Larry Wayne Wilson
Curriculum Vitae

Emeritus Associate Professor
Department of Computer Science
Old Dominion University
Norfolk, VA 23529
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Experience

2009-	Emeritus Associate Professor of Computer Old Dominion University
1983- 08	Associate Professor of Computer Science (Assistant Chairman (83-95) and (98-00) Old Dominion University
1979-82	Assistant Professor of Computer Science Old Dominion University
1968-79	Assistant Professor of Mathematics Old Dominion University
1963-68	Teaching Associate University of Texas at Austin

Degrees

Ph.D. 1971   University of Texas at Austin--Applied Mathematics,
        Statistics Minor
M.S.   1968 University of Texas at Austin--Applied Mathematics
B.S.   1964 Midwestern State University—Math, Physics Minor

Research Interests

Areas of research include wireless sensor networks, enhanced meshes, software reliability, software implemented fault tolerance (SIFT), and Mikusinski Operator Functions.

Computer Science Background Includes

Software reliability, high level and assembler languages, database, discrete math, computer organization, data structures, microprocessors, formal languages, compilers, automata theory, switching theory, operating systems concepts, theory of operating systems, architecture, optimization and analysis of algorithms.

Mathematics Background Includes

Integral transforms, numerical analysis, partial differential equations, real analysis, complex analysis, linear algebra, geometry, topology, matrix theory, number theory, calculus, advanced calculus, abstract algebra and statistics.

Publications

Book Chapters

1. M. Eltoweissy, S. Olariu, A. Wadaa, and L. Wilson, "**Security in Wireless Sensor Networks**," Handbook of Information Security, Hossein Bidgoli (Editor), John Wiley and Sons, 2005.

2. K.H. Jones, K.N. Lodding, A. Wadaa, S. Olariu, L. Wilson, and M. Eltoweissy, "**Biomimetic Models for Sensor Networks - Towards a Social Sensor Network**," Handbook of Bio-Inspired Algorithmic Techniques," CRC Press, Boca Raton, 2005.

3. A. Wadaa, K. Jones, S. Olariu, L. Wilson and M. Eltoweissy, **A Scalable Solution for Securing Wireless Sensor Networks**, J. Wu, (Ed.), *Handbook on Theoretical and Algorithmic Aspects of Sensor, Ad Hoc Wireless, and Peer-to-Peer Networks*, CRC Press, Boca Raton, 2005.

4. M. Eltoweissy, S. Olariu, A. Wadaa, and L. Wilson, Security in Wireless Sensor Networks, in H. Bidgoli (Ed.), *Handbook of Information Security,* John Wiley and Sons, 2006.

Journal Articles

5. Wilson, Larry W., '**Laplace-Stieltjes Transform of Mikusinski Operator Functions**' 1973, *Publicationes Mathematicae*, Debrecen; Tomus 20, Fasc 3-4, p185-200

6. Stephan Olariu, Wenhui Shen and L. Wilson, '**Sub-logarithmic Algorithms for the Largest Empty Rectangle Problem**', *Parallel Processing Letters*, Vol 3 No 1 (1993), p79-86.

7. D. Bhagavathi, S. Olariu, J.L. Schwing, W. Shen, L. Wilson and J. Zhang, '**Convexity Problems on Meshes with Multiple Broadcasting**', *Journal of Parallel and Distributed Computing*, Vol 27, No 2, June 1995, p142-157.

8. S. Olariu, J. Schwing, W. Shen, L. Wilson, and J. Zhang, **'A Simple Selection Algorithm for Reconfigurable Meshes'**, *Parallel Algorithms and Applications*, v.1, no. 1, p29 - 42, 1993.

9. D. Bhagavathi, S. Olariu, W. Shen, and L. Wilson, **'A Time Optimal Multiple Search Algorithm on Enhanced Meshes with Applications'**, *Journal of Parallel and Distributed Computing 22*, p113-120, 1994.

