

Yaohang Li

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EDUCATION: Florida State University, Tallahassee, Florida
Aug., 2003 Ph.D., Computer Science
Major Advisor: Dr. Michael Mascagni
Dissertation Title: A Grid Computing Infrastructure for Monte Carlo Applications
Aug., 2000 Florida State University, Tallahassee, Florida
M.S., Computer Science
July, 1997 South China University of Technology, Guangzhou, China
B.S., Computer Science and Engineering
Minor, English Literature

HONORS: **By North Carolina A&T State University:**
2005 "Rookie of the Year" Young Researcher Award
By Oak Ridge Associated Universities:
2005 Ralph E. Powe Junior Faculty Enhancement Award
By Florida State University:
2002 School of Computational Science and Information Technology Fellowship
2002 Dissertation Research Grant Award, Graduate Study Office
2001 School of Computational Science and Information Technology Fellowship
By IBM:
1997 IBM Manager Recognized Award

PROFESSIONAL EXPERIENCE:	North Carolina Agriculture and Technology State University	Greensboro, NC
Aug, 2003-present	Assistant Professor, Department of Computer Science	
Summer, 2006	Oak Ridge National Laboratory	Oak Ridge, TN
	Participating University Faculty	
Summer, 2003	Oak Ridge National Laboratory	Oak Ridge, TN
	Research Associate, Computer Science and Mathematics Division	
1999–2003	Florida State University	Tallahassee, FL
	Research Assistant, Department of Computer Science	
Spring, 2002	University of Salzburg	Salzburg, Austria
	Visiting Scholar, Department of Scientific Computing	
Winter, 2001	Florida State University	Tallahassee, FL
	Research Assistant, Department of Chemical Engineering	
1998–1999	University of Southern Mississippi	Hattiesburg, MS
	Research Assistant, Computer Science	
1997–1998	IBM China Ltd.	Guangzhou, China
	IT Specialist, Software and Networking	
1996–1997	People's Insurance Co. of China	Guangzhou, China
	Database Developer and Administrator, Informix	

- RESEARCH INTERESTS:** Computational Science, Computational Biology
Monte Carlo Methods, Markov Chain Monte Carlo
Grid/Distributed/Parallel Computing
Bio-inspired Approaches
Random Number Generation
- JOURNAL PAPERS**
- **Yaohang Li**, "A Bio-inspired Adaptive Job Scheduling Mechanism on the Grid," *International Journal of Computer Science and Network Security*, **6(3B)**: 1-7, 2006.
 - **Yaohang Li**, Y. D. Song, "An Adaptive and Trustworthy Software Testing Framework on the Grid," submitted to *Journal of SuperComputing*, 2007.
 - **Yaohang Li**, V. A. Protopopescu, N. Arnold, X. Zhang, A. Gorin, "*Hybrid Parallel Tempering/Simulated Annealing Method*," submitted to *Physics Review E.*, 2006.
 - **Yaohang Li**, M. Mascagni, "Optimizing Dynamic Grid-based Resources for Large Scale Monte Carlo Applications," submitted for publication in *Mathematics and Computers in Simulation*, 2005.
 - **Yaohang Li**, D. Chen, X. Yuan, "Trustworthy Remote Compiling Service for Grid-based Scientific Applications," accepted for publication in *Journal of SuperComputing*, 2005.
 - **Yaohang Li**, M. Mirugi, M. Mascagni, "*Test the Rule 30 Cellular Automata Random Number Generator*," submitted for publication in *Mathematics and Computers in Simulation*, 2005.
 - **Yaohang Li**, M. Mascagni, "*Grid-based Quasi-Monte Carlo Applications*," *Monte Carlo Methods and Applications*, **11**: 39-55, 2005.
 - **Yaohang Li**, V. A. Protopopescu, A. Gorin, "*Accelerated Simulated Tempering*," *Physics Letters A*, **328(4)**: 274-283, 2004.
 - **Yaohang Li**, M. Mascagni, R. van Engelen, Q. Cai, "*A Grid Workflow-Based Monte Carlo Simulation Environment*," *Journal of Neural Parallel and Scientific Computations (NPSC)*, **12**:439-455, 2004.
 - **Yaohang Li**, M. Mascagni, "*Analysis of Large-scale Grid-based Monte Carlo Applications*," *International Journal of High Performance Computing Applications (IJHPCA)*, **17(4)**: 369-382, 2003. (Jan. 2006, one of the 50 Most-Frequently-Read Articles in *International Journal of High Performance Computing Applications*. <http://hpc.sagepub.com/reports/mfr7.dtl>)
 - Y. Zhang, **Yaohang Li**, M. H. Peters, "*Nonequilibrium, Multiple-Time Scale Simulations of Ligand-Receptor Interactions in Structured Protein Systems*," *Proteins: Structure, Function, and Genetics*, **52(3)**: 339-348, 2003.
 - M. Mascagni, A. Karaivanova, **Yaohang Li**, "*Quasi-Monte Carlo method for elliptic boundary value problems*", *Monte Carlo Methods and Applications*, **7**: 283-294, 2001.
- BOOK CHAPTER:**
- **Yaohang Li**, M. Mascagni, "*An Overview of Grid-based Monte Carlo Computing*," *Grid Technologies, Emerging from Distributed Architectures to Virtual Organizations*, WIT Press, ISBN: 978-1-84564-055-2, 2006.
- PEER-REVIEWED CONFERENCE PAPERS:**
- **Yaohang Li**, J. Clark, K. Williams, Y. Song, "Efficient Parallel Implementation of Evolutionary Markov Chain Monte Carlo," *Proceedings of PDPTA'07*, Las Vegas, 2007.
 - **Yaohang Li**, M. Mascagni, "Efficient Parallel Implementation of Replica Exchange Parallel Tempering using SPRNG and MPI," submitted to SC07, Reno, 2007.
 - **Yaohang Li**, T. Dong, Y. Song, "Using Grid Computing for Distributed Software Testing," *Proceedings of PDPTA'06*, Las Vegas, 2006.

