

## VITA

**Lori A. Clarke**

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### **Education:**

University of Rochester, B.A. Mathematics, 1969  
University of Colorado, Ph.D. Computer Science, 1976

### **Summary of Experience:**

**Chair**, School of Computer Science, University of Massachusetts Amherst, September 2011-

**Professor**, School/Department of Computer Science, University of Massachusetts, (September 1986-present), Associate Professor, (September 1981-August 1986), Assistant Professor, (September 1976-August 1981), Instructor (September 1975-August 1976). Research interests include finite-state verification of distributed and sequential systems, requirements engineering, software architecture, and medical safety.

**Department Associate Chair**, Department of Computer Science, University of Massachusetts Amherst, (September 1981- August 1985)

**Graduate Assistant**, Computer Science Department, University of Colorado, Teaching Assistant, September 1972-May 1973; Research Assistant, September 1971-May 1972, June 1973-August 1975.

**Programmer**, National Center for Atmospheric Research, Boulder, Colorado (February 1971-February 1974). Worked on various scientific programming and modeling projects.

**Programmer**, School of Medicine, University of Rochester (February 1970-January 1971). Worked on various research projects for the School of Medicine, Preventive Psychiatry, and Department of Sociology.

### **Awards and Honors:**

- ACM SIGSOFT Outstanding Research Award, 2012
- The University of Massachusetts Outstanding Accomplishments in Research and Creative Activity Award, September 2011
- IEEE Fellow, 2011
- College of Natural Sciences and Mathematics Faculty Outstanding Service Award, 2009
- Best Paper Award, 1st International Workshop on Model-Based Trustworthy Health Information Systems (MOTHIS), Nashville, Tennessee, September 30, 2007

- 2004 Distinguished Engineering Alumni Award in the Research and Invention Category, University of Colorado, Boulder
- IEEE Computer Society and ACM SIGSOFT Certificate of Appreciation, May 2003
- 2002 ACM SIGSOFT Distinguished Service Award
- ACM Fellow, 1998
- Distinguished Lectures: Virginia Tech University, 2013; University of Minnesota, December 2012; University of Southern California, April 2012; University of Texas, November 2011; University of Nebraska, January 2006; University of Pennsylvania, September 2002; University of California, Irvine, May 2001; Michigan State University, January 2000; Johns Hopkins University, November 1992
- Keynote Addresses: Foundations of Software Engineering, November 2012, International Conference on Software Engineering, Leipzig, Germany, May 2008; Monterey Workshop, September 2007; Monterey Workshop on Software Engineering for Embedded Systems, September 2003; AQuIS, March 1998, Venice, Italy; Quality Week, May 1997, San Francisco, CA
- Most Influential Paper Award of the ACM SIGSOFT/IEEE 8th International Conference on Software Engineering, (Runner-up), presented at the 18th International Conference on Software Engineering (ICSE'96), Berlin, Germany, March 25-29, 1996
- ACM Recognition of Service Award, 1994, 1998
- Faculty Fellowship Award, University of Massachusetts, 1993
- Chancellor's Distinguished Faculty Award, University of Massachusetts, April 1991

### **Professional Affiliations and Activities:**

- Computing Research Association (CRA) Board of Directors (July 1999 - June 2009)  
 Vice-chair, Board of Directors (March 2005 - February 2009)  
 Chair, Membership Committee (2004 -2006)  
 Program Committee, Snowbird Conference (2004)  
 Chair, Academic Career Workshop (2002, 2004, 2008 co-chair)  
 Organizing Committee, CRA Workshop on Research Related to National Security (September 2002)  
 Member, Undergraduate Award Committee (2001, 2002)
- CRA's Committee on the Status of Women in Computing Research (CRA-W) (2001- )  
 Grad Cohort co-chair (2009, 2010, 2011, 2012, 2013)  
 CRA-W Co-chair (October 2005 – October 2008)  
 Funding Czar ( 2004 - 2005)  
 Panelist, Cohort for Associate Professors Program (CAPP) (2004, 2005, 2008)  
 Panelist, CRAW Career Mentoring Workshop (2005, 2006)  
 Panelist, CRAW Grad Student Cohort Workshop (2004, 2008, 2009)  
 Selection Committee, Distributed Mentor Program (2002)  
 Distributed REU/Distributed Mentor 2001, 2002, 2004 (2 students), 2005, 2011  
 (CRAW was awarded the 2005 National Science Board Award for Public Service and the 2003 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring)
- ACM's Distinguished Engineer/Scientist/Member Awards Committee, 2008-2013
- Department Review Committees: Department of Computer Science and Engineering, Ohio State University (2008); Department of Computer Science, University of Nebraska, Lincoln (2006); Department of Computer Science, University of Virginia, (2005, 2009)
- Advisory Board, Department of Computer Science, U. of Colorado, Boulder, (2002-2011)