10. S. Olariu, J.L. Schwing, W. Shen, L. Wilson and J. Zhang, **'A Simple Selection Algorithm for Reconfigurable Meshes'**, *Parallel Algorithms and Applications*, v.1 no. 1, p29-42, 1993.

11. D. Bhagavathi, S. Olariu,   W. Shen, and L. Wilson, **'A Unifying Look at Semigroup Computations on Meshes with Multiple Broadcasting'**,   *Parallel Processing Letters,* 4, p73-83, 1994.

12. D. Bhagavathi, H. Gurla, S. Olariu, J.L. Schwing,   W. Shen, L. Wilson and J. Zhang, **'Time and VLSI-Optimal sorting on meshes with multiple broadcasting'**, . *IEEE Transactions on Parallel and Distributed Systems*, 9, p929-938, 1998.

13. V. Bokka, H. Gurla, S. Olariu, J.L. Schwing, L. Wilson, **'Time-Optimal Domain-Specific Querying on Enhanced Meshes'**. *IEEE Transactions on Parallel and Distributed Systems*, 8, p13-24, 1997.

14. V. Bokka, S. Olariu, J.L. Schwing, L. Wilson and A. Zomaya**, 'A Time-Optimal solution to a classification problem in ordered domains, with applications'**, *Pattern Recognition, Vol 30, Issue 9,* Sept., p1555-1564 1997.

15. V. Bokka, K. Nakano, S. Olariu, J. L. Schwing, and L. Wilson, **'Optimal Algorithms for the Multiple Query Problem on Reconfigurable Meshes, with Applications',** IEEE Transactions on Parallel and Distributed Systems, 12, p875-887, 2001.

16. S. Olariu, M.C. Pinotti and L. Wilson, '**Greedy Algorithms for Tracking Mobile Users in Special Mobility Graphs'**, *Discrete Applied Mathematics 121,* p215-227, 2002.

17. A. Wadaa, S. Olariu, L. Wilson, M. Eltoweissy, and K. Jones, "**Training a Wireless Sensor Network,**" Journal of Mobile Networks and Applications (MONET), vol. 10,no. 1, February, p151-167, 2005.

18. S. Olariu, A. Wadaa, L. Wilson, and M. Eltoweissy, "**Wireless Sensor Networks: Leveraging the Virtual Infrastructure**," IEEE Network, vol. 18, no. 4, July, p51-56, 2004.

19.   A. Wadaa, S. Olariu, and L. Wilson, and M. Eltoweissy, "**Scalable Cryptographic Key Management in Wireless Sensor Networks**," Journal of Ad Hoc Networks: Special issue on Data Communications and Topology Control in Ad Hoc Networks, Elsevier, vol. 3, no.5, September 2005.

20. M. Eltoweissy, A. Wadaa, S. Olariu and L. Wilson, "**Group Key Management Scheme for Large-Scale Sensor Networks"**, *Journal of Ad Hoc Networks*, **3**, (2005), p668-688.

Refereed Conference Proceedings

21. Stephan Olariu, Wenhui Shen and L. Wilson, '**Sub-logarithmic Algorithms for the Largest Empty Rectangle Problem**', *Proc. ICCI '92, Fourth International Conference on Computing and Information,* May 1992, Toronto, Ontario, Canada.

22. D. Bhagavathi, S. Olariu, J.L. Schwing, W. Shen, L. Wilson and J. Zhang, **'Convexity Problems on Meshes with Multiple Broadcasting**', *Proc. 4CCG, Fourth Canadian Conference on Computational Geometry*, August 1992, ST. Johns, Newfoundland, Canada.

23. S. Olariu, J. Schwing, W. Shen, L. Wilson, and J. Zhang**, 'A Simple Selection Algorithm for Reconfigurable Meshes'**, *Proc ISMM Conference on Parallel and Distributed Systems*, Pittsburgh, October 1992.