- **Yaohang Li**, T. Dong, X. Zhang, Y. Song, X. Yuan, "Large-Scale Software Unit Testing on the Grid," Proceedings of IEEE International Conference on Granular Computing, Atlanta, 2006.
- **Yaohang Li**, J. Clark, X. Zhang, "Parallel Implementation of the Accelerated Simulated Tempering Method," Proceedings of 3rd NPSC Conference, Atlanta, 2006.
- X. Zhang, **Yaohang Li**, A. Myklebust, "*Hybrid Optimization of Geometrically Trimmed NURBS Surfaces*," Proceedings of ASME IMECE, Orlando, 2005.
- **Yaohang Li**, D. Chen, X. Yuan, Y. Yu, A. Esterline, "*Secure Remote Compiling Service on the Grid*," Proceedings of PDPTA'05, Las Vegas, 2005.
- **Yaohang Li**, M. Mascagni, "*A Bio-inspired Job Scheduling Algorithm for Monte Carlo Applications on a Computational Grid*," proceedings of 17th IMACS World Congress, Scientific Computation, Applied Mathematics, and Simulation, Paris, France, 2005.
- **Yaohang Li**, T. Dong, M. Bikdash, Y. Song, "*Path Planning for Unmanned Vehicles using Ant Colony Optimization on a Dynamic Voronoi Diagram*," Proceedings of International Conference on Artificial Intelligence, ICAI'05, Las Vegas, 2005.
- X. Yuan, P. Vega, H. Yu, **Yaohang Li**, "*A Personal Software Process Tool for Eclipse Environment*", Proceedings of International Conference on Software Engineering Research and Practice (SERP'05), Las Vegas, 2005.
- **Yaohang Li**, C. E. M. Strauss, A. Gorin, "*Parallel Tempering in Rosetta Practice*," Proceedings of International Conference on Bioinformatics and its Applications, (ICBA'04), Fort Lauderdale, Florida, 2004.
- **Yaohang Li**, M. Mascagni, "*E-Science on the Grid: Toward a Dynamic E-Science Automation with XML and Workflow Techniques*," Proceedings of the 8th World Multi-Conference on Systemics, Cybernetics, and Informatics, SCI'04, Orlando, 2004.
- **Yaohang Li**, Y. Song, "*Bio-inspired Fault Tolerant and Adaptive System Modeling and Simulation on the Grid*," Proceedings of the International Conference on Computing, Communications and Control Technologies, CCCT'04, Austin, 2004.
- **Yaohang Li**, M. Mascagni, "*e-Science Workflow on the Grid*," Proceedings of the IADIS International Conference, e-Society 2004, Avila, Spain, 2004.
- **Yaohang Li**, Q. Cai, Y. Li, "*Toward a Dynamic E-Commerce Automation with XML and Workflow Techniques on the Grid*," Proceedings of IEEE SoutheastCon, 2004.
- **Yaohang Li**, M. Mascagni, M. H. Peters, "Grid-based Nonequilibrium Multiple-Time Scale Molecular Dynamics/Brownian Dynamics Simulations of Ligand-Receptor Interactions in Structured Protein Systems," Proceedings of the First BioGrid Workshop at the 3rd IEEE/ACM Symposium Cluster Computing and the Grid, Tokyo, 2003.
- M. Mascagni, **Yaohang Li**, "*Computational Infrastructure for Parallel, Distributed, and Grid-based Monte Carlo Computations*," Proceedings of the Fourth International Conference on Large-Scale Scientific Computations (LSSC'03), Sozopol, Bulgaria, Lecture Notes in Computer Sciences, **2907**: 39-52, 2003.
- **Yaohang Li**, M. Mascagni, R. van Engelen "*GCIMCA: A Globus and SPRNG Implementation of a Grid Computing Infrastructure for Monte Carlo Applications*," Proceeding of the International Multiconference in Computer Science and Computer Engineering, PDPTA'03, 2003.
- **Yaohang Li**, M. Mascagni, "*Improving Performance via Computational Replication on a Large-Scale Computational Grid*," proceedings of the GP2PC at the IEEE/ACM International Symposium on Cluster Computing and the Grid, IEEE/ACM CCGRID2003, Tokyo, 2003.
- **Yaohang Li**, M. Mascagni, "*Grid-based Monte Carlo Applications*," Lecture Notes in Computer Science, **2536**:13-24, GRID2002, Grid Computing Third International Workshop/Conference, Baltimore, 2002.

