986

POSITIONS:

Professor	Computer Science, University of Georgia, Athens, GA (promoted to Associate in 1993 and Full in 2000)	1986 – present
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SELECTED PUBLICATIONS:

S. Sipani, J.A. Miller, K. Verma and B. Aleman-Meza, "Designing a High Performance Database Engine for the 'Db4XML' Native XML Database System," *Journal of Systems and Software (JSS)*, Vol. 69, No. 1 (January 2004) pp. 87-104.

J. Cardoso, A.P. Sheth, J.A. Miller, J. Arnold and K.J. Kochut, "Modeling Quality of Service for Workflows and Web Service Processes," *Web Semantics: Science, Services and Agents on the World Wide Web (WS)*, Vol. 1, No. 3 (2004) pp. 281-308.

K. Sivashanmugam, J.A. Miller, A.P. Sheth and K. Verma, "Framework for Semantic Web Process Composition," *International Journal of Electronic Commerce (IJEC)*, Special Issue on Semantic Web Services and Their Role in Enterprise Application Integration and E-Commerce, Vol. 9, No. 2 (Winter 2004-5) pp. 71-106.

K. Verma, K. Sivashanmugam, A.P. Sheth, A. Patil, S. Oundhakar and J.A. Miller, "METEOR-S WSDI: A Scalable Infrastructure of Registries for Semantic Publication and Discovery of Web Services," *Information Technology and Management (ITM)*, Special Issue on Universal Global Integration, Vol. 6, No.1 (2005) pp.17-39.

S. Oundhakar, K. Verma, K. Sivashanmugam, A.P. Sheth and J.A. Miller, "Discovery of Web Services in a Federated Registry Environment," *International Journal of Web Services Research (JWSR)*, Vol. 2, No. 3 (July 2005) pp. 8-39.

M. Heiges, H. Wang, E. Robinson, C. Aurrecochea, X. Gao, N. Kaluskar, P. Rhodes, S. Wang, C. He, Y. Su, J.A. Miller, E. Kraemer and J.C. Kissinger, "CryptoDB: A Cryptosporidium Bioinformatics Resource Update," *Nucleic Acids Research (NAR)*, Vol. 34, Database Issue (January 2006) pp. 419-422.

C. Aurrecochea, M. Heiges, H. Wang, Z. Wang, S. Fischer, P. Rhodes, J.A. Miller, E. Kraemer, C.J. Stoeckert, Jr., D.S. Roos, and J.C. Kissinger, "ApiDB: Integrated Resources for the Apicomplexan Bioinformatics Resource Center," *Nucleic Acids Research (NAR)*, Vol. 35, Database Issue (January 2007) pp. 427-430.

M. Nagarajan, K. Verma, A.P. Sheth and J.A. Miller, "Ontology Driven Data Mediation in Web Services," *International Journal of Web Services Research (JWSR)*, Vol. 4, No. 4 (October/December 2007) pp. 104-126.

Aurrecochea, J. Brestelli, B.P. Brunk, J. Dommer, S. Fischer, B. Gajria, X. Gao, A. Gingle, G. Grant, O.S. Harb, M. Heiges, F. Innamorato, J. Iodice, J.C. Kissinger E.T. Kraemer, W. Li, J.A. Miller, V. Nayak, C. Pennington, D.F. Pinney, D.S. Roos, C. Ross, C.J. Stoeckert, Jr., C. Treatman and H. Wang, "PlasmoDB: A Functional Genomic Database for Malaria Parasites," *Nucleic Acids Research (NAR)*, Vol. 37, Database Issue (January 2009) pp. D539-D543.

SELECTED ADVISEES:

Zhiming (Sammy) Wang, Ph.D., University of Georgia, 2008.

Kunal Verma, Ph.D., University of Georgia, 2006.

COLLABORATORS:

J. Arnold (U. Georgia), I.B. Arpinar (U. Georgia), J. Cardoso (SAP), P.A. Fishwick (U. Florida), M. Hybinette (U. Georgia), J.C. Kissinger (U. Georgia), K.J. Kochut (U. Georgia), E.T. Kraemer (U. Georgia), W.D. Potter (U. Georgia), A.F. Seila (U. Georgia), A.P. Sheth (Wright State), K. Verma (Accenture), W.S. York (U. Georgia).