24. D. Bhagavathi, S. Olariu, W. Shen, and L. Wilson, **'A Time Optimal Multiple Search Algorithm on Enhanced Meshes with Applications'**, *Proc. 4CCG, Fourth Canadian Conference on Computational Geometry Proceedings*, August 1992, ST. Johns, Newfoundland, Canada, p359-365.

25. S. Olariu, J.L. Schwing, W. Shen, L. Wilson and J. Zhang, **'A Simple Selection Algorithm for Reconfigurable Meshes'** *Proc ISMM Conference on Parallel and Distributed Systems*, Pittsburgh, October 1992.

26. D. Bhagavathi, S. Olariu, W. Shen, and L. Wilson, **'A Unifying Look at Semigroup Computations on Meshes with Multiple Broadcasting'**, *Springer Verlag Lecture -Notes in Computer Science 694, Proc. PARLE'93*, Parallel Architectures and Languages Europe, p561-570, Munich, Germany, June 1993.

27. D. Bhagavathi, H. Gurla, S. Olariu, J.L. Schwing, W. Shen, L. Wilson and J. Zhang, **'Time and VLSI-Optimal sorting on meshes with multiple broadcasting'**, *Proc of the 22nd International Conference on Parallel Processing*, St. Charles, IL, August 1993, p196-202.

28. Mary Ann Hoppa and Larry W. Wilson, **'Some Effects of Fault Recovery Order on Software Reliability Models**', *Proc. Fifth International Symposium on Software Reliability Engineering (ISSRE 94)*, p338-342, Monteray CA, Nov 1994.

29**. V. Bokka, H. Gurla, R. Lin, S. Olariu, J. Schwing, W. Shen, and L. Wilson, 'Time-Optimal Multiple Rank Computations on Meshes with Multiple Broadcasting'***, Proc. of the 23rd Annual International Conference of Parallel Processing*, St. Charles, Illonois, August 1994, p118-126.

30. V. Bokka, H. Gurla, S. Olariu, J.L. Schwing, L. Wilson, **'Time-Optimal Domain-Specific Querying on Enhanced Meshes'**, *Proc. of IEEE International Conference on Application-Specific Array Processors '95*, p42-53, August 1995.

31. V. Bokka, H. Gurla, S. Olariu, J.L. Schwing and L. Wilson, '**A Framework for Solving Geometric Problems on Enhanced Meshes'**, *Proc. International Conference on Parallel Processing, ICPP '95*, Oconomowoc, Wisconsin, August 1995, p. 172-176.

32. V. Bokka, S. Olariu, J.L. Schwing, L. Wilson and A. Zomaya**, 'A Time-Optimal Solution Planar Point Location in Ordered Functional Domains'**, Proc. of International Symposium on Parallel Architecture, Algorithms and Networks '96, June 1996, Beijing, China.

33. V. Bokka, H. Gurla, S. Olariu, J.L. Schwing, and L. Wilson, **'A Unifying Methodology for Multiple Querying on Enhanced Meshes'**, *Proceedings Eighth IEEE Symposium on Parallel and Distributed Processing, SPDP '96*, New Orleans, October 1996, p 392-400.

34. C. Pinotti and L. Wilson, '**On the Problem of Tracking Mobile Users in Wireless Communications Networks'**, *Proceedings of the Thirty First Annual Hawaii International Conference of System Sciences, 1998*, Vol VII, edited by Hesham El-Rewini.

35. S. Olariu, M.C. Pinotti and L. Wilson, '**Greedy Algorithms for Tracking Mobile Users in Special Mobility Graphs'**, *dial M 98 workshop*, Dallas, 1998.