-- **Yaohang Li**, A. Ali, "Neural Network in Business Application", Proceedings of IEMS'99 International Conference, Cocoa Beach, FL, 1999.

-- **Yaohang Li**, M. Mascagni, "A Distributed Monte Carlo Integration Tool", Proceedings of the First Southern Symposium on Computing, Hattiesburg, MS, 1998.

**TECHNICAL
PAPER:**

-- **Yaohang Li**, "Computational Measure of Uniformity," Technical Report TR-000704, Dept. of Computer Science, Florida State University, 2000.

**GRANTS AND
CONTRACTS:**

National Science Foundation

Yaohang Li, \$1,000,000, Co-Principle Investigator, (PI: Yong-Duan Song), 10/1/2004-10/1/2007

Proposal Title: Biologically-inspired Adaptive and Reconfigurable Systems: Modeling, Synthesis, and Simulation

Army Research Laboratory

Yaohang Li, \$600,000, Co-Principle Investigator, (PI: Yong-Duan Song) 7/1/2004~7/1/2007

Proposal Title: Bio-inspired Control System for Unmanned Grounded Vehicle

Appalachian State University (University of North Carolina, Office of the President)

Yaohang Li, \$45,143, Principle Investigator, 7/1/2004~7/1/2006

Proposal Title: A Consortium to Promote Computational Science and High Performance Computing

Oak Ridge National Laboratory, Department of Energy

Yaohang Li, \$22,336, Principle Investigator, 5/1/2004~5/1/2005

Proposal Title: Protein Structure Prediction Research

University of North Carolina General Administration

Yaohang Li, \$50,000, Principle Investigator, 6/1/2004~6/1/2005

Proposal Title: Building an NCAT Campus Grid

Oak Ridge Associated Universities, Ralph E. Powe Young Faculty Enhancement Award

Yaohang Li, \$5,000, Principle Investigator, 5/1/2005~5/1/2006

Proposal Title: Advanced Global Optimization Approaches for High-Resolution Protein Structure Modeling

North Carolina A&T State University, Futures Venture

Yaohang Li, \$15,000, Principle Investigator, 7/1/2006~7/1/2007

Proposal Title: Improve NC A&T IT Infrastructure with Grid Computing

INVITED TALKS:

University of North Carolina, Charlotte, "Hybrid Parallel Tempering/Simulated Annealing and its Applications in ab initio Protein Folding," Charlotte, NC, Nov. 3, 2006.