CURRENT AND PENDING SUPPORT:

NIH # 5P41RR018502-03 (M. Pierce, PI) 09/01/2003 – 05/31/2013, NIH/NCRR (Project 4) \$13,881,510, Integrated Technology Resource for Biomedical Glycomics, Project 4: Bioinformatics of Glycan Expression. Role: Investigator, Project 4.

NIH # HHSN26600400037C (D. Roos, PI, J. Kissinger, Co-PI), 07/01/2004 – 6/30/2009, NIH/NIAID \$3,009,736 Integrated Databases for Apicomplexan Pathogens. Role: Investigator.

CONTACT INFORMATION:

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email: potter@cs.uga.edu

RESEARCH ACTIVITIES AND INTERESTS:

Intelligent Information Systems; Databases, Data Models, and Knowledge Models; Artificial Intelligence, Heuristic Search Techniques, and Genetic Algorithms; Theoretical Computer Science with focus on Sorting; Expert Database Systems; and Interoperability

KEYWORDS:

Intelligent Systems, Evolutionary Computing, Robotics

EDUCATION AND TRAINING:

BA	Management Science	University of Tennessee, Knoxville, TN	1974
MS	Computer Science	University of South Carolina, Columbia, SC	1981
PhD	Computer Science	University of South Carolina, Columbia, SC	1987

POSITIONS:

Professor	Computer Science, UGA	2001 - present
Director	Institute for Artificial Intelligence, UGA	2003 - present

SELECTED PUBLICATIONS:

1. W.D. Potter, E. Drucker, P. Bettinger, F. Maier, D. Luper, M. Martin, M. Watkinson, G. Handy, and C. Hayes, "Diagnosis, Configuration, Planning, and Pathfinding: Experiments in Nature-Inspired Optimization", in *Natural Intelligence for Scheduling, Planning and Packing Problems*, edited by R. Chiong, Springer-Verlag, *Studies in Computational Intelligence (SCI) Series*, 2009.
2. H. Uchiyama, W.D. Potter, M.A. Covington, J. Tarver, and R. Eunice, "Perceptual Navigation for Semi-Autonomous Wheelchair Operations," in *Service Robot Applications*, I-Tech Education and Publishing KG, Vienna, Austria, Chapter #5, pp. 71-94, 2008
3. S.V. Fogelson and W.D. Potter, "A Formulation for the Relative Permittivity of Water and Steam to High Temperatures and Pressures Evolved Using Genetic Programming," in *Proceedings of the 2008 Genetic and Evolutionary Computation Conference GECCO 2008*, pp. 1335-1336, July, 2008.
4. B.J. Wimpey and W.D. Potter, "Generating Smooth Virtual Reality Maps Using 3D Building Blocks," in the *Proceedings of the 2008 International Conference on Computer Graphics and Virtual Reality CGVR'08*, Las Vegas, Nevada, CD Paper ID: CVG4377, July, 14-17, 2008
5. M. Martin, E. Drucker, and W.D. Potter, "GA, EO, and PSO Applied to the Discrete Network Configuration Problem, in the *Proceedings of the 2008 International*

- Conference on Genetic and Evolutionary Methods GEM'o8*, pp. 129-134, (CD ID: GEM3397) Las Vegas, Nevada, July, 14-17, 2008.
6. N. Roy, W.D. Potter, D. Landau, "Polymer Property Prediction and Optimization Using Neural Networks", in *IEEE Transactions on Neural Networks*, Vol. 17, No. 4, pp. 1001-1014, July, 2006.
 7. H. Fischer and W.D. Potter, "Mobile Decision Support for Purchase Decisions in Retail Environments", in *Transactions on Information Science and Applications*, Issue 1, Volume 3, pp. 119-126, 2005.
 8. T.K. Hamrita, W.D. Potter, and B. Bishop, "Robotics, Microcontroller, and Embedded Systems Education Initiatives at the University of Georgia: An Interdisciplinary Approach", in the *International Journal of Engineering Education*, vol. 21:4, pp. 730-738, 2005.