36. V. Bokka, K. Nakano, S. Olariu, J.L. Schwing, and L. Wilson, '**Optimal Algorithms for the Multiple Query Problem on Reconfigurable Meshes, with Applications'**, *Parallel and Distributed Systems, Volume 12, Number 9, September 20001.*

37. A. Wadaa, S. Olariu, L. Wilson, K. Jones, and Q. Xu, '**On Training a Sensor Network'**, *WMAN Workshop, IDPS 2003,* Nice, France, April 2003. CD-ROM/Abstracts Proceedings available from IEEE Computer Society, ISBN 0-7695-1926-1.

38. K. Jones, A. Wadaa, S. Olariu, L. Wilson, and M. Eltoweissy, **' Towards a New Paradigm for Securing Wireless Sensor Networks'**, New Security Paradigms Workshop, *NSPW* 2003, Ascona, Switzerland, August 2003. Proceedings p.115-122.

39. A. Wadaa, S. Olariu, L. Wilson, and M. Eltoweissy**, "gWiSe: A Group Key Management Scheme for Wireless Sensor Networks,"** IEEE Mediterranean Electro-technical Conference, Croatia , May 2004 .

40. A. Wadaa, S. Olariu, L. Wilson, M. Eltoweissy, and K. Jones**, "On Providing Anonymity in Wireless Sensor Networks"**, International Conference on Parallel and Distributed Systems, (ICPADS-2004), Newport Beach, California., July 2004.

41. Wadaa, S. Olariu, L. Wilson and M. Eltoweissy, **'Scalable Key Management for Secure Communications in Wireless Sensor Networks'**, *Proc. International Workshop on Wireless Ad-hoc Networking*, Tokyo, Japan, March, 2004.

42.   Wadaa, S. Olariu, L. Wilson, M. Eltoweissy, and K. Jones, **"Anonymity in Wireless Sensor Networks,"** 2nd International Conference on Pervasive Computing, Hot Topics Venue, Austria, April 2004.

43. A. Wadaa, S. Olariu, L. Wilson, and M. Eltoweissy**, "Scalable Key Management for Secure Communications in Wireless Sensor Networks,"** IEEE International Conference on Distributed Computing Systems (ICDCS'04): Workshop on Wireless Ad Hoc Networks, March 2004.

44. S. Olariu, A. Wadaa, L. Wilson, M. Eltoweissy, and K. Jones**, "Traffic Anonymity in Wireless Sensor Networks,"** Proceedings of the IEEE Workshop on Energy-Efficient Wireless Computing and Networking (EWCN 2004), Phoenix, Arizona, April 2004.

45. **A.Wadaa, S. Olariu, L. Wilson, M. Eltoweissy and K. Jones, On Providing Anonymity in Wireless Sensor Networks**, *Proc. 10th International Conference on Parallel and Distributed Systems*, (ICPADS-2004), Newport Beach, California, July 2004.

46. S. Olariu, A. Wadaa, L. Wilson, Q. Xu, M. Eltoweissy, and K. Jones, **"Providing Holistic Security in Sensor Networks"**, *Proc. Workshop on Challenges of Mobility*, Toulouse, France, August 2004.

47. **Min Song, Dean Milne, and Larry Wilson, "**RIPPLE: A Fair Power Conservation Algorithm for Wireless Sensor Networks", *Proceeding of the 18th International Conference on Parallel and Distributed Computing Systems*, Sep 2005, Las Vegas

48. K. H. Jones, K. N. Lodding, S. Olariu, L. Wilson, and C. Xin, "**Sensor Networks for Situation Management: A Biomimetic Model**, ", presented at Workshop on Situation Management, Proceedings of IEEE Military Communications Conference, Atlantic City, NJ, October , 2005.

49. Kennie H. Jones, K. N. Lodding, Stephan Olariu, Larry Wilson, and Chunsheng Xin**,** "**Biology-Inspired Distributed Consensus in Massively-Deployed Sensor Networks**"**,** Proceedings of 4th International Conference on AD-HOC Networks & Wireless, Cancun, Mexico, October, 2005.