- New England AGEP (NEAGEP) advisory board member, 2012
- National Center for Women and Information Technology (2002- )
- Special Editor, IEEE Transactions on Software Engineering (2002)
- IEEE Publications Board (2000-2001)
- EIC Search Committee, IEEE Transactions on Software Engineering (2005 chair, 2001)
- Associate Editor, IEEE Transactions on Software Engineering (1995-2000), ACM Transactions on Programming Languages and Systems (1988-1994)
- ACM Special Interest Group on Software Engineering (SIGSOFT)
  - Past Chair (1997-2001)
  - Chair (1993-1997)
  - Vice Chair (1989-1993)
  - Secretary/Treasurer (1985-1989)
  - Awards Committee (1996-2001)
  - Nominating Committee (2001, 2000,1996)
- NSF: CISE Strategic Planning Committee for Broadening Participation in Computing(2008); Computer & Computation Research (CCR) Advisory Board (1988-1992)
- IEEE Technical Committee on Software Engineering (1986-1991)
- ACM National Lecturer (1982-1984)
- IEEE Distinguished Visitor (1980-1983)
- SIGPLAN Nominating Committee (1979, 1977)

### **Conference Organization:**

- ACM SIGSOFT/IEEE International Conference on Software Engineering (ICSE):
  - General Chair 2003, Portland Oregon
  - Program Co-Chair 1992, Melbourne, Australia
  - Technical track: 2008, 2004, 2002, 2001, 2000, 1998, 1994, 1991, 1989
  - Experience track: 2010
  - New Ideas and Emergent Results: 2011
  - Doctoral Symposium: 2005, 2008
  - New Software Engineering Faculty Symposium (NSEFS): 2007, 2006 (chair), 2005, 2003
- ACM SIGSOFT Foundations of Software Engineering (FSE):
  - Program Committee: 2010, 2000, 1998, 1994, 1993
  - Doctoral Symposium 2010
- European Software Engineering Conference held jointly with the ACM SIGSOFT Foundations of Software Engineering (ESEC/FSE): 2009, 2007
- ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA):
  - Program Committee: 2011, 2004, 2000, 1994, 1993, previously called Symposium on Testing, Analysis, and Verification (TAV): 1991, 1989
  - Doctoral Symposium 2006 (chair)
- ICSE Workshop Software Engineering for Health Care (SEHC):
  - Program Co-Chair 2010
  - Program Committee: 2013, 2011, 2009
- NSF Workshop on Dispute Resolution in a Connected Healthcare World, May 5-6, 2009, Washington, D.C., Organizing Committee
- IEEE International Conference on Software - Science, Technology and Engineering (SwSTE):
  - Program Committee: 2012, 2010
- Second Indian Software Engineering Conference (ISEC), Program committee: 2009

- Model-Based Design of Trustworthy Health Information Systems (MOTHIS), satellite event of the MoDELS 2008 conference: Program Committee: 2008
- Monterey Workshop: Program Committee: 2007, 2004, 2003
- ACM SIGPLAN-SIGSOFT Workshop on Program Analysis for Software Tools and Engineering (Paste): Program Committee: 1999
- Software Quality Week Advisory Board: 1998
- ACM SIGSOFT Symposium on Software Development Environments: Program Committee: 1990, 1988
- IEEE Symposium on Environments and Tools for Ada: Program committee: 1990
- ONR Testing and Analysis Workshop: Organizing Committee: 1989
- ACM SIGSOFT/IEEE Workshop on Software Testing (became TAV): Program Committee: 1988, General & Program Chair, 1986, Banff, Canada
- IEEE International Conference on Ada Applications and Environments Program Committee: 1988, 1986, 1984
- ACM SIGSOFT/SIGPLAN Second Symposium on Practical Software Development Environments: Program Committee: 1986
- IEEE International Conference on Computer Languages: Program Committee: 1986
- GTE Workshop on Software Engineering Environments for Programming in the Large, Program Committee: 1985
- Navy Technology Transfer Conference: Program Chair: 1978

### **Steering Committees:**

ACM SIGSOFT/IEEE International Conference on Software Engineering Steering Committee (1990- 2009)  
 ACM SIGSOFT International Symposium on Software Testing and Analysis (1986-1998)  
 ICSE Workshop Software Engineering for Health Care (SEHC) (2009- )

### **Member:**

Association for Computing Machinery (ACM)  
 Special Interest Group on Software Engineering (SIGSOFT)  
 IEEE Computer Society

### **Grant Support:**

NSF “CPS: Synergy: Collaborative Research: Context-aware, dynamic, smart checklists: key cyber-infrastructure for systems delivering quality health care”, PI with Co-PIs: L. J. Osterweil, and G. S. Avrunin, Collaborative proposal with J. Goldman, Harvard Medical School, October 2012 – September 2015, \$1,350,467.

NSF “EAGER: Process-Based Technology to Support Comparison and Evaluation of the Security of Elections”, Co-PI with L. J. Osterweil (PI) and G.S. Avrunin, Collaborative proposal with M. Bishop, University of California, Davis, October 2012 – September 2013, \$75,000.

NSF in collaboration with **AHRQ** “Model-Driven Process Guidance to Improve the Safety and Efficiency of Human-Intensive Healthcare Processes”, Co-PI with J. Marquard (PI) and E. A. Henneman, September 2012 – August 2015, \$326,336.

**NSF** "STEM: Mentoring a Diverse Pipeline of Students to Achieve the Next Level of Academic Success", Co-PI with D. Fisher(PI), K. Rubin, D. Ford, and R. Palmer, 09/01/2010-8/31/2012, \$598,376.

