Curriculum Vitae

Richard D. Schlichting

Education

B.A. with Honors (Mathematics with Computer Science option, History), May 1977
College of William and Mary, Williamsburg, Virginia

M.S. (Computer Science), May 1979
Cornell University, Ithaca, New York

Ph.D. (Computer Science), January 1982
Cornell University, Ithaca, New York
Dissertation: Axiomatic Verification to Enhance Software Reliability
Advisor: Prof. F.B. Schneider

Academic Experience

Assistant Professor, Dept. of Computer Science, University of Arizona, 1982-1988.

Visiting Research Scientist, Dept. of Computer Science, Tokyo Institute of Technology, 1990.

Associate Professor, Dept. of Computer Science, University of Arizona, 1988-1994.

Professor, Dept. of Computer Science, University of Arizona, 1994-2002 (on leave 2000-2002).

Adjunct Professor, Dept. of Computer Science, University of Arizona, since 2002.

RADM Frank Leighton USNA 1909/Class of 1948 Distinguished Visiting Professor of Information Technology, Computer Science Dept., United States Naval Academy, since 2018.

Academic Service

Associate Department Head, Dept. of Computer Science, University of Arizona, 1993.

Acting Department Head, Dept. of Computer Science, University of Arizona, 1993-1995.

Industry Experience

Visiting Chief Researcher, Hitachi Central Research Laboratory, Tokyo, 1996-1997.

Technology Leader, AT&T Labs–Research, 2000.

Executive Director,[1] Dependable Distributed Computing and Communication Department, AT&T Labs–Research, 2001-2004.

Executive Director,[1] Software Systems Department, AT&T Labs–Research, 2004-2012.

Executive Director, Software and Distributed Systems Department, AT&T Labs–Research, 2012-2013.

Distinguished Member Technical Staff–Research, AT&T Labs–Research, 2013-2014.

Distinguished Inventive Scientist, AT&T Labs–Research, 2014-2017.

[1] 2016 title equivalent.

Honors and Awards

Phi Beta Kappa, College of William and Mary, December 1976.

Three Year Teaching Award Fellowship, Cornell University, 1980-81.

Faculty of Science Distinguished Teaching Award, University of Arizona, May 1987.

Japanese International Information Science Foundation Travel Award, April 1988.

1993-94 Distributed Systems Engineering Journal Premium (best paper award), Institution of Electrical Engineers (UK), for the paper ''Consul: A Communication Substrate for Fault-Tolerant Distributed Systems, by S. Mishra, L. Peterson, R. Schlichting,'' August 1995.

Named ACM Fellow, for ''Influential research on fault-tolerant and dependable computing, configurable network protocols, and distributed systems. Outstanding leadership of and service to the computing community,'' March 2001.

Best Paper Award, IFIP/ACM International Conference on Distributed Systems Platforms (Middleware 2001), for the paper ''Providing QoS Customization in Distributed Object Systems, by J. He, M. Hiltunen, M. Rajagopalan, R. Schlichting,'' November 2001.

Named IEEE Fellow, ''For contributions to dependable computing and distributed systems,'' January 2002.

Best Student Paper Award, Sixth IEEE International Conference on Peer-to-Peer Computing (P2P2006), for the paper ''Peer-to-Peer Error Recovery for Hybrid Satellite-Terrestrial Networks, by E. Weigle, M. Hiltunen, R. Schlichting, V. Vaishampayan, A. Chien,'' September 2006.

Best Student Paper Award, ACM SIGMETRICS GreenMetrics 2009 Workshop, for the paper ''Blackbox Prediction of the Impact of DVFS on End-to-End Performance of Multitier Systems, by S. Chen, K. Joshi, M. Hiltunen, R. Schlichting, W. Sanders,'' June 2009.

IFIP Outstanding Service Award, ''For outstanding contributions to IFIP and the Informatics Community,'' September 2011.

Jean-Claude Laprie Award in Dependable Computing, for the paper ''Fail-Stop Processors: An Approach to Designing Fault-Tolerant Computing Systems, *ACM Transactions on Computer Systems 1*,3 (August 1983), by R. Schlichting, F. Schneider,'' June 2017.

Professional Activities

Member ACM (Fellow), IEEE (Fellow).

IFIP Working Group 10.4 (Dependable Computing and Fault-Tolerance)

Member, since July 1986.