50. Kennie H. Jones, K. N. Lodding, Stephan Olariu, Larry Wilson, and Chunsheng Xin, "**Energy Usage in Biomimetic Models for Massively-Deployed Sensor Networks",** 1st International Workshop on Mobile Ad-hoc and Ubiquitous Sensor Networks, Proceedings of 3rd International Symposium on Parallel and Distributed Processing and Applications, Nanjing, China, November, 2005.

51. K. H. Jones, K. N. Lodding, S. Olariu, L. Wilson, and C. Xin, "**Biomimetic Models for an Ecological Approach to Massively-Deployed Sensor Networks",** Proceedings of ISCA 18th International Conference on Parallel and Distributed Computing Systems, Las Vegas, Nevada, September, 2005.

52. K. H. Jones, K. N. Lodding, S. Olariu, L. Wilson, and C. Xin, "**Using Cellular Automata for Simulation of Biomimetic Models for Massively-Deployed Sensor Networks",** Proceedings of ISCA 18th International Conference on Parallel and Distributed Computing Systems, Las Vegas, Nevada, September, 2005.

53. Jones, K., Lodding, K., Olariu, S., Wilson, L., and Xin, C., "**An Ecosystem Model for Massively-Deployed Sensor Networks**", Proceedings of 2nd International Conference on Intelligent Sensors, Sensor Networks and Information Processing, Melbourne (ISSNIP 2005), Australia, December, 2005.

54. Jones, K., Lodding, K., Olariu, S., Wilson, L., and Xin, C., "**Biology-inspired Architecture for Situation Management**", 2nd Workshop on Situation Managment (SIMA 2006) MILCOM 2006.

55. Jones, K., Lodding, K., Olariu, S., Wilson, L., and Xin, C., "**Communal Cooperation in Sensor Networks for Situation Management**", Proceedings of 9th International Conference on Information Fusion (Fusion 2006), Florence, Italy, July 10-13, 2006.

56. Jones, K., Lodding, K., Olariu, S., Wilson, L., and Xin, C., "**Biology Inspired Approach for Communal Behavior in Sensor Networks**", presented at Minitrack on Wireless Sensor Networks and Applications, Proceedings of 39th Hawaii International Conference on System Sciences (HICSS-39), Kauai, Hawaii, January 4-7, 2006.

57. Jones, K., Lodding, K., Olariu, S., Wilson, L., and Xin, C., "**Biology Inspired Approach for Communal Behavior in Sensor Networks**", Special Issue of "Ad Hoc and Sensor Wireless Networks", Old City Publishing, Philadelphia, PA, 2007.

Other Publications

Wilson, Larry W. **'Interactive Consistency on the SIFT Computer'**, NASA-Langley, *Technical Report of ASEE*, 1982.

Wilson, Larry W., **'An Improved Voter for SIFT'**, NASA-Langley, *Technical Report of ASEE*, 1983.

Wilson, Larry W., **'Monitoring and Queuing for SIFT',** *Task report*, NASA-Langley, September 1983.

Wilson, Larry W., **'SDAP Report'**, *Task report*, NASA-Langley June, 1984.
Other Publications continued
Wilson, Larry W., **'Testable VLSI Design of a Voter'**, *Task report*, NASA-Langley, October, 1984.

Wilson, Larry W. and Shen, Wenhui, **'Software Reliability Perspectives'**, *Technical Report*, ODU-CS department, #TR-87-035.

Wilson, Larry W., **'Software Reliability Survey'**, Mandex Inc., Springfield, Va., Feb., 1988.

Shen, Wenhui and Wilson, Larry W., **'Simulation Studies of Software Reliability Models '**, NASA Contractor Report 181889. Also released as ODU CS TR-89-10

Presentations

'**Laplace-Stieltjes Integral for Mikusinski Operator Functions**', University of North Carolina, American Math Society Regional Conference, Nov. 1972.

'**Laplace-Stieltjes Transform of Mikusinski Operator Functions**', American Math Society Annual meeting in Dallas, Jan. 1973.

