W. Perry Alexander
The University of Kansas
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Education

- Ph.D. in Electrical and Computer Engineering, The University of Kansas, Lawrence, KS, 1992. Dissertation: "The Design and Implementation of a Specification Design System." Advisor: Dr. Gary J. Minden.
- M.S. in Electrical and Computer Engineering, The University of Kansas, Lawrence, KS, 1988.
- B.S. in Computer Science, The University of Kansas, Lawrence, KS, 1986.
- B.S. in Electrical Engineering, The University of Kansas, Lawrence, KS, 1986.

Employment History

- AT&T Foundation Distinguished Professor, Department of Electrical Engineering and Computer Science, The University of Kansas, August 2014 – present.
- Director, Information and Telecommunication Technology Center, The University of Kansas, September 2009 – present.
- Founder and CTO, Cadstone, LLC, August 2003 – 2019.
- Professor, Department of Electrical Engineering and Computer Science and Principle Investigator, Information and Telecommunication Technology Center, The University of Kansas, August 2005 – August 2014.
- Associate Professor, Department of Electrical Engineering and Computer Science and Principle Investigator, Information and Telecommunication Technology Center, The University of Kansas, August 1999 – August 2005.
- Associate Professor, Department of Electrical and Computer Engineering and Computer Science, The University of Cincinnati, September 1998 – August 1999.
- Assistant Professor, Department of Electrical and Computer Engineering and Computer Science, The University of Cincinnati, September 1992 – August 1998.
- Software Engineer, Center for Excellence in Computer Aided Systems Engineering, The University of Kansas, July 1990 - September 1992.
- Research Assistant, Telecommunications and Information Sciences Lab, The University of Kansas, July 1986 - June 1990.
- Teaching Assistant, Department of Electrical and Computer Engineering, The University of Kansas, January 1989 - May 1989
- Software Analyst, Control Systems International, June 1983 - July 1986.

Research and Teaching Interests

My principle research area is formal methods application to system-level design. A *formal method* is any methodology based on sound mathematical principles. As society becomes increasingly dependent on computer systems, mathematically sound methodologies are needed to assure properties for reliable, secure, and trustworthy systems. I strive to make formal techniques prevalent in system design through: (a) development of pragmatic, engineering methodologies; (b) development of prototype languages and engineering tool sets; and (c) introducing formal methods into the software and systems engineering curriculum.

Professional Recognition

- General
  1. AT&T Foundation Distinguished Professor, 2014–present.
  2. Elected Senior Member ACM, Fall 2006.
  3. Elected Senior Member IEEE, Fall 1999.
  4. Member of HKN, $\Phi K\Phi$, $\Upsilon\Pi E$, $\Sigma\Xi$ honorary societies
- Teaching, Advising and Service
  1. Faculty Fellow, University of Kansas Honors Program, November 2014 – present.
  2. University of Kansas Men of Merit Honoree, 2014.
  3. University of Kansas Honors Program Outstanding Honors Adviser, 2013.
  4. University Scholars Seminar instructor, Spring 2013.
  5. John E. and Winifred E. Sharp Teaching Professorship, The University of Kansas School of Engineering, 2010-12.
  6. HKN Harry Talley Excellence in Teaching Award, Electrical Engineering and Computer Science Department, The University of Kansas, 2001-2002, 2005-2006, 2009-2010, 2015-2016.
  7. Center for Teaching Excellence Teacher Appreciation Honoree, The University of Kansas, 2001-2002, 2006-2007.
  8. PHS/IFC Outstanding Professor, The University of Kansas, Spring 2006.
  9. ASEE Midwest Region Dean's Award for Teaching Excellence, Fall 2003.
  10. W. T. Kemper Fellowship for Teaching Excellence, The University of Kansas, Fall 2003.
  11. Electrical Engineering and Computer Science Engineering Expo Outstanding Teacher Award, The University of Kansas, Spring 2000.
  12. College of Engineering Professor of the Quarter, University of Cincinnati, Winter 1994, Fall 1998.
  13. College of Engineering Neil Wandmacher Teaching Award, University of Cincinnati 1997-1998.
  14. Organizing Committee Member, XXI Century Engineering Consortium on Formal Methods, 1997-1998.
  15. Mortar Board Exemplary Teaching Award, University of Cincinnati 1996-1997.
  16. William E. Restemeyer Teaching Excellence Award, University of Cincinnati Department of Electrical and Computer Engineering, 1996-1997.
  17. HKN Outstanding Professor of the Year, University of Cincinnati, 1992-1993, 1995-1997.
- Research
  1. Irving E. Youngberg Award in Applied Sciences, The University of Kansas, 2020.
  2. University of Kansas Leading Light Award, 2014.
  3. Miller Scholar, The University of Kansas School of Engineering, 2001-2002, 2002-2003, 2004-2005, 2011-2012, 2017-2018.
  4. Bellows Scholar, The University of Kansas School of Engineering, 2008-2009.
  5. William H. Middendorf Research Excellence Award, University of Cincinnati Department of Electrical and Computer Engineering, 1993-1994.