Chair, January 2006 - December 2012.

IEEE Computer Society Technical Committee on Dependable Computing and Fault Tolerance

Vice Chair, January 1996 - December 1997.

Chair, January 1998 - December 1999.

Steering committee member, since January 2000.

Editorial Boards

IEEE Concurrency, July 1995 - June 1999.

IEEE Transactions on Computers, April 1996 - August 2000.

IEEE Transactions on Parallel and Distributed Systems, January 2001 - December 2004.

IEEE Transactions on Software Engineering, August 2004 - December 2008.

Founder, JapanCS Project. Project used the Internet to increase the awareness and accessibility of Japanese scientific and technical information (JSTI) related to computing; maintained on-line electronic archives of JSTI available for anonymous FTP or via the Web, 1990-2000.

Referee for *ACM TOPLAS*, *ACM TOCS*, *Journal ACM*, *ACM Computing Surveys*, *IEEE Computer*, *IEEE Trans. on Soft. Eng.*, *IEEE Trans. on Computers*, *IEEE Trans. on Parallel and Distributed Computing*, *IEEE Trans. on Dependable and Secure Computing*, *Infor. Proc. Letters*, *Software—Practice and Experience*, *Distributed Computing*, *Science of Computer Programming*, *Acta Informatica*, *Int. Journal of Parallel Processing*, *Journal of Parallel and Dist. Computing*, *Distributed Systems Engineering*, *Computer Systems Science and Engineering*, *The Computer Journal*, *IEE Electronic Letters*, *Empirical Software Engineering*, *Computer Communication Review*, *IEEE Internet Computing*, numerous conferences.

Reviewer for NSF, AFOSR, ARO, DOE, NSRC, MIT Press, Addison-Wesley, MacMillan, McGraw-Hill, PWS.

Advisory Boards and Evaluation Committees

Member, numerous NSF proposal evaluation panels, since 1986.

Site Visitor, NSF CISE Institutional Infrastructure and Research Infrastructure programs, 1989, 2003.

Member, Advisory Board, Dependable Computing and Fault-Tolerant Systems series, Springer-Verlag, 1989-1995.

Member, NSF Research Initiation Award Panels, 1991, 1992.

Member, Association of Research Libraries Working Group on Japanese Scientific and Technical Information, 1994-1996.

Member, DOE ACTS Toolkit Review Team, Lawrence Livermore National Laboratory, January 2000.

Member, Advisory Board, EU ResumeNet Project, 2009-2011.

Member, Fellow Evaluation Committee, IEEE Computer Society, 2016, 2018.

Member, Industrial Advisory Board, Department of Electrical and Computer Engineering, Rutgers University, 2015-2017.

Conference Leadership Activities

Local Arrangements Chair, 12th ACM Symposium on Operating Systems Principles, Litchfield Park, AZ, December 1989.

General Chair, 2nd IFIP Working Conference on Dependable Computing for Critical Applications, Tucson, AZ, February 1991.

Program Vice-Chair, 10th Symposium on Reliable Distributed Systems, Pisa, Italy, October 1991.

Program Chair, 13th Symposium on Reliable Distributed Systems, Dana Point, CA, October 1994.

Program Vice-Chair (‘‘Distributed Resource Management and Scheduling’’), 16th Conference on Distributed Computing Systems, Hong Kong, May 1996.

Co-Chair, International Workshop on Fault-Tolerance in Information Systems (FTIS95), Tokyo,

Japan, November 1995.

Program Co-Chair, International Workshop on Dependability in Advanced Computing Paradigms, Hitachi City, Japan, June 1996.

Program Co-Chair, 4th International Conference on Configurable Distributed Systems, Annapolis, MD, May 1998.

Program Co-Chair, DSN-2003 Dependable Computing and Communication Symposium, San Francisco, CA, June 2003.

U.S. Technical Chair, U.S.-Japan Workshop on Critical Infrastructure Protection; sponsored by NSF, U.S. Department of Homeland Security, Japan Ministry of Education, Sports, Science and Technology (MEXT), and Japan Science and Technology Agency (JST), Washington, DC, September 2004.

Invited Keynote Speaker

24th Symposium on Reliable Distributed Systems (SRDS), Orlando, FL, October 2005.