HONORS:

1. General Sandy Beaver Excellence in Teaching Award, 2008
2. Best Paper Award, 13th Int. Conf. Industrial & Engineering Applications of Artificial Intelligence and Expert Systems, IEA/AIE'2000

SELECTED MEMBERSHIPS/ASSOCIATIONS:

1. Association of Computing Machinery (ACM)
2. Institute of Electrical and Electronics Engineers: Computer Society (IEEE: CS)
3. Institute for the Certification of Computer Professionals (ICCP), Certified Data Processor: 1980
4. International Society of Applied Intelligence (ISAI)

SELECTED ADVISEES:

1. Robert Chevalier, MSAI, "Air Temperature Prediction Using Support Vector Regression and GENIE: The Georgia Extreme-Weather Neural-Network Informed Expert," July, 2008.
2. Hajime Uchiyama, MSAI, "Perceptual Navigation for Semi-Autonomous Wheelchair Operations," July, 2008.
3. Sergey Fogelson, MSAI, "What Computers Can Do: Applying Artificial Intelligence Techniques to Two Computationally Intensive Scientific Problems", July, 2007.
4. Micah Lewis, MSCS, "Efficient Monitoring of Seed and Grain Storage for the Prevention of Product Degradation", December, 2006.
5. Rebekah Black, MSCS, "TCPMISSING: An Intelligent Analytical Component for the Determination of Missing Packets", May, 2006.
6. Daniel Tuohy, MSAI, "Creating Tablature and Arranging Music for Guitar with Genetic Algorithms and Artificial Neural Networks", May, 2006.

CURRENT AND PENDING SUPPORT:

1. USDA Forest Service.
2. Microsoft Research Gift.

Lakshmith Ramaswamy, ASSISTANT PROFESSOR

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Email: laks@cs.uga.edu

RESEARCH ACTIVITIES AND INTERESTS:

Distributed Systems and Data Management – Event systems for real-world, mobile applications, Web content management, Peer-to-peer systems and Denial of information.

KEYWORDS:

Event systems, mobile data management, web caching and delivery, anti-spam systems

EDUCATION AND TRAINING:

BE	Computer Science	University of Mysore, Mysore, India	1996
MS	Computer Science	Indian Institute of Science, Bangalore, India	1999
PhD	Computer Science	Georgia Tech, Atlanta, GA	2005

POSITIONS:

Assistant Professor	Computer Science, University of Georgia, Athens, GA	2005 – present
Visiting Scientist	IBM India Research Labs, Bangalore, India	2008

SELECTED PUBLICATIONS:

L. Ramaswamy, D. Padmanabhan, R. Polavarapu, K. Gunasekara, D. Garg, K. Visweswariah and S. Kalyanaraman, "CAESAR: A Context-Aware Social Recommender System for Low-End Mobile Devices", 10th IEEE International Conference on Mobile Data Management (MDM-2009), May 2009.

Z. Zhong, L. Ramaswamy and K. Li, "ALPACAS: A Large-Scale Privacy-Aware Collaborative Anti-spam System", 27th IEEE Conference on Computer Communications (IEEE INFOCOM 2008), April 2008.

L. Ramaswamy, J. Chen and P. Parate, "CoQUOS: Lightweight Support to Continuous Queries on Unstructured Overlays", *Proceedings of the 21st IEEE International Conference on Parallel and Distributed Systems (IPDPS-2007)*, March 2007.

L. Ramaswamy, B. Gedik and L. Liu, "A Distributed Approach to Node Clustering in Decentralized Peer-to-Peer Networks", *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Vol. 16, No. 10, September 2005.

L. Ramaswamy, A. Iyengar, L. Liu and F. Douglass, "Automatic Detection of Fragments in Dynamic Web Pages and its Impact on Caching", *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, Vol. 17, No. 6, pp. 859-874, June 2005.

PATENTS:

A. Iyengar, R. King, L. Ramaswamy, D. Rosu and K. Witting, "System and Method for Achieving Different Levels of Data Consistency". United States Patent #7,395,279, July 2008.

HONORS:

2005 Pat Goldberg Memorial Best Paper Award

Best paper award at the 13th International World Wide Web Conference (WWW-2004)

SELECTED ADVISEES:

Jianxia Chen, Ph.D., University of Georgia, in progress

Osama Al-Haj Hassan, Ph.D., University of Georgia, in progress

Sujeeth Thirumalai, M.S., University of Georgia, 2007

Piyush Parate, M.S., University of Georgia, in progress

Sriti Kumar, M.S., University of Georgia, in progress

COLLABORATORS:

Calton Pu, Georgia Tech, ongoing, Journal paper

Shivkumar Kalyanaraman, IBM Research, ongoing, Conference paper

Arun Iyengar, IBM Research, 2004-2007, Book chapter, journal and conference papers

CURRENT AND PENDING SUPPORT:

Adaptive Attacks and Defenses in Denial of Information, National Science Foundation (NSF), 2007-2010.