**NSF** "SoCS: The Fourth Party: Improving Computer-Mediated Deliberation through Cognitive, Social and Emotional Support" Co-PI with B. Woolf(PI), E. Katsh, T. Murray, L.J. Osterweil, September 2010-August 2013, \$749,857.

**NSF**, "TC Medium: Technological Support for Improving Election Processes", Co-PI with L.J. Osterweil (PI) and G.S. Avrunin, Collaborative proposal with M. Bishop, University of California, Davis, Sept. 2009-August 2012, \$450,000.

**US Department of Defense**, Co-PI with L. J. Osterweil (PI), Subcontract from Stevens Institute of Technology, serving as lead University of the Software Engineering Research Center (SERC), "Evaluating Methods, Processes, and Tools", July 2009-October 2009, \$53,000.

**NSF**, "SRS: Process-Centered, Analysis-Driven System Development Applied to Human-Intensive Medical Processes", PI with Co-PIs: L. J. Osterweil, G. S. Avrunin, and E. A. Henneman, (Collaborative proposal with Baystate Medical Center, PI: P. Henneman), July 2008- June 2012, \$500,000.

REU Supplement, \$12,000, May 2010 to May 2011.

**NSF**, III-CXT: Process Families and Their Application to Online Dispute Resolution, Co-PI with L. J. Osterweil (PI), E. Katsh, and N. Sondheimer, July 13, 2007 to July 12, 2010, \$899,406.00.

REU Supplement, \$12,000, April 2007 to March 2008.

**NSF**, "Workshop Proposal: A Research Agenda for Computing Technology and Dispute Resolution Focusing on the Transportation Sector", Co-PI with L. J. Osterweil (PI), E. Katsh, and N. Sondheimer, Aug. 2008-Aug. 2010, \$44,505.

**NSF**, "BPC-A: Commonwealth Alliance for Information Technology Education," Co-PI with W. R. Adrion (PI), P. Grocer, D. Boisvert, and J. Fountain, \$1,904,199, March 1, 2007 to November 30, 2012.

REU Supplement, \$12,000 April 2007, \$12,000 June 2009 .

Supplement, \$ 99,371, September 07,2007 – February 29, 2008.

Extension funding, January 29, 2009 to February 28, 2010 \$ 611,255.

Extension funding, December 1, 2008 to November 30, 2011 \$1,911,928,

Supplement \$ 48,000 June16, 2009 to November 30, 2011,

REU Supplement, \$ 48,000 May 24, 2010 to November 30, 2011,

Supplement \$191,182 August 29, 2010 to November 30, 2011.

**NSF**, "BPC: Widening the Research Pipeline," PI with Co-PIs: C. Ellis, M. Martonosi, P. Williams, and A. Bernat, January 1, 2006 to May 31, 2011, \$1,500,000.

Supplement August 2008, \$49,911.

REU Supplements: April 2008, \$6,000, April 2007, \$6,000, June 2009, \$32,000

BPC-AE Extension, original principal investigator with Co-PIs: A. Bernat, C. Ellis, M. Martonosi, and B. York, August 1, 2008 to July 31, 2011, \$1,750,000.

**NSF**, "Special Projects: Student Travel Support for the ICSE 2005 Doctoral Symposium," Principal Investigator, \$10,000, March 15, 2005 to March 14, 2006.

**Tata Consultancy Services**, Mumbai, India, gift to L.J. Osterweil and L.A. Clarke to support work on Improving Software Development Processes, 458,000 2006, \$85,000 2007.

**Siemens Research**, Princeton, "Process Support for Medical Safety, gift to L.J. Osterweil and L.A. Clarke, \$50,000, October, 2004.

**NSF**, "ITR: Improving the Safety and Efficiency of Medical Processes," PI with Co-PIs L. J. Osterweil, G. S. Avrunin, and E.A.Henneman, September 15, 2004 to September 14, 2009, \$1,448,468.

REU Supplement, May 2005 to September 2007, \$12,000.

REU supplement April 2007 to March 2008, \$12,000.

Supplement for subcontract to Baystate Medical Center, \$270,000

**NSF**, "Process Technology for Achieving Government Online Dispute Resolution," Associated Faculty, with L. J. Osterweil (PI), E. Katsh, and N. Sondheimer., September 15, 2004 to August 31, 2008, \$1,396,816.

**ARO**, "Propel: Helping Developers Elucidate Properties," PI, July 1, 2003 to June 30, 2006, \$469,735.

**NSF**, "The Analytic Web," Co-PI with L. J. Osterweil (PI), Edward M. Riseman and David R. Foster, September 1, 2002 to August 31, 2007, \$2,100,000.

**DARPA/DASADA**, "Process Guidance and Validation for Dependable on the Fly System Adaptation," PI with L. J. Osterweil, September 29, 2000 to September 30, 2002, \$475,000.

**IBM** partnership award to investigate extensions to the FLAVERS system to support the evaluation of Java programs, July 1999-July 2001, \$120,000.

**NSF**, "Experimental Study of Static Analysis Techniques for Concurrent Software," Associated Faculty Member, September 1, 1997 to August 31, 2002, \$1,434,337.