6th International Symposium on Network Computing and Applications (NCA), Boston, MA, July 2007.

DSN 2008 Workshop on Architecting Dependable Systems (WADS), Anchorage, AK, June 2008.

5th Latin-American Symposium on Dependable Computing (LADC), Sao Jose dos Campos, Brazil, April 2011.

32nd International Conference on Distributed Computing Systems (ICDCS), Macau, China, June 2012.

International Symposium of the Interfaculty Initiative in Electrical Energy and Communications, Tokyo Metropolitan University, Tokyo, Japan, August 2012.

23rd International Symposium on Software Reliability Engineering (ISSRE), Dallas, TX, November 2012.

34th Symposium on Reliable Distributed Systems (SRDS), Montreal, Quebec, Canada, October 2015.

Program Committee Member

6th Symposium on Reliability in Distributed Software and Database Systems, Williamsburg, VA, March 1987.

17th Fault-Tolerant Computing Symposium, Pittsburgh, PA, July 1987.

8th Conference on Distributed Computing Systems, San Jose, CA, June 1988.

18th Fault-Tolerant Computing Symposium, Tokyo, Japan, June 1988.

9th Conference on Distributed Computing Systems, Newport Beach, CA, June 1989.

19th Fault-Tolerant Computing Symposium, Chicago, IL, June 1989.

8th Symposium on Reliable Distributed Systems, Seattle, WA, October 1989.

Workshop on Operating Systems for the 90's and Beyond, Dagstuhl, Germany, July 1991.

3nd IFIP Working Conference on Dependable Computing for Critical Applications, Modello, Italy, September 1992.

11th Symposium on Reliable Distributed Systems, Houston, TX, October 1992.

2nd Workshop on the Management of Replicated Data, Monterey, CA, November 1992.

12th Symposium on Reliable Distributed Systems, Princeton, NJ, October 1993.

4th IFIP Working Conference on Dependable Computing for Critical Applications, San Diego, CA, January 1994.

2nd International Workshop on Configurable Distributed Systems, Pittsburgh, PA, March 1994.

24th Fault-Tolerant Computing Symposium, Austin, TX, June 1994.

1st International Computer Performance and Dependability Symposium, Erlangen, Germany, April 1995.

2nd Symposium on Autonomous Decentralized Systems, Phoenix, AZ, April 1995.

4th Workshop on Heterogeneous Processing, Santa Barbara, CA, April 1995.

15th Conference on Distributed Computing Systems, Vancouver, Canada, May 1995.

25th Fault-Tolerant Computing Symposium, Pasadena, CA, June 1995.

5th IFIP Working Conference on Dependable Computing for Critical Applications, Urbana-Champaign, IL, September 1995.

14th Symposium on Reliable Distributed Systems, Bad-Neuenahr, Germany, September 1995.

3rd Pacific Rim International Symposium on Fault-Tolerant Systems, Newport Beach, CA, December 1995.

3rd International Conference on Configurable Distributed Systems, Annapolis, MD, May 1996.

6th IFIP Working Conference on Dependable Computing for Critical Applications, Garmisch, Germany, March 1997.

4th Pacific Rim International Symposium on Fault-Tolerant Systems, Taipei, Taiwan, December 1997.

28th Fault-Tolerant Computing Symposium, Munich, Germany, June 1998.

2nd Information Survivability Workshop, Orlando, FL, October 1998.

7th IFIP Working Conference on Dependable Computing for Critical Applications, San Jose, CA, January 1999.

18th Symposium on Reliable Distributed Systems, Lausanne, Switzerland, October 1999.

5th Pacific Rim International Symposium on Dependable Computing, Hong Kong, December 1999.

4th International Conference on Coordination Models and Languages, Cyprus, September 2000.

3rd Information Survivability Workshop, Boston, October 2000.

IX Brazilian Symposium on Fault-Tolerant Computing, Florianopolis-SC, Brazil, March 2001.

International Conference on Dependable Systems and Networks 2001, Goteborg, Sweden, July 2001.

5th International Conference on Coordination Models and Languages, York, UK, April 2002.

22nd International Conference on Distributed Computing Systems, Vienna, Austria, May 2002.

International Conference on Dependable Systems and Networks 2002, Washington, DC, June 2002.

1st Workshop on Self-Repairing and Self-Configurable Distributed Systems, Osaka, Japan, October 2002.