Partners in Technologies, Oak Ridge Associated Universities, "Parallel Tempering in Rosetta Practice," Oak Ridge, TN, Apr. 21, 2005.

IBM University Day, "Protein Folding on the Campus Grid," Raleigh, NC, Oct. 15, 2004.

Oak Ridge National Laboratory, "Grid-based Monte Carlo Applications," Oak Ridge, TN, USA, Jan. 24, 2003.

AVID LLC, "Global Optimization Methods," Blacksburg, VA, Dec. 27, 2004.

North Carolina Agriculture and Technology State University, "*GCIMCA: A Grid-Computing Infrastructure for Monte Carlo Applications*," Greensboro, NC, USA, Mar. 2003.

South China University of Technology, "*Grid Computing Infrastructure for Monte Carlo Applications*," Guangzhou, China, Jun. 18, 2002.

SOFTWARE PACKAGES: **SPRNG - Scalable Parallel Random Number Generation Library** (DOE-funded)
Development, Maintenance, and Trouble-shooting
Grid-computing Infrastructure for Monte Carlo Applications
Main Developer
MD/BD Simulation for Structured Protein System
Development
Parallel Quasirandom Number Generators Package (used in S-PLUS)
Main Developer

CERTIFICATIONS: **By the State Council Office of Promotion and Application of Electronics And Information System in China:**

1997 National Certified System Analyst
1996 National Certified Senior Programmer
1994 National Certified Programmer

By IBM:
1996 Professional Certification of IBM OS/2 and LAN Server Engineer

TEACHING EXPERIENCE: **North Carolina A&T State University Greensboro, NC**
Assistant Professor, Department of Computer Science
Spring, 2007 COMP467 Database Design
COMP690 Fundamental of Natural Computing
Fall, 2006 GEEN163 Introduction to Computer Programming
COMP755 Advanced Operating Systems
Spring, 2006 COMP790 High Performance Computing and Monte Carlo Methods
COMP645 Artificial Intelligence
COMP445 Introduction to Artificial Intelligence
Fall, 2005 COMP755 Advanced Operating Systems
COMP750 Distributed Systems
Spring, 2005 COMP755 Advanced Operating Systems
COMP790 High Performance Computing and Monte Carlo Methods
Fall, 2004 COMP750 Distributed Systems
COMP740 Advanced Artificial Intelligence
COMP467 Database Design
Spring, 2004 COMP445 Introduction to Artificial Intelligence
COMP645 Artificial Intelligence
COMP467 Database Design
Fall, 2003 COMP467 Database Design (2 sections)
Florida State University Tallahassee, FL
Instructor, Department of Computer Science
Spring, 2003 CGS3460 FORTRAN for Non-specialist

University of Salzburg **Salzburg, Austria**
 Teaching Assistant, Department of Scientific Computing
 Spring, 2002 Graduate course "Concrete Mathematics"
 Graduate course "Advanced Topics in Monte Carlo Methods"

STUDENTS GRADUATED: Lisa Sims Master's Thesis Fall, 2006
 Jason Clark Master's Thesis Spring, 2006
 Shawn Gunthrop Master's Project Spring, 2007
 Willie Gilchrist Master's Project Spring, 2006
 Karlid Bazarri Master's Project Spring, 2006
 Tao Dong Master's Thesis Fall, 2005
 William Mirugi Master's Thesis Spring, 2005
 Rogelio Roper Master's Project Spring, 2005
 Daniel Chen Master's Thesis Fall, 2004

UNIVERSITY SERVICES: **Curriculum Committee Chair** 2005~present
 Department of Computer Science, North Carolina A&T State University
Curriculum Committee Member 2005~present
 College of Engineering, North Carolina A&T State University
Computational Science and Engineering Program Member 2004~present
 North Carolina A&T State University
Graduate Study Committee Member 2003~present
 North Carolina A&T State University
Curriculum Committee Member 2003~2005
 Department of Computer Science, North Carolina A&T State University
Department Webmaster 2003~2005
 Department of Computer Science, North Carolina A&T State University

AFFILIATIONS: Member of IEEE since 05/2001
 ACM

LANGUAGES: Fluent in English, Chinese, and Cantonese
 Can function a little bit in German and Japanese