**DARPA/EDCS**, "Perpetual Testing," PI with L. J. Osterweil, February 10, 1997 to December 31, 2001, \$2,500,000. Option: "A Platform for Adaptable, Resilient, Safe and Efficient Configurations,"

**ARPA**, "UMASS ARCADIA: Support for Advanced Software Engineering Environments," PI with L. J. Osterweil, June 2, 1994 to June 29, 1999, \$3,350,000.

Option: "Investigating Environment Support for Ada 95," \$150,000.

Option: "Analysis, Testing, and Validation in the Context of Megaprogramming," \$52,500.

Option: "Stricom Interoperability Support," \$124,537.

**DARPA**, "Arcadia at UMass -Technology Supporting Software Development," PI with J.C. Wileden, June 15, 1991 to June 14, 1994, \$2,494,535.

**ONR**, "Testing Techniques for Concurrent and Real-Time Systems," PI with W.R. Adrion, March 1, 1990 to February 28, 1992, \$212,640.

**NSF/DARPA**, "Research on Software Environment Architecture and Analysis Tools," PI with J.C. Wileden, July 13, 1987 to December 15, 1990, \$1,637,966.

**ONR**, "Testing Techniques for Concurrent and Real-Time Systems," PI with W.R. Adrion, November 1, 1987 to April 30, 1990, \$208,884.

**RADC**, "The Investigation and Development of an Advanced Testing System for Ada," PI, November 1, 1985 to June 30, 1988, \$509,239.

**NSF**, "The Development of a Scientific Testing Method," Principal Investigator, August 1, 1984 to July 31, 1987, \$374,845.

**CDC**, "Development of a Prototype Testing System," PI, June 1, 1984 to May 31, 1987, \$100,165.

**NSF**, "A Systematic Treatment of Interface Control," PI with J.C. Wileden, December 1, 1984 to November 30, 1986, \$150,626.

**RADC**, "An Ada Symbolic Testing System," PI, January 1, 1985 to December 31, 1985, \$96,176.

**NSF**, "Toward the Development of Scientific Testing," PI, June 1, 1983 to May 31, 1984, \$69,011.

**NSF**, "A Partition Analysis Method to Demonstrate Program Reliability," PI with D.J. Richardson, July 1, 1981 to June 30, 1983, \$81,723.

**NASA**, "Tools Supporting Pre-Implementation Development of Flight Control Software," PI with J.C. Wileden, January 1, 1981 to February 28, 1983, \$138,466.

**AFOSR**, "Development of a Program Testing System," PI, June 1, 1977 to May 30, 1981, \$147,350.

**NSF**, "An Integrated Testing System for Computer Programs," PI, June 1, 1977 to November 30, 1980, \$86,956.

## **Publications:**

### **Books**

*Critical Code: Software Producibility for Defense*, Scherlis, W.L., Behler, R.F., Boehm, B.W., Clarke, L.A., Cusumano, M.A., Davidson, M.A., Druffel, L., Frew, R., Larus, J., Morrisett, G., Royce, W., Schmidt, D.C., Stenbit, J.P., Sullivan, K.J., National Research Council, National Academies Press, 2010.

### **Journal Articles and Book Chapters:**

*Using Process Elicitation and Validation to Understand and Improve Chemotherapy Ordering and Delivery*, Mertens, W. C., Christov, S.C., Avrunin, G. S., Clarke, L.A., Osterweil, L.J., Cassells, L.J., Marquard, J. L., **The Joint Commission Journal on Quality and Patient Safety**, Vol. 38, No. 11, November 2012, pp. 497- 505.

*Lifecycle Environments: A Retrospective View of the Contributions of Leon J. Osterweil*, Clarke, L.A., chapter 8, Engineering of Software - The Continuing Contributions of Leon J. Osterweil, Springer-Verlag, May 2011, pp. 145-152.