DSN-2004 Dependable Computing and Communication Symposium, Florence, Italy, June 2004.

2nd International Conference on Component Deployment, Edinburgh, Scotland, May 2004.

2nd International Service Availability Symposium, Berlin, Germany, April 2005.

1st CRIS International Workshop on Critical Information Infrastructures, Linkoping, Sweden, May 2005.

2nd International Conference on Autonomic Computing, Seattle, Washington, June 2005.

2nd Latin-American Symposium on Dependable Computing, Salvador, Bahia, Brazil, October 2005.

6th International Middleware Conference, Grenoble, France, November 2005.

24th Symposium on Reliable Distributed Systems, Orlando, Florida, October 2005.

DSN-2006 Dependable Computing and Communication Symposium, Philadelphia, Pennsylvania, June 2006.

DSN-2006 Workshop on Architecting Dependable Systems, Philadelphia, Pennsylvania, June 2006.

20th International Conference on Advanced Information Networking and Applications, Vienna, Austria, April 2006.

4th International Conference on Autonomic Computing, Jacksonville, Florida, June 2007.

DSN-2007 Dependable Computing and Communication Symposium, Edinburgh, UK, June 2007.

DSN-2007 Workshop on Architecting Dependable Systems, Edinburgh, UK, June 2007.

3rd Workshop on Hot Topics in System Dependability, Edinburgh, UK, June 2007.

3rd Latin-American Symposium on Dependable Computing, Morelia, Mexico, September 2007.

2nd International Workshop on Distributed Autonomous Network Management Systems, Washington, DC, November 2007.

5th International Conference on Autonomic Computing, Chicago, Illinois, June 2008.

DSN-2008 Dependable Computing and Communication Symposium, Anchorage, Alaska, June 2008.

DSN-2008 Workshop on Architecting Dependable Systems, Anchorage, Alaska, June 2008.

4th International Workshop on Exception Handling, Atlanta, GA, November 2008

3rd International Workshop on Distributed Autonomous Network Management Systems, New Orleans, LA, November 2008.

4th Workshop on Hot Topics in System Dependability, San Diego, CA, December 2008.

18th International World Wide Web Conference (Performance, Scalability and Availability track), Madrid, Spain, April 2009.

6th International Conference on Autonomic Computing, Barcelona, Spain, June 2009.

DSN-2009 Dependable Computing and Communication Symposium, Lisbon, Portugal, June 2009.

8th International Symposium on Network Computing and Applications, Cambridge, MA, July 2009.

4th Latin-American Symposium on Dependable Computing, Joao Pessoa, Brazil, September 2009.

19th International World Wide Web Conference Raleigh-Durham, NC, April 2010.

7th International Conference on Autonomic Computing, Washington, DC, June 2010.

DSN-2010 Dependable Computing and Communication Symposium, Chicago, IL, June 2010.

Workshop on Assurances for Self-Adaptive Systems, Szeged, Hungary, September 2011.

32nd International Conference on Distributed Computing Systems, Macau, China, June 2012.

9th International Conference on Autonomic Computing, San Jose, CA, September 2012.

13th International Middleware Conference, Montreal, Quebec, Canada, December 2012.

14th International Middleware Conference, Beijing, China, December 2013.

23rd International World Wide Web Conference, Seoul, South Korea, April 2014.

34th International Conference on Distributed Computing Systems, Madrid, Spain, June 2014.

35th International Conference on Distributed Computing Systems, Columbus, OH, June 2015.

16th International Middleware Conference, Vancouver, Canada, December 2015.

1st Conference on Network Function Virtualization and Software Defined Networks, San Francisco, CA, November 2015.

1st Conference on Internet-of-Things Design and Implementation, Berlin, Germany, April 2016.

36th International Conference on Distributed Computing Systems, Nara, Japan, June 2016.

2nd Workshop on Dependability Issues on SDN and NFV, Toulouse, France, June 2016.

2nd Conference on Network Function Virtualization and Software Defined Networks, Palo Alto, CA, November 2016.

17th International Middleware Conference, Trento, Italy, December 2016.

47th International Conference on Dependable Systems and Networks, Denver, CO, June 2017.

3rd Conference on Network Function Virtualization and Software Defined Networks, Berlin, Germany, November 2017.