Publications

Journal

1. Comi, M., S. Smith, P. Alexander, A. Davidson, W. Goettlich, W. Staples, "Digital Homelessness: Exploring the links between social inequality, technological capital, and public Internet access" submitted to *The Sociological Quarterly*, February 25, 2021.

2. Comi, M., S. Smith, P. Alexander, A. Davidson, W. Goettlich, W. Staples, "Digital Homelessness: Exploring the links between social inequality, technological capital, and public Internet access" submitted to *Current Sociology*, March 24, 2021.

3. Helble, S., I. Kretz, P. Loscocco, J. Ramsdell, P. Rowe, P. Alexander, "Flexible Mechanisms for Remote Attestation," in press *ACM Transactions on Privacy and Security*.

4. Alexander, P., L. Pike, P. Loscocco, G. Coker, "Model Checking Distributed Access Control Policies," *ACM Transactions on Information and System Security*, **18**(2), July 2015, pp. 6:1–25.

5. L. J. Haricombe, L. A. Emmett, P. Alexander, "Open Access: An Evolving Alternative," *IEEE Computer*, **45**(8), August 2012, pp. 70-72.

6. Kimmell, G., N. Frisby, P. Weaver, and P. Alexander, "Constructing Language Processors with Algebra Combinators," *Science of Computer Programming*, **75**(7), July, 2010.

7. Alexander, P., "Rosetta: Standardization at the System-Level," *IEEE Computer*, **42**(1), January, 2009.

8. Morel, B. and P. Alexander, "SPARTACAS: Automating Component Reuse and Adaptation," *IEEE Transactions on Software Engineering*, **30**(9), September, 2004, pp. 587-600.

9. Alexander, P., "Integrating Formalism into Undergraduate Software Engineering," *Journal of Systems and Software*, **72**(3) 2003.

10. Kong, C., P. Alexander, and C. Menon, "Defining a Formal Coalgebraic Semantics for The Rosetta Specification Language," *Journal of Universal Computer Science*, **9**(11), November, 2003.

11. Frey, P. and R. Radhakrishnan, H. Carter, P. Alexander, and P. Wilsey, "A Formal Specification and Verification Framework for Time Warp Based Parallel Simulation," *IEEE Transactions on Software Engineering*, **28**(1), January 2002, pp. 58-78.

12. Alexander, P. and C. Kong, "Rosetta: Semantic Support for Model-centered Systems Level Design" *IEEE Computer Special Issue on Engineering of Computer-Based Systems*, **34**(11), November 2001, pp. 64-70.

13. Penix, J. and P. Alexander, "Efficient Specification-Based Component Retrieval," *Automated Software Engineering*, **6**(2), April 1999, pp. 139-170.