Distributed System Support for Event Notification in Mobile Communities, National Science Foundation (NSF), Pending.

Khaled Rasheed, ASSOCIATE PROFESSOR

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RESEARCH ACTIVITIES AND INTERESTS:

Artificial Intelligence Techniques: Genetic Algorithms, Evolutionary Computation, and Machine Learning

Artificial Intelligence Applications: Engineering Design Optimization, Bioinformatics.

KEYWORDS:

Evolutionary Computation, Learning, bioinformatics

EDUCATION AND TRAINING:

BS	Physics	Alexandria University, Alexandria, Egypt	1990
MS	Computer Science	Rutgers University, New Brunswick, NJ	1995
PhD	Computer Science	Rutgers University, New Brunswick, NJ	1998

POSITIONS:

Associate Professor	Computer Science, University of Georgia, Athens, GA (promoted in 2006)	2000 – present
Assistant Research Professor	Rutgers University, New Brunswick, NJ	1999 – 2000

SELECTED PUBLICATIONS:

Jaymin Kessler, Khaled Rasheed and Budak Arpinar, “Using Genetic Algorithms to Reorganize Superpeer Structure in Peer to Peer Networks”, *Applied Intelligence: The International Journal of Artificial Intelligence, Neural Networks and Complex Problem-Solving Technologies*, 26(1), pp. 35 – 52, 2007.

Deepti Chafekar, Liang Shi, Khaled Rasheed and Jiang Xuan, “Constrained Multi-objective GA Optimization Using Reduced Models”, *IEEE Transactions on Systems, Man and Cybernetics*, 35(2), pp. 261 – 265, 2005.

Jack Smith, Doyle Knight, Joachim Kohn, Khaled Rasheed and Norbert Weber, “Using Surrogate Modeling in the Prediction of Fibrinogen Adsorption onto Polymer Surfaces”, *Journal of Chemical Information and Computer Sciences*, 44:1088—1097, 2004.

Boseon Byeon and Khaled Rasheed, "Simultaneously Removing Noise and Selecting Relevant Features for High Dimensional Noisy Data", in Proceedings of the Seventh International Conference on Machine Learning and Applications (ICMLA'08), pp. 147 – 152, 2008.

Liang Shi and Khaled Rasheed, "ASAGA: An Adaptive Surrogate-Assisted Genetic Algorithm", in Proceedings of the Genetic and Evolutionary Computation Conference (GECCO'2008), pp. 1049 – 1056, 2008.

Chongshan Zhang and Khaled Rasheed, "Improving GA Search Reliability Using Maximal Hyper-Rectangle Analysis", in The Genetic and Evolutionary Computation Conference (GECCO'2005), pp. 1185 – 1192, 2005. [nominated for a best paper award]

SELECTED MEMBERSHIPS/ASSOCIATIONS:

Association for Computing Machinery (ACM)

ACM Special Interest Group on Genetic and Evolutionary Computation (SIGEVO).

SELECTED ADVISEES:

Bo Qian, Ph.D., University of Georgia, 2006

Liang Shi, Ph.D., University of Georgia, 2008

Boseon Byeon, Ph.D., University of Georgia, in progress

COLLABORATORS:

Doyle Knight, Rutgers University, 1995-2005, 3 journal papers, 10 conference papers, NSF grant

Dennis Aron, University of Georgia, 2003-2005, conference paper, MS thesis

I. Budak Arpinar, University of Georgia, 2005-present, Journal paper

Jan Mrazek, University of Georgia, 2007, conference paper

CURRENT AND PENDING SUPPORT:

National Science Foundation (NSF), " III: Small: Collective Association Discovery in a Dynamic Peer to Peer Network" I. Budak Arpinar (PI) and Khaled Rasheed (Co-PI), \$424,508, May 1, 2009 – April 30, 2012. Proposal submitted under review.