18th International Middleware Conference Industry Track, Las Vegas, NE, December 2017.

48th International Conference on Dependable Systems and Networks, Luxembourg City, Luxembourg, June 2018.

49th International Conference on Dependable Systems and Networks, Portland, OR, June 2019.

50th International Conference on Dependable Systems and Networks, Valencia, Spain, June 2020.

Invited Participant

Meetings of IFIP Working Group 10.4, June 1985, January 1986, June 1986.

Workshop on Fault-Tolerant Distributed Computing, Pacific Grove, CA, March 1986.

Workshop on Design Principles for Experimental Distributed Systems, West Lafayette, IN, October 1986.

Workshop on Experiences with Distributed Systems, Dagstuhl, West Germany, September 1987.

Workshop on Integrated Approach for Fault-Tolerance, Greenbelt, MD, May 1989.

U.S.- Japan Fulbright Commission Orientation Panel, Tokyo, Japan, May 1990.

Joint SIGGRAPH/SIGCOMM Workshop on Graphics and Networking, Boulder, CO, January 1991.

Operating Systems of the 90s and Beyond, Dagstuhl, Germany, July 1991.

Workshop on Japanese Information in Computers, Electronics, and Semiconductors, Austin, TX, February 1993.

Forum on R & D for the National Information Infrastructure: Technical Challenges, NIST, Gaithersburg, MD, February 1994.

Meeting on Japanese Scientific and Technical Information: U.S. Industry Needs, Access and Policy Issues, Competitiveness Task Force, Committee on Japan, National Research Council, June 1994.

Workshop on Unifying Theory and Practice in Distributed Systems, Dagstuhl, Germany, September 1994.

Workshop on High Assurance Computing, Naval Research Laboratory, Washington, DC, February 1995.

OOPSLA ’95 Workshop on Reliability and Scalability in Distributed Object Systems, Austin, TX, October 1995.

U.S.- Japan Fulbright Commission Orientation Panel, Tokyo, Japan, May 1997.

NSF Workshop on International Collaboration in Computer Science, Portland, OR, October

1997.

EU-USA Workshop on Dependability in the Information Society: Defining an Agenda for Collaboration, Venice, Italy, April 1999.

NSF/SIGDA Embedded Systems Workshop, Atlanta, GA, November 2001.

EU-US Workshop on R&D Strategy for a Dependable Information Society: EU-US Collaboration, Dusseldorf, Germany, December 2001.

EU MIDAS Workshop on Middleware for Composable and Adaptable Services, Montreux, Switzerland, November 2002.

2nd U.S.-Japan Workshop on Critical Information Infrastructure Protection, Tokyo, Japan, June 2005.

National Cyber Defense Initiative Industry Workshop, Marina del Rey, CA, November 2008.

Workshop on Software Engineering for Self-Adaptive Systems, Dagstuhl, Germany, October 2010.

Grants and Contracts

Faculty Associate, The Design and Analysis of Distributed Programs, NSF, $197,521, July 1982 - December 1984.

Co-Principal Investigator, The Saguaro Distributed Operating System, AFOSR, $614,811, January 1984 - February 1989.

Faculty Associate, Coordinated Experimental Research—A Programming Systems Laboratory, NSF, $3,634,000, June 1984 - November 1989.

Co-Principal Investigator, Concurrent and Fault-Tolerant Programming, NSF, $292,654, July 1984 - December 1987.

Co-Principal Investigator, Topics in Concurrent Programming, NSF, $453,354, August 1987 - July 1990.

Faculty Associate, A Laboratory for Programming Languages and Software Systems, NSF, $1,976,145, July 1989 - June 1994.

Co-Principal Investigator, A Tool-Based Software Laboratory for Distributed and Parallel Computing, NSF, $209,002, May 1989 - October 1991.

Principal Investigator, Japan Long-Term Visit: Distributed and Fault-Tolerant Computing, NSF U.S.-Japan Cooperative Science Program, $30,070, December 1989 - August 1991.

Principal Investigator, Fault-Tolerant Programming, NSF, $210,626, August 1990 - January 1994.

Principal Investigator, Abstractions and Paradigms for Dependable Computing, ONR, $289,188, October 1990 - September 1993.

Faculty Associate, System Support for High-Speed Networking, DARPA, $1,948,520, July 1991 - December 1994.