- Environment Support for Improving Software Development Processes: A Vision Influenced by the Work of Barry Boehm*, Clarke, L.A., *International Journal of Software Informatics*, Vol. 5, No 3, April 2011, pp. 475-485.
- Clear and Precise Specification of Scientific Processes*, Osterweil, L.J., Clarke, L.A., Ellison, A.M., Boose, E.R., Podorozhny, R., Wise, A., **IEEE Transactions on Automation Science and Engineering**, Vol.7, No 1, 2010, pp 189-195.
- An Integrated Collection of Tools for Continuously Improving the Processes by Which Health Care is Delivered: A Tool Report*, Osterweil, L.J., Avrunin, G.S., Clarke, L.A., **Lecture Notes in Business Information Processing**, vol. 43, 647-653. Revised paper from the Third International Workshop on Process-oriented Information Systems in Healthcare (ProHealth '09), a workshop of the 7th International Conference on Business Process Management (BPM 2009), Ulm, Germany, September 7, 2009.
- Plug-and-Play Architectural Design and Verification*, Wang, S., Avrunin, G.S., and Clarke, L.A., **Architecting Dependable Systems V**, Editors: Rogério de Lemos, Felicita Di Giandomenico, Cristina Gacek, Henry Muccini, Marlon Vieira, Springer Verlag Lecture Notes in Computer Science, State-of-the-Art Survey, Vol. 5135, 2008, pp. 273-297.
- Formally Defining Medical Processes*, Christov, S. Chen, B. Avrunin, G.S., Clarke, L.A., Osterweil, L.J., Brown, D., Cassells, L., Mertens, W., **Methods of Information in Medicine**, Special Issue from the Workshop on Model-Based Design of Trustworthy Health Information Systems, Guest Editors: Janos Sztipanovits, Ruth Breu, Elske Ammenwerth, Vol. 47, No. 5, 2008, pp. 392-398.
- Designing Property Specification to Improve the Safety of the Blood Transfusion Process*, Henneman, E. A., Cobleigh, R., Avrunin, G.S., Clarke L.A., Osterweil, L.J., Henneman, P.L., **Transfusion Medicine Reviews**, Vol. 22, No. 4, October 2008, pp. 291-299.
- Combining Model Checking with Symbolic Execution to Verify Parallel Numerical Programs*, Siegel, S. F., Mironova, A., Avrunin, G.S., Clarke, L.A., **ACM Transactions on Software Engineering and Methodology**, Vol. 17, No. 2, April 2008, pp.10:1-10:34.
- Breaking Up is Hard to Do: An Evaluation of Automated Assume-Guarantee Reasoning*, Cobleigh, J.M., Avrunin, G.S., Clarke, L.A., **ACM Transactions on Software Engineering and Methodology**, Vol. 17, No. 2, April 2008, pp.7:1-7:52.
- Ensuring Reliable Datasets for Environmental Models and Forecasts*, Boose, E.R., Ellison, A.M., Osterweil, L.J., Clarke, L.A., Podorozhny, R., Hadley, J.L., Wise, A., Foster, D.R., **Ecological Informatics**, ECOINF84, Vol. 2, No. 3, October 2007, Elsevier, pp. 237-247.
- Increasing Patient Safety and Efficiency in Transfusion Therapy Using Formal Process Definitions*, Henneman, E. A., Cobleigh, R., Frederick, K., Katz-Bassett, E., Avrunin, G.S., Clarke L.A., Osterweil, L.J., Andrzejewski, C., Jr., Merrigan, K., Henneman, P.L., **Transfusion Medicine Reviews**, Vol. 21, No. 1, January 2007, pp. 49-57.
- Complex Medical Processes as Context for Embedded Systems*, Avrunin, G.S., Clarke, L.A., Henneman, E. A., Osterweil, L.J., electronic journal **ACM SIGBED Review**, special issue from the Workshop on Innovative Techniques for Certification of Embedded Systems, Vol 3, No. 4, October 2006, pp. 9-14.



- Analytic Webs Support the Synthesis of Ecological Data Sets*, Ellison, A.M., Osterweil, L.J., Hadley, J.L., Wise, A., Boose, E., Clarke, L.A., Foster, D.R., Hanson, A., Jensen, D., Kuzeja, P., Riseman, E., and Schultz, H., **Ecology**, Vol. 87, No. 6, June 2006, pp. 1345-1358.
- Flow Analysis for Verifying Properties of Concurrent Software Systems*, Dwyer, M. B., Clarke, L.A., Cobleigh, J.M., and Naumovich, G., **ACM Transactions on Software Engineering and Methodology**, Vol. 13, No. 4, October 2004, pp. 359-430.
- FLAVERS: a Finite State Verification Technique for Software Systems*, Cobleigh, J.M., Clarke, L.A. and Osterweil, L.J., **IBM Systems Journal on Software Testing and Verification**, Vol. 41, No.1, 2002, pp. 140-165.
- A Compact Petri Net Representation and Its Implications for Analysis*, Dwyer, M.B. and Clarke, L.A., **IEEE Transactions on Software Engineering**, Vol. 22, No. 11, November 1996, pp. 794-811.
- A Framework for Event-Based Software Integration*, Barrett, D.J. Clarke, L.A., Tarr, P.L., and Wise, A., **ACM Transactions on Software Engineering and Methodology**, Vol. 5, No. 4, October 1996, pp. 378-421.
- A Formal Evaluation of Data Flow Path Coverage Criteria*, Clarke, L.A. Podgurski, A., Richardson, D. J. and Zeil S. J., **Automating Specification-Based Software Testing**, Robert M. Poston, editor, IEEE Computer Society Press, May 1996, pp. 155-196. (Revised version of A Formal Evaluation of Data Flow Path Selection Criteria, IEEE Transactions on Software Engineering, November 1989.)
- A Proposed Testing and Analysis Research Initiative*, Osterweil, L.J. and Clarke, L.A., **IEEE Software**, Vol.9, No.5, September 1992, pp. 89-96.
- A Comparative Evaluation of Object Definition Techniques for Large Prototype Systems*, Wileden, J.C., Clarke, L.A., and Wolf, A.L., **ACM Transactions on Programming Languages and Systems**, Vol.12, No.4, October 1990, pp. 670-699.
- A Formal Model of Program Dependences and Its Implications for Software Testing, Debugging, and Maintenance*, Podgurski, H.A. and Clarke, L.A., **IEEE Transactions on Software Engineering**, Vol.16, No.9, September 1990, pp. 965-979.
- A Formal Evaluation of Data Flow Path Selection Criteria*, Clarke, L.A., Podgurski, H.A., Richardson, D.J., and Zeil, S.J., **IEEE Transactions on Software Engineering**, November 1989, pp. 1318-1332.
- The AdaPIC Toolset: Supporting Interface Control and Analysis Throughout the Software Development Process*, Wolf, A.L., Clarke, L.A., and Wileden, J.C., **IEEE Transactions on Software Engineering**, Vol.15, No.3, March 1989, pp. 250-263.
- A Model of Visibility Control*, Wolf, A.L., Clarke, L.A., and Wileden, J.C., **IEEE Transactions on Software Engineering**, Vol.14, No.4, April 1988, pp. 512-520.
- Partition Analysis: A Method Combining Testing and Verification*, Richardson, D.J. and Clarke, L.A., **IEEE Transactions on Software Engineering**, December 1985, pp. 1477-1490.
- Ada-Based Support for Programming-in-the-Large*, Wolf, A.L., Clarke, L.A., and Wileden, J.C., **IEEE Software**, Vol.2, No.2, March 1985, pp. 58-71.

