Xiaoqun Du

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Research Interests

- Formal specification and verification.
- Semi-formal verification of hardware designs.
- Algorithms for the verification of real-time and infinite-state systems.
- Development of verification tools.
- Application of formal verification to safety-critical and embedded systems.
- Physics research: thermal and electrical behaviors of super-conducting materials

Work Experience

- Sept. 2000 - now Member of Consulting Staff, Cadence Design Systems, Inc.
- Sept. 2000 - Mar. 2002 Visiting Researher, Bell Laboratories, Lucent Technologies
- June - Aug., 1999 Intern, Bell Laboratories, Lucent Technologies
- 1996 - 2000 Research Assistant, Dept. of Computer Science, SUNY at Stony Brook
- 1994, 1996 Teaching Assistant, Dept. of Computer Science, SUNY at Stony Brook
- 1992 - 1993 Research Assistant, Dept. of Physics, SUNY at Stony Brook
- 1991 - 1992 Teaching Assistant, Dept. of Physics, SUNY at Stony Brook

Education

- August, 2000 **Ph.D., Computer Science**
  State University of New York (SUNY) at Stony Brook.
  Dissertation: Tabled Resolution and Constraints for Model Checking Real-Time Systems and Infinite-State Systems.
- May, 1998 **M.S., Computer Science**, SUNY at Stony Brook
- May, 1993 **M.A., Physics**, SUNY at Stony Brook
- July, 1991 **B.S., Physics**, Beijing University, Beijing, China

Publications

1. Y. Dong, X. Du, G. J. Holzmann, and S. A. Smolka. Fighting Livelock in the GNU i-Protocol: A Case Study in Explicit-State Model Checking. Accepted by the *International Journal on Software Tools for Technology Transfer*, to appear in 2002.
2. X. Du, C.R. Ramakrishnan, and S. A. Smolka. Tabled Resolution + Constraints: A Recipe for Model Checking Real-Time Systems. In *Proceedings of the 21st IEEE Real-Time Systems Symposium (RTSS 00)*, Orlando, Florida, November 2000.
3. R. Cleaveland, X. Du and S. Smolka. GCCS: A Graphical Coordination Language for System Specification. In A. Porto and G.-C. Roman, editors, *Proceedings of the 4th International Conference on Coordination Models and Languages (COORD 00), volume 1906 of Lecture Notes in Computer Science*, pages 284-298, Limassol, Cyprus, September 2000.
4. X. Du, C.R. Ramakrishnan, and S. A. Smolka, Real-Time Verification Techniques for Untimed Systems. In *Proceedings of the 1st Workshop on Model Checking for Time-Critical Systems (MTCS 00)*, State College, Pennsylvania, August 2000.

5. C.R. Ramakrishnan, I.V. Ramakrishnan, S. A. Smolka, Y. Dong, X. Du, A. Roychoudhury, and V.N. Venkatakrishnan. XMC: A Logic-Programming-Based Verification Toolset. In *Proceedings of the 12th International Conference on Computer Aided Verification (CAV 00)*, Chicago, Illinois, June 2000.
6. X. Du, S. A. Smolka, and R. Cleaveland. Local Model Checking and Protocol Analysis. *International Journal on Software Tools for Technology Transfer*, 3(1):219-241, November, 1999.
7. Y. Dong, X. Du, Y.S. Ramakrishna, C.R. Ramakrishnan, I.V. Ramakrishnan, S. A. Smolka, O. Sokolsky, E. W. Stark, and D. S. Warren. Fighting Livelock in the i-Protocol: A Comparative Study of Verification Tools. In *Proceedings of the 5th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 99)*, volume 1579 of *Lecture Notes in Computer Science*, pages 74-88, Amsterdam, the Netherlands, March 1999.
8. B. Cui, Y. Dong, X. Du, K.N. Kumar, C.R. Ramakrishnan, I.V. Ramakrishnan, A. Roychoudhury, S. A. Smolka, and D. S. Warren. Logic Programming and Model Checking. In *Proceedings of the 7th International Conference on Algebraic and Logic Programming (PLILP/ALP 98)*, volume 1490 of *Lecture Notes in Computer Science*, pages 1-20, Pisa, Italy, September, 1998.
9. X. Du, K. T. McDonnell, E. Nanos, Y.S. Ramakrishna, and S. A. Smolka. Software Design, Specification, and Verification: Lessons Learned from the Rether Case Study. In *Proceedings of the 6th International Conference on Algebraic Methodology and Software Technology (AMAST 97)*, volume 1349 of *Lecture Notes in Computer Science*, pages 185-198, Sydney, Australia, December, 1997.
10. M. C. Martin, X. Du, J. Kwon, and L. Mihaly. Observation and Assignment of Silent and Higher-Order Vibrations in the Infrared Transmission of C_{60} Crystals. *Physical Review B*, 50(1):173-183, July, 1994.
11. M. C. Martin, D. Koller, X. Du, P. W. Stephens, and Laszlo Mihaly. Insulating and Conducting Phases of RbC_{60}. *Physical Review B*, 49(15):10818-10821, April, 1994.
12. P. B. Allen, X. Du, L. Mihaly, and L. Forro. Thermal-Conductivity of Insulating $Bi_2Sr_2YCu_2O_8$ and Superconducting $Bi_2Sr_2CaCu_2O_8$ - Failure of the Phonon-Gas Picture. *Physical Review B*, 49(13):9073-9079, April, 1994.
13. X. Du, L. Mihaly, and P. B. Allen. Widemann-Franz Law in $Bi_2Sr_2CaCu_2O_8$. *Physica B*, 194:1507-1508, February, 1994.

Professional Activities

- Journal Referee:
  ACM Transactions on Computational Logic,
  International Journal on Software Tools for Technology Transfer.
- Conference Referee:
  The 3rd International Workshop on Verification, Model Checking and Abstract Interpretation (VMCAI '02)
  The 13th Conference on Computer Aided Verification (CAV '01),
  The 19th Conference on the Foundations of Software Technology and Theoretical Computer Science (FSTTCS '99),
  The 26th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL '99),
  The Asian Computing Science Conference (ASIAN '98),
  The 4th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS '98).

The 3rd International Workshop on Tools and Algorithms for the Construction and Analysis of Systems (TACAS '97).

- Book Chapter Review:
  Chapter 8, Process Algebra and Equivalences, in Doron Peled, *Software Reliability Methods*, Springer 2001.
- Member, IEEE Computer Society, since 1999.

Conference Presentations

- Tabled Resolution + Constraints: A Recipe for Model Checking Real-Time Systems, IEEE Real-Time Systems Symposium, Orlando, Florida, November 2000.
- Software Design, Specification, and Verification: Lessons Learned from the Rether Case Study, International Conference on Algebraic Methodology and Software Technology, Sydney, Australia, December 1997.
- Thermal Conductivity of the BSCCO Family High-Tc Single Crystals, the American Physical Society Meeting, Seattle, March 1993.

Teaching Experiences

- Teaching Assistant, Operating Systems (CSE506 and CSE306) and Introduction to Theory of Computation(CSE303), 1994, 1996.
- Laboratory Instructor and Teaching Assistant, Physics for Life Sciences Students (PHY103, PHY104), 1991-1992.

Honors and Awards

- 1997-1998, Member, Graduate Student Council of the Computer Science Department.
- 1994, Winner, Algorithms Programming Contest, SUNY at Stony Brook.
- 1992-1993, Vice Chairman, Stony Brook Chinese Student and Scholar Association.
- 1989-1991, Outstanding Student Award, Beijing University.