Principal Investigator, Japan Short-Term Visit: Fault-Tolerant Programming Based on Attribute Grammars, NSF U.S.-Japan Cooperative Science Program, $16,023, April 1992 - March 1994.

Principal Investigator, Constructing Scientific Applications as Heterogeneous Distributed Programs, NSF, $272,868, August 1992 - January 1996.

Co-Principal Investigator, Constructing Scientific Applications as Heterogeneous Distributed Programs, NASA Graduate Student Researcher Program, $50,411, July 1992 - August 1994.

Principal Investigator, Modularizing Fault-Tolerant Protocols, ONR AASERT Program, $112,553, June 1993 - May 1996.

Principal Investigator, Abstractions and Paradigms for Dependable Computing (renewal), ONR, $200,530, October 1993 - March 1996.

Principal Investigator, Constructing Scientific Applications from Heterogeneous Resources, NASA, $22,000, November 1994 - October 1995.

Principal Investigator, Constructing Scientific Applications from Heterogeneous Resources (renewal), NASA, $25,020, February 1996 - January 1997.

Principal Investigator, Disseminating Computer Science Information from Japan, ONR, $49,997, June 1992 - May 1997.

Co-Principal Investigator, Heterogeneous Interconnectivity in High Performance Simulation, NSF, $120,000, August 1994 - September 1998.

Principal Investigator (1998-2000), Faculty Associate (1995-1998), A Laboratory for Scalable Systems, NSF Research Infrastructure program, $999,995, July 1995 - June 2000.

Principal Investigator, An Architectural Framework for High Assurance Computer Systems, ONR, $499,130, January 1996 - December 1998.

Principal Investigator, Japan Long-Term Visit: Issues in Heterogeneous High Performance Computing, NSF/CGP Cooperative Science Program, $100,517, June 1996 - May 1999.

Principal Investigator, Designing and Implementing Adaptive Distributed Systems, NSF/DARPA, $200,000, July 1996 - June 1999.

Principal Investigator, Disseminating Computer Science Information from Japan (renewal), ONR, $45,000, June 1997 - May 2000.

Principal Investigator, An Integrated Framework for Dynamic Fine-Grain QoS, DARPA, $1,451,198, June 1997 - May 2002.

Principal Investigator, An Adaptive System Approach to Dependable Services for Autonomous Decentralized Systems, Hitachi Systems Development Laboratory, $75,000, July 1998 - June 2000.

Principal Investigator, Heterogeneous Computing, Hitachi Central Research Laboratory, $15,000, October 1998 - March 2000.

Principal Investigator, Using Code Shipping to Optimize Distributed System Execution, NSF, $120,000, August 1999 - July 2001.

Co-Principal Investigator, A Simulation Platform for Experimentation and Evaluation of Distributed Computing Systems (SPEED-CS), NSF, $999,389, August 1999 - July 2002.

Principal Investigator, Coordinated Fast Adaptation in Wireless Systems, NSF, $635,967, September 1999 - August 2004.

Contributing Investigator, A Holistic Approach to Compiler-Assisted Optimization of Software Systems, NSF, $580,000, September 2004 - August 2009. (University of Arizona, S. Debray, PI.)

Contributing Investigator, A Compiler-Enabled Model- and Measurement-Driven Adaptation Environment for Dependability and Performance, NSF, $1,2000,000, July 2004 - July 2008. (University of Illinois at Urbana-Champaign, W. Sanders, PI.)

Contributing Investigator, EnLIGHTened Computing: Highly-Dynamic Grid E-Science Applications Driving Adaptive Optical Control Plane and Compute Resources, NSF, $50,000, September 2005 - August 2006. (MCNC, G. Karmous-Edwards, PI.)

Contributing Investigator, A Framework for Optimizing Embedded Systems, NSF, $312,000, September 2006 - August 2010. (University of Arizona, G. Andrews, PI.)

Dissertations and Theses Supervised

Titus D.M. Purdin, Enhancing File Availability in Distributed Systems (The Saguaro File System), Ph.D. Dissertation, August 1987.

Roger Hayes, UTS: A Type System for Facilitating Data Communication, Ph.D. Dissertation, August 1989.

Shivakant Mishra, Consul: A Communication Substrate for Fault-Tolerant Distributed Programs, Ph.D. Dissertation, December 1991.