CONTACT INFO:

URL: <http://www.cs.uga.edu/~rwr>
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email: rwr@cs.uga.edu

RESEARCH ACTIVITIES AND INTERESTS:

Combinatorial enumeration, asymptotic enumeration, random graphs, graph algorithms, and graph generation.

KEYWORDS:

Combinatorics, randomized algorithms, graph theory

EDUCATION AND TRAINING:

AB	Mathematics	Dartmouth College, Hanover, NH	1963
AM	Physics	Dartmouth College, Hanover, NH	1963
PhD	Mathematics	Cornell University, Ithaca, NY	1966

POSITIONS:

Professor of Computer Science	University of Georgia, Athens, GA	1984- Present
Professor, Mathematics and Computer Science	Southern Illinois University, Carbondale, IL	1982- 1984
Professor of Mathematics	Newcastle University, NSW, Australia	1974- 1982
Visiting Assistant Professor (Math)	University of Michigan, Ann Arbor, MI	1972- 1974
Assistant Professor (Math)	University of California at Berkeley, CA	1967- 1972

CONTACT INFO:

URL: <http://www.cs.uga.edu/~jws>
Phone: (706) 542-3475
email: jws@cs.uga.edu

RESEARCH ACTIVITIES AND INTERESTS:

Computer-Aided Design – algorithms, procedures, and software systems for the creation, assessment, optimization, and test of digital subsystems and systems for modern computing hardware, applications are in VLSI development and computer systems design.

Interactive Graphics – algorithms and software for the high-performance rendering and display of objects in a performance-constrained (*e.g.*, gaming) environment; applications in game development, scientific simulation, and education.

KEYWORDS:

Computer-aided design, VLSI, graphics, gaming

EDUCATION AND TRAINING:

BS	Physics	University of Oklahoma, Norman	1967
MS	Physics	University of Michigan, Ann Arbor	1970
PhD	Computer Engineering	North Carolina State Univ, Raleigh, NC	1978

POSITIONS:

Associate Professor	Computer Science, University of Georgia, Athens, GA	1985 – present
Assistant Professor	Statistics and Computer Science, University of Georgia, Athens, GA	1980 – 1985

SELECTED PUBLICATIONS:

(with S.S. Wagstaff, Jr.), "The EPOC system for integer factoring", *Proc. Natl. Computer Conf.*, pp. 115-121 (1984).

(with C. Pomerance), "Reduction of huge, sparse matrices over finite fields via created catastrophes", *J. of Experimental Mathematics*, 1:2, pp 89-94 (1992).

(with Basnayake, E.), "HDL to layout for timing analysis: Gate-level delay determination via Silicon Compilation", *Proc. 1994 Intl Conf on Simulation and Hardware Description Languages*, pp. 181-186 (1994).

"The GSIM Gate-level Simulator", *Proc. 2000 ACM Southeastern Conference*, pp. 67-76 (2000).

(with John A. Miller), Editors, *Proceedings of the 39th Annual ACM Southeast Conference (ACM-SE'01)*, Athens, 316 pages (2001).

HONORS:

Phi Beta Kappa, Tau Beta Pi

SELECTED MEMBERSHIPS/ASSOCIATIONS:

IEEE

SELECTED ADVISEES:

E. Basnayake, "Dynamic delay determination for Verilog using silicon compilation", 1992.

M. Holcomb, "An interactive VLSI cell placement tool with routing", 1992.

S. Yardi, "An array processor implementation", 2003.

COLLABORATORS:

Bruce K Britton, Psychology, 1984-85, book chapter

James Moore, Veterinary Medicine, 2008-present, gaming and science education.

CURRENT AND PENDING SUPPORT:

None at present

Over \$2M in research and equipment grants while at UGA.

CONTACT INFO:

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email: thiab@cs.uga.edu

RESEARCH ACTIVITIES AND INTERESTS:

Computational science and parallel computing; i) deriving numerical methods for solving problems in science and engineering. Examples: a) problems that model optical fiber communication systems. b) problems that model water waves and waves in plasma physics, etc. c) problems that model biochemical reaction networks; ii) developing web based Graphical User Interfaces for numerical simulations.