*Applications of Symbolic Evaluation*, Clarke, L.A. and Richardson, D.J., **Journal of Systems and Software**, Vol.5, No.1, January 1985, pp. 15-35.

*Testing Techniques Based on Symbolic Evaluation*, Richardson, D.J. and Clarke, L.A., **Software: Requirements, Specification and Testing**, Blackwell Scientific Publications Ltd., 1985, pp. 93-110. (Also published in Center for Software Reliability Workshop: Software Requirements, Specification, and Testing, University of East Anglia, Norwich, England, April 1984.)

*Symbolic Evaluation -An Aid to Testing and Verification*, Clarke, L.A. and Richardson, D.J., **Software Validation**, H.L. Hausen, editor, North-Holland Publishing Company, 1984, pp. 141-166.

*A Close Look at Domain Testing*, Clarke, L.A., Hassell, J., and Richardson, D.J., **IEEE Transactions on Software Engineering**, July 1982, pp. 380-390.

*Symbolic Evaluation Methods -Implementations and Applications*, Clarke, L.A. and Richardson, D.J., **Computer Program Testing**, B. Chandrasekaran and S. Radicchi, editors, North-Holland, 1981, pp. 65-102.

*Symbolic Evaluation Methods for Program Analysis*, Clarke, L.A. and Richardson, D.J., **Flow Analysis: Theory and Application**, S. Muchnick and N. Jones, editors, Prentice Hall, 1981, pp. 264-300.

*Compile-Time Analysis of Data List-Format List Correspondences*, Abrahams, P. and Clarke, L.A., **IEEE Transactions on Software Engineering**, SE-5, 6, November 1979, pp. 612-617.

*Automatic Test Data Selection Techniques*, Clarke, L.A., **Infotech State of the Art Report, Software Testing**, Vol.2, Infotech International Limited, September 1978, pp. 43-65.

*A System to Generate Test Data and Symbolically Execute Programs*, Clarke, L.A., **IEEE Transactions on Software Engineering**, SE-2, 3, September 1976, pp. 215-222. (Also published in Tutorial: Automated Tools for Software Engineering, Edward Miller, editor, IEEE Computer Society Press, 1979, pp. 211-218.)

### **Conference Papers:**

*Computational Predictors in Online Social Deliberations*, Woolf, B.P., Murray, T. J., Xu, X., Osterweil, L. J., Clarke, L. A., Wing, L., Katsh, E., **Sixth International Conference on Weblogs and Social Media**, Dublin, Ireland, AAAI Press 2012, June 4-7, 2012, pp. 603-606.

*Experience Modeling and Analyzing Medical Processes: UMass/Baystate Medical Safety Project Overview*, Avrunin, G.S., Clarke, L.A., Osterweil, L.J., Christov, S.C., Chen, B., Henneman, E.A., Henneman, P.L., Cassells L., and Mertens, W., **First ACM International Health Informatics Symposium**, November 11-12, 2010, Arlington, VA, pp. 316-325.

*Process-based Derivation of Requirements for Medical Devices*, Conboy, H., Avrunin, G.S., and Clarke, L.A., **First ACM International Health Informatics Symposium**, November 11-12, 2010, Arlington, VA, pp. 656-665.

*An Automatic Failure Mode and Effect Analysis Technique for Processes Defined in the Little-JIL*

- Process Definition Language*, Wang, D., Pan, J., Avrunin, G.S., Clarke, L.A., Chen, B., **22nd International Conference on Software Engineering and Knowledge Engineering (SEKE'10)**, San Francisco, July 2010. pp. 765-770.
- Experience in Using a Process Language to Define Scientific Workflow and Generate Dataset Provenance*, Osterweil, L.J., Clarke, L.A., Ellison, A.M., Podorozhny, R., Wise, A., Boose, E., Hadley, J., **ACM SIGSOFT 16th International Symposium on Foundations of Software Engineering (FSE16)**, Atlanta, GA, November 2008, pp. 319-329.
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*The Analytic Web: An Internet-accessible Record of Ecosystem Carbon Exchange Estimation*, Hadley, J.A., Wise, L., Osterweil, L., Boose, E., Clarke, L.A., Ellison, A., Foster, D., Hanson, A., Jensen, D., Kuzeja, P., Riseman, E., and Schultz, H., **Ameriflux Network Annual Meeting, U.S. Dept. of Energy**, 2003, Boulder, CO.