14. Alexander, P., "Task Analysis and Design Plans in Formal Specification Design," *International Journal of Software Engineering and Knowledge Engineering*, **8**(2), 1998, pp. 223-252.

15. K. Umamageswaran, K. Subramani, P. A. Wilsey, and P. Alexander, "Formal Verification and Empirical Analysis of Rollback Relaxation," *Journal of Systems Architecture* (formerly published as *Microprocessing and Microprogramming: the Euromicro Journal*), **44** (1998), pp. 473-495.

16. Alexander, P. "Software as Math (or Why You Should Pay Attention In Abstract Math Class)" *IEEE Potentials*,**16**(4) October 1997.

17. Alexander, P. "Combining Formal and Semi-Formal Methods in Software Engineering," *IEEE Potentials*, **14**(5), December 1995.

18. Alexander, P. and C. Tsatsoulis, "ASP-II: An Experiment in Combining Case-Based and Skeletal Planning," *International Journal of Expert Systems: Research and Applications.*, **4**(3), 1992, pp. 221-247.

19. Alexander, P. and P. Baraona, "Abstract Architecture Specification Using VSPEC," *VLSI Design*, **9**(2), 1999, pp. 181-201.

20. Baraona, P., J. Penix, and P. Alexander, "VSPEC: A Declarative Requirements Specification Language for VHDL," *Current Issues in Electronic Modeling, Special Issue on Specification Languages and HDLs*, **3**, 1995, pp. 51-75.

21. Alexander, P., P. Baraona, and J. Penix, "Using Declarative Specifications and Case-Based Planning for System Synthesis," *Concurrent Engineering: Research and Applications*, **2**(4), 1994, pp. 291-302.

22. Carter, D., A. Baker, and P. Alexander, "I-I-Con: A visual communications paradigm to integrate industrial control system engineering," *ISA Transactions*, **34** (1995) pp. 153-163.

Conference Proceedings

1. Petz, A., P. Alexander, "An Infrastructure for Faithful Execution of Remote Attestation Protocols," *Proceedings of the NASA Formal Methods Symposium (NFM'21)*, May 24–28, Norfolk, VA.

2. Jurgensen, G., A. Petz, M. Neises and P. Alexander, "An seL4-based Architecture for Layered Attestation," poster presentation at *Hot Topics in the Science of Security (HoTSoS'20)*, online September 22-24, 2020.

3. Volden, J., J. Marshall, W. Goettlich, M. Comi, S. Smith, W. Staples, P. Alexander and A. Davidson, "Using Portable Virualization for Exclusively-Public Computer Users," *Workshop on Inclusive Privacy and Security (WIPS'20)*, Santa Clara, CA, August 9th, 2020.

4. M. Comi, Goettlich, W., Marshall, J., Smith, S., Volden, J., Alexander, P., Davidson, D., Staples, W., "Characterizing Digital Homelessness," poster presentation at *USENIX Symposium on Usable Privacy and Security SOUPS'20*, online August 7-11, 2020.

5. Petz, A. and P. Alexander, "A Copland Attestation Manager," *Hot Topics in Science of Security (HoTSoS'19)*, Nashville, TN, April 2019.

6. Ramsdell, J., P. D. Rowe, P. Alexander, S. Helble, P. Loscocco, J. A. Pendergrass, and A. Petz, "Orchestrating Layered Attestations," *Principles of Security and Trust (POST'19)*, Prague, Czech Republic, April 8-11, 2019.

7. Borck, H., P. Kline, H. Shackleton, J. Gohde, S. Johnston, P. Alexander, and T. Carpenter, "100 Years of Software – Adapting Cyber-Physical Systems to the Changing World," *Software Engineering for Resilient Systems (SERENE'17)*, Geneva, Switzerland, September 4-5, 2017.