'**Interactive Consistency on the SIFT Computer**', NASA-Langley, August 1982.

'**Some SIFT Software**', NASA-Langley, June 1983.

'**An Improved Voter for Sift**', NASA-Langley, August 1983.

'**Ultra-reliable Computing**', Norfolk State University, February 1984.

'**Flight Control Computers**', ODU, ACM, March 1984

'**Software Reliability Models vs Randomness**', CS Colloquium, ODU, fall 1988.

'**Software Reliability Studies**', NASA-Langley , Oct. 1988.

'**Error Graph Research**', NASA-Langley, Oct 1990.

'**Sub-logarithmic Algorithms for the Largest Empty Rectangle Problem**', ICCI '92, Fourth International Conference, May 1992, Toronto, Ontario, Canada.

'**Convexity Problems on Meshes with Multiple Broadcasting**', 4CCG, Fourth Canadian Conference on Computational Geometry, August 1992, ST. Johns, Newfoundland, Canada.

'**A Time Optimal Multiple Search Algorithm on Enhanced Meshes with Applications**', 4CCG, Fourth Canadian Conference on Computational Geometry, August 1992, ST. Johns, Newfoundland, Canada.

'**A Unifying Look at Semigroup Computations on Meshes with Multiple Broadcasting**', PARLE93, Parallel Architectures and Languages Europe, June 1993, Munich, Germany.

'**Some Effects of Fault Recovery Order on Software Reliability Models**', NASA-Langley, August 1994.

'**On the Problem of Tracking Mobile Users in Wireless Communications Networks**,' the Thirty First Annual Hawaii International Conference of System Sciences, *Jan. 1998*, Hawaii.

'**Towards a New Paradigm for Securing Wireless Sensor Networks**', New Security Paradigms Workshop, *NSPW* 2003, Ascona, Switzerland, August 2003.

'**Security-Related Issues in Wireless Sensor Networks**', (ISRS04)Information Security Research Seminar, Harrisonburg Va, May 2004

Grants and Fellowships

ASEE Fellowship 1982 and in 1983

NASA Grant 1983- 'Instrumentation Software for the SIFT Fault-Tolerant Operating System'

NASA Grant 1984- 'Sift Data Acquisition Package Design'

NASA Grant 1984-'VLSI Design of a Testable Voter'

NASA Grant 1987- 'Modelling Software by Equivalence Class Partitioning of the Program Space'

NASA Grant 1988-89-'Software Reliability Studies'

Nasa Grant 1988 - 'Neural Network Simulation'

NASA student researcher grant--88-89.

NASA Grant 1989-90-'Software Reliability Studies'.

NASA Grant 1990-94-'Software Reliability Studies'.

NSF Grant 2002-2006-'Scholarship Program for Computer Science, Engineering and Mathematics Students', Co-PI with Stephen Zohorian and Richard Noren.

CISC Grant 2002-2003-'Security-Related Issues in Wireless Sensor Networks, Co-Pi with Stephan Olariu and Ashraf Wadaa.

CISC Grant 2003-2004-'Security-Related Issues in Wireless Sensor Networks, Co-Pi with Stephan Olariu and Ashraf Wadaa.

NASA Grant 2004 – 'Technology Survey of NASA Activity in Sensor Networking Technology', Co-Pi with Stephan Olariu and Ashraf Wadaa.

PHD Students

Mary Ann Malloy, 'Software Reliability Issues: An Experimental Approach', *December 1995, MITRE Hampton Va*.

Kennie Jones, 'Biology-Inspired Approach for Communal Behavior in Massively Deployed Sensor Networks', *August 2008, NASA Langley (Stephan Olariu co-advisor).*

Teaching Award
Phi Kappa PHI - 1995 - *'EXCELLENCE IN TEACHING AWARD',* one faculty award was given at Old Dominion University that year.

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