Karen J. Hay, A Proof Methodology for Verification of Real-Time and Fault-Tolerance Properties of Distributed Programs, Ph.D. Dissertation, August 1993.

Vicraj Thomas, FT-SR: A Programming Language for Constructing Fault-Tolerant Distributed Systems, Ph.D. Dissertation, August 1993.

David E. Bakken, Supporting Fault-Tolerant Parallel Programming in Linda, Ph.D. Dissertation, August 1994.

Patrick T. Homer, Constructing Scientific Applications from Heterogeneous Resources, Ph.D. Dissertation, December 1994.

Matti A. Hiltunen, Configurable Fault-Tolerant Distributed Services, Ph.D. Dissertation, August 1996.

Nina T. Bhatti, A System for Constructing Configurable High-Level Protocols, Ph.D. Dissertation, December 1996.

Tarak Parekh, Extending Schooner for Heterogeneous Computing and Semantic Transformations, M.S. Thesis, May 1999.

Sameer Verkhedkar, A Highly Customizable System Monitoring and Control Tool, M.S. Thesis, August 1999.

John Lauer, An Extensible QoS Architecture for Distributed Systems, M.S. Thesis, August 2000.

Patrick G. Bridges, Composing and Coordinating Adaptations in Cholla, Ph.D. Dissertation, December 2002.

Jun He, Customizable Multi-Dimensional QoS in Distributed Systems, Ph.D. Dissertation, December 2004.

Mohan Rajagopalan, Optimizing System Performance and Dependability Using Compiler Techniques, Ph.D. Dissertation, May 2006. *Winner, William C. Carter Award for best paper in the IEEE/IFIP Dependable Systems and Networks Conference based on dissertation research, June 2005*.

Patents and Patent Applications

M. Hiltunen, R. Schlichting, K. Joshi, W. Sanders. Systems, Devices, and Methods for Initiating Recovery, U.S. Patent 7536595, May 19, 2009.

M. Hiltunen, R. Schlichting, V. Vaishampayan. Methods and Systems For Transferring Data Over Electronic Networks, U.S. Patent 7627549, December 1, 2009.

M. Hiltunen, M. Rajagopalan, R. Schlichting, T. Jim. System and Method for Enforcing Application Security Policies Using Authenticated System Calls, U.S. Patent 7913092, March 22, 2011.

S. Chen, W. Sanders, M. Hiltunen, K. Joshi, R. Schlichting. Quantifying the Impact of Network Latency on the End-to-End Response Time of Distributed Applications, U.S. Patent 8073655, December 6, 2011.

M. Hiltunen, R. Schlichting, V. Vaishampayan. Methods and Systems For Transferring Data Over Electronic Networks, U.S. Patent 8131693 (continuation), March 6, 2012.

M. Hiltunen, K. Joshi, G. Jung, C. Pu, R. Schlichting. Dynamically Allocating Multitier Applications Based on Application Requirements and Performance and Reliability of Resources, U.S. Patent 8489939, July 16, 2013.

M. Hiltunen, K. Joshi, G. Jung, C. Pu, R. Schlichting. Dynamically Allocating Multitier Applications Based on Application Requirements and Performance Reliability of Resources, U.S. Patent 8839049 (continuation), September 16, 2014.

M. Hiltunen, K. Joshi, G. Jung, C. Pu, R. Schlichting. Method and Apparatus for Providing Resource Allocation Policy, U.S. Patent 8850449, September 30, 2014.

M. Hiltunen, R. Schlichting. Collaborative QoS for Service Oriented Architectures, U.S. Patent 8990369, March 24, 2015.

M. Hiltunen, K. Joshi, G. Jung, R. Schlichting. Application Deployment Engine, U.S. Patent 10097621, October 9, 2018.

D. Bragg, P. DeFazio, R. Erickson, J. Oetting, B. Prasad, R. Schlichting, A. Vulpas. Recursive Modularization of Service Provider Components to Reduce Service Delivery Time and Cost. U.S. Patent 10248472, April 2, 2019.

M. Hiltunen, K. Joshi, R. Schlichting, H. Matsuba. Topology Aware Load Balancing Engine. U.S. Patent 10291513, May 14, 2019.