8. Austin, E. and P. Alexander, "Challenges Implementing an LCF-Style Proof System with Haskell," *International Workshop on Design and Implementation of Formal Tools and Systems (DIFTS'15)*, Austin, Texas USA, September 26-27, 2015.

9. Austin, E. and P. Alexander, "Stateless Higher-Order Logic with Quantified Types," *International Conference on Interactive Theorem Proving (ITP'13)*, LNCS **7998**, Rennes, France, July 2013.

10. Halling, B., and P. Alexander, "Verifying a Privacy CA Remote Attestation Protocol," *NASA Formal Methods Conference (NFM'13)*, LNCS **7871**, Mountain View, CA, May 2013.

11. Frisby, N., A. Gill and P. Alexander, "A Pattern for Almost Homomorphic Functions," *The ACM SIGPLAN Workshop on Generic Programming (WGP'12)*, Copenhagen, Denmark, September 9-10, 2012.

12. Kimmell, G., W. Peck, and P. Alexander, "System Development with Oread," *2011 Symposium on Implementation and Application of Functional Langauges (IFL'11)*, Lawrence, KS, 2011.

13. Austin, E., and P. Alexander, "Haskell + HOL = HaskHOL," *2011 Symposium on Implementation and Application of Functional Langauges (IFL'11)*, Lawrence, KS, 2011.

14. Frisby, N., M. Peck, M. Snyder, P. Alexander, "Model Composition in Rosetta," *IEEE Engineering of Computer-Based Systems Symposium and Workshops, (ECBS'11)*, Las Vegas, NV, 2011.

15. Austin, E., and P. Alexander, "HaskHOL: A Haskell Hosted Domain Specific Language Representation of HOL Light," *Trends in Functional Programming (TFP'10)*, Norman, OK, May 17-19, 2010.

16. Snyder, M., and P. Alexander, "Type-Indexed Monads," *Trends in Functional Programming (TFP'10)*, Norman, OK, May 17-19, 2010.

17. Snyder, M., N. Frisby, G. Kimmell, and P. Alexander, "Writing Composable Software with InterpreterLib," *Software Composition (SC'09)*, Zurich, Switzerland, July 2-3, 2009.

18. Kimmell, G., E. Komp, and P. Alexander, "Multi-target Synthesis of Embedded Systems", *Emerging Technologies and Factory Automation (ETFA'08)*, Hamburg, Germany, September 15-18, 2008.

19. Kimmell, G., E. Komp, G. Minden, J. Evans, and P. Alexander, "Synthesis of Software Defined Radios using Rosetta", *The Federation of Design Languages (FDL'08)*, Stuttgart, Germany, September 8-10, 2008.

20. Weaver, P., Kimmell, G., N. Frisby, and P. Alexander, "Modular and Generic Programming with InterpreterLib," *IEEE/ACM International Conference on Automated Software Engineering (ASE'07)*, Atlanta, GA, November 2007.

21. Weaver, P., G. Kimmell, and P. Alexander, "Software Engineering with Algebra Combinators," *ACM International Conference on Generative Programming and Component Engineering (GPCE'07)*, Salsburg, Austria, October 1-3, 2007.

22. Streb, J., G. Kimmell, N. Frisby, P. Alexander, "Domain Specific Model Composition Using A Lattice Of Coalgebras," *OOPSLA'06 Workshop on Domain Specific Modeling*, Portland, OR, October 22, 2006.

23. Streb, J and P. Alexander, "Using a Lattice of Coalgebras For Heterogeneous Model Composition," *MoDELS Workshop on Multi-Paradigm Modeling: Concepts and Tools*, Genova, Italy, October 2, 2006.

24. Ward, J., G. Kimmell, and P. Alexander, "Prufrock: A Framework for Constructing Polytypic Theorem Provers," *The 20^{th} International Conference on Automated Software Engineering (ASE'05)*, Long Beach, CA, September 2005.

25. Kimmell, G., E. Komp, and P. Alexander, "Building Compilers by Combining Algebras," *The 12^{th} Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems (ECBS'05)*, April 4-7, 2004, Washington, DC.