KEYWORDS:

Computational Science, Parallel computing, Bioinformatics

EDUCATION AND TRAINING:

B. Sc.	Mathematics	The University of Jordan, Amman, Jordan	1972
M.Sc.	Mathematics(numerical analysis)	The University of Jordan, Amman, Jordan	1977
PhD	Applied Mathematics & Computer Science	Clarkson University, Potsdam, NY	1982

POSITIONS:

Professor	Computer Science, University of Georgia, Athens, GA (promoted 1994)	1982 – present
Visiting Professor	Fulbright Scholar to Jordan, University of Jordan.	1995 – 1996

SELECTED PUBLICATIONS:

B. Aleman-Meza, Y. Yu, H-B. Schuttler, J. Arnold, and T. Taha, "KINSOLVER: A simulator for computing large ensembles of biochemical and gene regulatory networks", *Journal: Computers and Mathematics with Applications*, 57(2009), 420-435.

Triki, Houria and Taha, Thiab, "On the calculation of the timing shifts in the variable-coefficient KdV equations", accepted for publication in the *Jour. Math. and Computers in Simulation*, 2008.

Ismail, M. and Taha, T., "A Linearly Implicit Conservative Scheme for the Coupled Nonlinear Schrödinger Equations", Special issue:Nonlinear Waves: Computation and Theory VI, *Journal of Mathematics and Computers in Simulation*, Vol. 74, issues 4-5, pp. 302-311, 2007.

Taha, T R. and Xu, Xiangming, 2005. "Parallel Split-Step Fourier Methods for the Coupled

Nonlinear Schrödinger Type Equations", The Journal of Supercomputing, Vol. 32, No. 1, pp. 5-23

Arnold, J., Schüttler, H.-B., Logan, D.A., Battogtokh, D., Griffith, J., Arpinar, I.B., Bhandarkar, S., Datta, S., Kochut, K.J., Kraemer, E., Miller, J.A., Sheth, A., Strobel, G., Taha, T., Aleman-Meza, B., Doss, J., Harris, L., and Nyong, A., 2004, Metabolomics in Chapter 22 of Handbook of Industrial Mycology, Marcel-Dekker, NY, pp. 597-633.

HONORS:

1. The 1985 winner of the M. G. Michael Award for Research in the Sciences at the University of Georgia.
2. Member of the Board of Directors of the International Association for Mathematics and Computers in Simulation (IMACS), August 2005 – present.
3. The Chair and the Conference Coordinator of the "IMACS World Congress on Computational and Applied Mathematics & applications in Science and Engineering", Athens, GA, August 3-7, 2009.
4. The Chair and the Conference Coordinator of the "Sixth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory", Athens, GA, March 23-26, 2009.

SELECTED ADVISEES:

B. Aleman-Meza, R. Liu, P. Lu, X. Xu, Y. Yu, Ryan Foster, Shanshan Ding at UGA.

COLLABORATORS:

H. Arabnia (UGA), E. Kraemer (UGA), J. Arnold (UGA), H.-B. Schuttler (UGA), Houria Trikia (Algeria), W. Schiesser (Lehigh University), Ablowitz (Colorado University).

CURRENT AND PENDING SUPPORT:

NSF, "Genomics and Computational Biology: a REU site", J. Arnold (PI), March 1, 2007 – February 28, 2010.

NSF, "MRI-Acquisition of a Computer Cluster for Bioinformatics research at UGA", Ying Xu (PI), August 1, 2008 – July 31, 2011.

NSF, "Support for the Sixth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory Conference", Thiab Taha (PI), and Jerry Bona (Co-PI), August 1, 2008 – July 31, 2010.

NSF, "Workshop on Computational Methods for Nonlinear Waves", Thiab Taha (PI), Gino Biondini (Co-PI) and Bernard Deconinck (Co-PI), 10/01/2008- 09/30/2009.

NSF, "Workshop on Mathematical Biology and Numerical Analysis", Thiab Taha (PI), J. Arnold (Co-PI), J. Prestegard (Co-PI), A. Sornborger (Co-PI), and A. Summers (Co-PI), 02/01/2009-07/31/2010.

NSF, "II-NEW: Acquisition of a multicore system for research and training in simulation and power management", Thiab Taha (PI), S. Funk (Co-PI), M. Hybinette (Co-PI), K. Kochut (Co-PI), and J. Miller (Co-PI), 01/01/09-12/31/11.