*The Analytic Web: An Internet-accessible record of data transformations in ecology*, Hadley, J.A, Wise, L., Osterweil, L., Boose, E., Clarke, L.A., Ellison, A., Foster, D., Hanson, A., Jensen, D., Kuzeja, P., Riseman, E., and Schultz, H., **Meeting of the U.S. National Science Foundation Long-Term Ecological Research Program**, September 2003, Seattle, WA.

### **News Articles and Letters:**

*Forecast for Reproducible Data—Partly Cloudy*, Leon J. Osterweil, Lori A. Clarke, and Aaron Ellison, letter to the editor, **Science**, v. 325, pp. 1622-1623, published Sept. 25, 2009.

*Computing Report Leaps Geographical Barriers But Stumbles Over Gender*, Martha E. Pollack, Susanne E. Hambrusch, Carla Schlatter Ellis, Barbara J. Grosz, Jessica Hodgins, Ruzena Bajcsy, Carla E. Brodley, Luigia, Carlucci Aiello, Maria Paola Bonacina, Lori A. Clarke, Julia Hirschberg, Manuela M. Veloso, Nancy Amato, Liz Sonenberg, Elaine Weyuker, Lori Pollock, Mary Jane Irwin, Lin Padgham, Barbara G. Ryder, Tiziana Catarci, Kathleen F. McCoy, Maria Klawe, Sandra Carberry, Laura Dillon, Kathleen McKeown and Mary Lou Soffa, **Nature**, May 4, 2006.

*Help Support the Distributed Mentor Project*, Lori A. Clarke, **Computing Research News**, January 2005.

*Plans to Expand the Distributed Mentor Project*, Nancy Amato, Lori A. Clarke, Jessica Hodgins, **Computing Research News**, March 2004.

*CRA Workshop on Research Related to National Security: Report and Recommendations*, Kathleen McKeown, Lori A. Clarke and John Stankovic, **Computing Research News**, September 2003.

### **Selected Reports:**

*Using Event Streams to Validate Process Definitions*, Christov, S., Avrunin, G.S., Clarke, L.A., Henneman, P.L., Marquard, J.L., Osterweil, L.J., Department of Computer Science, University of Massachusetts, Amherst, **Technical Report UM-CS-2009-04**, January 2009.

*Considering the Exceptional: Incorporating Exceptions into Property Specifications*, Phan, H., Avrunin, G.S., Clarke, L.A., Department of Computer Science, University of Massachusetts, Amherst, MA 01003, **Technical Report UM-CS-2008-23**, September 2008.

*Property Inference from Program Executions*, Chang, R. M., Avrunin, G.S., Clarke, L.A., Department of Computer Science, University of Massachusetts, Amherst, **Technical Report UM-CS-2006-26**, April, 2006.

*Using Process Definitions to Facilitate the Specification of Requirements*, Osterweil, L.J., Sondheimer, Norman K., Clarke, L.A., Katsh, E., Rainey, D., Department of Computer Science, University of Massachusetts, Amherst, **Technical Report UM-CS-2006-11**, February 2006.

*Supporting Communication of Heterogeneous Distributed Agents with Agenda Management Systems*, McCall, E. K., Clarke, L.A., Osterweil, L.J., Department of Computer Science, University of Massachusetts, Amherst, **Technical Report UM-CS-2000-032**. June 2000.

*An Empirical Comparison of Static Concurrency Analysis Techniques*, Chamillard, T., Clarke, L.A. and Avrunin, G.S., Department of Computer Science, University of Massachusetts, **Amherst, Technical Report 96-84**, Revised: May 1997.

*Information Flow Transfer in the RELAY Model*, Thompson, M.C., Richardson, D.J., and Clarke L.A., Department of Computer Science, University of Massachusetts **Technical Report 92-62**, August 1992.

*A Definition of AID --The ATTEST Interface Description Language*, Winters, D., Ogden, N.R., and Clarke, L.A., Department of Computer Science, University of Massachusetts, **Technical Report 78-15**, December 1978.

*SYMPLR --Symbolic Multivariate Polynomial Linearization and Reduction*, Richardson, D.J., Clarke L.A., and Bennett, D.L., Department of Computer Science, University of Massachusetts, **Technical Report 78-16**, July 1978.

*Test Data Generation and Symbolic Execution of Programs as an Aid to Program Validation*, Clarke, L.A., **Ph.D. Dissertation, University of Colorado**, August 1976.

### **Invited Talks:**

Grace Hopper Conference, Invited Technical Talk, October 2012

Sydney University, January 2012

Technical University of Berlin, July 2011

University of Kaiserslautern and Fraunhofer Institute, July 2011

University of Paris, LIP6, June 2011

University of Paris, 13, June 2011

University of Paris, Sorbonne, June 2011

National Information, Computer, and Telecommunications Australia (NICTA), Sydney, Australia, January 2012, March 2010

Swinburne University of Technology, Melbourne, Australia, July 2009

University of Paderborn, February, 2009

Tata Consultancy Services, Pune, India, July 2008

University of Delaware, February 2008

Cambridge University, Cambridge, UK, August 2007

University College, London, Health Informatics Department (CHIME), August 2007

Imperial College, London, July 2007

University College, London, Computer Science Department, June 2007

Institute of Software Chinese Academy of Sciences, Beijing, China, May 2006, April 2007, June 2009, April 2011