26. Kimmell, G. and P. Alexander, "Modular Monadic Semantics for Aspect Oriented Programs," poster at *ACM International Conference on Functional Programming,* Snowbird, UT, September 19-22, 2004.

27. Zinjuwadia, K. and P. Alexander, "DVTG and Test Harnessing Using Rosetta Specifications," *The 11^{th} Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems (ECBS'04)*, May 24-26, 2004, Brno, Czech Republic.

28. Morel, B. and P. Alexander, "Automating Component Adaptation for Reuse," *Proceedings of the Automated Software Engineering Conference (ASE'03)*, Montreal, Quebec, Canada, October 2003.

29. Kong, C. and P. Alexander, "Defining a Formal Semantics for the Rosetta Specification Language," *IFIP Formal Specification of Computer-Based Systems Workshop (FSCBS'03)*, Huntsville, AL, April 2003.

30. Morel, B. and P. Alexander, "A Slicing Approach for Parallel Component Adaptation" *IEEE Engineering of Computer-Based Systems Symposium and Workshop (ECBS'03)*, Huntsville, AL, April 2003.

31. Kong, C. and P. Alexander, "The Rosetta Meta-Model Framework," *IEEE Engineering of Computer-Based Systems Symposium and Workshop (ECBS'03)*, Huntsville, AL, April 2003.

32. Kong, C. and P. Alexander, "Multi-Faceted Requirements Modeling and Analysis," *IEEE Joint International Requirements Engineering Conference (RE'02)*, Essen, Germany, September 9-13, 2002.

33. Kong, C. and P. Alexander, "Modeling Model of Computation Ontologies in Rosetta," *Formal Specification of Computer Based Systems (FSCBS'02)*, Lund, Sweden, April 10-11, 2002.

34. Alexander, P. and C. Kong, "Synthesis as Retrieval: Feature-Based Retrieval and Adaptation Architectures," *AAAI 2002 Spring Symposium Series, Workshop on Logic-Based Program Synthesis*, Stanford University, March 25-27, 2002.

35. Murali, R., K. Jambhekar, A. Rajkhowa, and P. Alexander, "VSPEC and its Integrated Tool Suite," *Proceedings of the 9^{th} IEEE Engineering of Computer-Based Systems Symposium and Workshop*, Lund, Sweden, April 8-11, 2002.

36. Murali, R. and P. Alexander, "Analysis of Component-Based Systems - An Automated Theorem Proving Approach," *OOPSLA'01 Workshop on Specification and Verification of Component-Based Systems*, Tampa, FL, October 14, 2001.

37. Alexander, P. and C. Kong, "Heterogeneous Modeling Support for Embedded Systems Design," Proceedings of *DARPA Embedded Software Workshop*, Lecture Notes in Computer Science, **2211**, October 10, 2001.

38. Akkipeddi, S., P. Alexander, K. Ranganathan, and P. Chawla, "Generating Test Vectors from Systems Requirements," *AutoTestCon'01*, Washington, DC. August, 2001.

39. Kong, C., and P. Alexander, "Heterogeneous Computer-Based System Specification," *Formal Specification of Computer-Based Systems Workshop*, Washington, DC, April 20, 2001.

40. Alexander, P., C. Kong and D. Schonberger, "A Practical Semantics for Domain Interaction," *Proceedings of The Engineering of Computer Based Systems Symposium and Workshop (ECBS'01)*, Washington, DC., April, 2001.

41. Chawla, P. and P. Alexander, "Automated Reuse Support for Design of Embedded Avionics Systems," *IEEE Aerospace Conference*, March, 2001.

42. Alexander, P. and D. Barton, "A Tutorial Introduction to Rosetta," *Hardware Description Languages Conference (HDLCon'01)*, San Jose, CA., March 2001.