Abhigyan, K. Joshi, R. Schlichting, M. Hiltunen, Y. Ozawa. Creating Cross-Service Chains of Virtual Network Functions in a Wide Area Network. U.S. Patent 10348638, July 9, 2019.

Y. Chen, M. Hiltunen, K. Joshi, R. Schlichting, K. Uehara, X. Yu. Adaptive Software-Defined Storage for Cloud Storage Workloads. U.S. Patent Application, filed April 30, 2018.

Journal Publications

R. Schlichting, F. Schneider. Fail-Stop Processors: An Approach to Designing Fault-Tolerant Computing Systems. *ACM Transactions on Computer Systems 1*,3 (August 1983), 222-238. *Winner, Jean-Claude Laprie Award in Dependable Computing, June 2017*.

F. Schneider, D. Gries, R Schlichting. Fault-Tolerant Broadcasts. *Science of Computer Programming 4* (1984), 1-15.

R. Schlichting, F. Schneider. Using Message-Passing for Distributed Programming: Proof Rules and Disciplines. *ACM Transactions on Programming Languages and Systems 6*,3 (July 1984), 402-431.

R. Schlichting. A Technique for Estimating Performance of Fault-Tolerant Programs. *IEEE Transactions on Software Engineering SE-11*,6 (June 1985), 555-563.

G. Andrews, R. Schlichting, R. Hayes, T. Purdin. The Design of the Saguaro Distributed Operating System, *IEEE Transactions on Software Engineering SE-13*,1 (January 1987), 104-118.

R. Hayes, R. Schlichting. Facilitating Mixed Language Programming in Distributed Systems. *IEEE Transactions on Software Engineering SE-13*,12 (December 1987), 1254-1264.

T. Purdin, R. Schlichting, G. Andrews. A File Replication Facility for Berkeley UNIX. *Software—Practice and Experience 17*,12 (December 1987), 923-940.

R. Hayes, S. Manweiler, R. Schlichting. A Simple System for Constructing Distributed, Mixed Language Programs. *Software—Practice and Experience 18*,7 (July 1988), 641-660.

L. Peterson, N. Buchholz, R. Schlichting. Preserving and Using Context Information in Interprocess Communication. *ACM Transactions on Computer Systems 7*,3 (August 1989), 217-246.

R. Hayes, N. Hutchinson, R. Schlichting. Integrating Emerald into a System for Mixed-Language Programming. *Computer Languages 15*,2 (1990), 95-108.

D. Notkin, R. Schlichting. Computer Science in Japanese Universities. *IEEE Computer 26*,5 (May 1993), 62-70.

S. Mishra, L. Peterson, R. Schlichting. Experience with Modularity in Consul. *Software—Practice and Experience 23*, 10 (October 1993), 1059-1075.

S. Mishra, L. Peterson, R. Schlichting. Consul: A Communication Substrate for Fault-Tolerant Distributed Programs. *Distributed Systems Engineering 1*, 2 (December 1993), 87-103. *Winner, DSE 1993 Best Paper Award*.

P. Homer, R. Schlichting. A Software Platform for Constructing Scientific Applications from Heterogeneous Resources. *Journal of Parallel and Distributed Computing* (Special Issue on Heterogeneous Processing) *21*, 3 (June 1994), 301-315.

P. Homer, R. Schlichting. Using Schooner to Support Distribution and Heterogeneity in the Numerical Propulsion System Simulation Project. *Concurrency—Practice and Experience 6*, 4 (June 1994), 271-287.

R. Schlichting, V. Thomas. Programming Language Support for Writing Fault-Tolerant Distributed Software. *IEEE Transactions on Computers* (Special Issue on Fault-Tolerant Computing) *44*, 2 (February 1995), 203-212.

D. Bakken, R. Schlichting. Supporting Fault-Tolerant Parallel Programming in Linda. *IEEE Transactions on Parallel and Distributed Systems 6*, 3 (March 1995), 287-302.

L. Malhis, W. Sanders, R. Schlichting. Numerical Performability Evaluation of a Group Multicast Protocol. *Distributed Systems Engineering* (Special Issue on Performance Evaluation of Distributed Systems) *3*, 1 (March 1996), 39-52.

M. Hiltunen, R. Schlichting. Adaptive Distributed and Fault-Tolerant Systems. *Computer Systems Science and Engineering 11*, 5 (September 1996), 275-285.

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