National Information, Computer, and Telecommunications Australia (NICTA), and the Australian

Government Information Management Organisation (AGIMO), Canberra, Australia, February 2007

University of Cape Coast, Ghana, School on Distributed and Embedded Systems and Networks, January 2007

Midwest Consortium on Software Engineering, May 2005

Technology Research at the 5-colleges: "Identifying and Correcting Defects in Medical

Processes" (with L.J. Osterweil, E.A. Henneman, and P. Henneman), University of MA, March 2005

Northwest University, Xi'an, China, October 2004

Pre-ICSE Conference on Software Engineering, Beijing, China, October 2004

Monterey Workshop Series: Software Engineering Tools, Compatibility and Integration, Architecture-based Verification, Vienna, Austria, October, 2004

Siemens Research, Princeton, September 2004, July 2008  
Lucent technologies, Murray Hill, NJ, January 2004  
Shanghai Software Quality Consortium (SSQC), Shanghai SPIN & QAI Chapter,  
Microsoft Asia Community, and ASTI Shanghai, Shanghai, China, January 2003.  
University of Pennsylvania, September 2002  
Japan Electronics and Information Technology Industries Association (JEITA), Tokyo, Japan, June 2002  
University of Massachusetts, Boston, April 2002  
Bernhard Science Symposium, Williams College, January 2001  
Motorola, Schaumburg, IL, January 2001  
Brown University, February 2000  
Motorola Annual Software Engineering Symposium (SES), Ft. Lauderdale, FL, June 1999  
GL-SPIN Presentation at TACOM (Tank Automotive Command) in Detroit, MI, May, 1999  
First International Workshop on Software Engineering Tools and Techniques, Pune, India, January 1999  
IBM, T. J. Watson Research Center, December 1998, July 2001  
NASA Workshop on Risk Management, October 1998  
U.S. Army TACOM, Warren, MI, May 1998  
NASA, West Virginia, May 1997  
University of West Virginia, May 1997  
TASC (The Analytic Systems Corporation), Reading, MA, April 1991  
University of Massachusetts at Amherst, Distinguished Faculty Lecture, April 1991  
U.S. WEST, Denver, Colorado, February 1991  
University of Connecticut, November 1989  
IBM, Yorktown, NY, October 1989  
Data General Corporation, June 1989  
GTE, May 1988  
Rome Air Development Center, Griffith Air Force Base, August 1987, April 1985  
Syracuse University, May 1987  
Rocky Mountain Institute for Software Engineering, July 1986  
United Technologies, Hartford, Connecticut, January 1986  
Digital Equipment Corporation, Spitbrook, New Hampshire, May 1985  
Rocky Mountain Institute for Software Engineering, August 1985  
Control Data Corporation, Arden Hills, MN, October 1984  
Rocky Mountain Institute for Software Engineering, July 1984  
Allegheny College ACM Chapter, Meadville, PA, April 1984  
Clarion College ACM Chapter, PA, April 1984  
Minneapolis IEEE Chapter, Minneapolis, MN, November 1983  
GTE Laboratories, Waltham, MA, October 1983  
Merrimack Valley Chapter of ACM, Nashua, NH, October 1983  
Women in Science program, Science Museum, Springfield, MA, October 1983  
Symposium on Software Validation, Darmstadt, Germany, September 1983  
Vandenberg Air Force Base ACM Chapter, CA, July 1983  
Santa Barbara ACM Chapter, Santa Barbara, CA, July 1983  
Oregon State University, Corvallis, OR, May 1983  
Portland ACM Chapter, Portland, OR, May 1983  
University of Texas at Arlington, April 1983  
Dallas IEEE Chapter, Dallas, TX, April 1983  
Texas A&M, College Station, TX, April 1983  
Houston IEEE Chapter, Houston, TX, April 1983  
University of Rhode Island, February 1983  
Digital Equipment Corporation, Spitbrook, NH, July 1982  
Tulane University, New Orleans, January 1982

Orlando IEEE Chapter, Orlando, Florida, January 1982  
New Orleans IEEE Chapter, New Orleans, January 1982  
Sogesta Summer School on Computer Program Testing, Urbino, Italy, June 1981  
Western Electric Research, Princeton, NJ, March 1981  
Northwestern University, November 1980  
General Electric Research and Development, Schenectady, NY, September 1980  
Minnow Brook Conference on Performance Evaluation, August 1980  
Ohio State University, February 1980  
Schlumberger-Doll Research Center, Ridgefield, CN, August 1979  
Hartford ACM, October 1978  
Infotech Conference on Software Testing, London, September 1978  
Digital Equipment Corporation, Maynard, MA, July 1978  
Courant Institute of Mathematical Science, November 1977  
Naval Surface Weapons Center, Dahlgreen Laboratory, VA, August 1977  
National Computer Conference, June 1977  
Workshop on Design and Implementation of Programming Language, Cornell University, October 1976  
IBM San Jose Research Laboratory, March 1975  
University of Maryland, February 1975  
Pennsylvania State University, February 1975  
IBM Thomas J. Watson Research Center, February 1975  
Stony Brook University, January 1975  
University of Connecticut, January 1975