43. Ranganathan, K., M. Rangarajan, and P. Alexander, "Design Verification Test Generation from Rosetta Requirements," *VHDL International User's Forum (VIUF'00)*, Orlando, FL, October 16-18, 2000.

44. Patil, M. and P. Alexander, "A Component Retrieval System Using PVS," *Theorem Proving in Higher Order Logics (TPHOLS'00)*, Portland, OR, August 15-16, 2000.

45. Venkataraman, A., M. Rangarajan, and P. Alexander, "Composing Specifications in VSPEC," *Proceedings of the International Conference in Formal Engineering Methods (ICFEM'00)*, York, UK, September, 2000.

46. Ashenden, P., P. Alexander, and D. Barton, "A Dual Spring System Case-Study Model in Rosetta," *FDL'00*, Tubingen, Germany, September, 2000.

47. Kong, C. and P. Alexander, "Formal Modeling of Active Network Nodes using PVS," *Formal Methods in Software Practice (FMSP'00)*, Portland, OR, October, 2000.

48. Alexander, P., C. Kong, and D. Barton, "The Rosetta Functional Requirements Specification Domains," *Hardware Description Language Conference (HDLCON'00)*, March 2000, Los Angeles, CA.

49. Alexander, P., R. Kamath, D. Barton, "System Specification in Rosetta," *IEEE Engineering of Computer Based Systems Workshop and Symposium (ECBS'00)*, April 2000, Edinburgh, UK.

50. Rangarajan, M., P. Alexander, et. al., "On the Design of Orbit," *IEEE Engineering of Computer Based Systems Workshop (ECBS'00)*, April 2000, Edinburgh, UK.

51. Chawla, P. and P. Alexander, "Enabling Collaboration Through Specification Based Search and Retrieval," *Collaborative Engineering Workshop*, November 9, 1999, Detroit, MI.

52. Barton, D. and P. Alexander, "Rosetta – The SLDL Constraints Language," *VHDL Users International Forum (VIUF-99)*, October, 1999, Orlando, FL.

53. Alexander, P., R. Kamath, and D. Barton, "Facets and Domains in SLDL," *Forum on Design Languages (FDL'00)*, September, 1999, Lyon, France.

54. Kamath, R., P. Alexander, and D. Barton, "SLDL: A Systems Level Design Language," *ASIC/SOC 99*, September, 1999, Washington, DC.

55. Alexander, P., M. Rangarajan, and P. Baraona, "A Brief Summary of VSPEC," *World Congress on Formal Methods (FM'99)*, September, 1999, Toulouse, France.

56. Rangarajan, M., and P. Alexander, "Application of Proof Obligations in the Design Process," *International Conference on Software Engineering and Knowledge Engineering (SEKE'99)*.

57. Chernyakhovsky, V., P. Frey, R. Radhakrishnan, P. A. Wilsey, P. Alexander, and H. W. Carter, "A Formal Framework for Specifying and Verifying Time Warp Optimizations," *Workshop on Formal Methods for Parallel Programming: Theory and Applications*, April 1999.

58. Rangarajan, M., N. Abu-Ghazaleh, and P. Alexander, "Using Automatable Proof Obligations for Component-Based Design Checking," *International Symposium and Workshop on Engineering of Computer Based Systems (ECBS'99)*, March 1999, Nashville, TN.

59. Abu-Ghazaleh, N., D. Dieckman, M. Rangarajan, P. Alexander and P. Wilsey, "Orbit: An Environment for Component-Based Heterogeneous Design and Analysis," *International Symposium and Workshop on Engineering of Computer Based Systems (ECBS'99)*, March 1999, Nashville, TN.

60. Rajkhowa, A. and P. Alexander, "VSPEC Constraint Modeling and Evaluation," *International Symposium and Workshop on Engineering of Computer Based Systems (ECBS'99)*, March 1999, Nashville, TN.

61. Frey, P., R. Radhakrishnan, P. A. Wilsey, P. Alexander, and H. W. Carter, "An Extensible Formal Framework for the Specification and Verification of an Optimistic Simulation Protocol," *32th Hawaii International Conference on System Sciences* (HICSS'32), January 1999.

62. Alexander, P., "Multi-faceted Design: The Key to Systems Engineering," *Forum on Design Languages (FDL'98)*, September 10-11, 1998.

63. D. M. Rao, K. Swaminathan, R. Radhakrishnan, P. A. Wilsey, and P. Alexander, "ANSE: An Active Networks Simulation Environment," *Workshop on Distributed and Parallel Systems (DAPSYS'98)*, September 1998.

64. Swaminathan, K., R. Radhakrishnan, P. A. Wilsey, and P. Alexander, "Large Scale Active Networks Simulation," *International Workshop on Applied Parallel Computing*, March, 1998.

65. Chawla, P., P. Alexander and R. Vemuri, "A Search and Retrieval Tool to Enable System Design Through Intellectual Property Reuse," *NAECOM*, July, 1998.

66. Swaminathan, K., R. Radhakrishnan, P. A. Wilsey, and P. Alexander "Large Scale Active Networks Simulation," *International Workshop on Applied Parallel Computing*, March, 1998.

67. Dieckman, D., P. Alexander, and P. A. Wilsey, "ACTIVESPEC: A Framework for the Specification and Verification of Active Network Services and Security Policies", *Formal Methods in Security Protocols*, June, 1998.

68. Rangarajan, M., N. Abu-Ghazaleh, and P. Alexander, "Light-Weight Analysis of Compositional Designs: towards compositional verification," *International Conference on Software Engineering and Knowledge Engineering (SEKE-98)*, KSI Press, June, 1998.

69. Penix, J., D. Martin, P. Frey, R. Radhakrishnan, P. Alexander and P. Wilsey, "Experiences in Verifying Parallel Simulation Algorithms," *Workshop on Formal Methods in Software Practice (FMSP-98)*, March 3-4, 1998.

70. Penix, J. and P. Alexander, "Formal Specifications for Component Retrieval and Reuse," *Hawai'i International Conference on Systems Sciences (HICSS 98)*, January 1997.

71. Penix, J. and P. Alexander, "Declarative Specification of Software Architectures," Proceedings of the *Automated Software Engineering Conference (ASE-97)*, IEEE Press, November 2-5, 1997.

72. P. Alexander, "Extending VHDL to the Systems Level," Proceedings of the *VHDL International User's Forum (VIUF 97)*, IEEE Press, October 19-23, 1997.

73. Alexander, P. "Formal Methods at the Systems Level," Proceedings of the *IEEE International Conference on Systems, Man and Cybernetics*, IEEE Press, October 12-15, 1997.

74. Penix, J. and P. Alexander, "Toward Automated Component Adaptation," Proceedings of the *International Conference on Software Engineering and Knowledge Engineering (SEKE-97)*, Knowledge Systems Institute, June 18-20, 1997.

75. Rangarajan, M., J. Penix, P. Alexander and P. Wilsey, "Gravity: An Object-Oriented Framework for Hardware/Software Tool Integration," Proceedings of the *30th Annual Simulation Symposium*, April 1997.

76. Baraona, P. and P. Alexander, "Representing Abstract Architectures with Axiomatic Specifications and Activation Conditions," Proceedings of the *IEEE Engineering of Computer Based Systems Symposium (ECBS-97)*, IEEE Press, March 1997.

77. Penix, J. and P. Alexander, "Component Reuse and Adaptation at the Specification Level," *The Eighth Annual Workshop on Software Reuse (WISR8)*, March 23-26, 1997.

78. Alexander, P., "Formal Representations for Abstract System Evaluation," Proceedings of the *IEEE Engineering of Computer Based Systems Workshop*, IEEE Press, September 25, 1996.

79. Alexander, P., "Integrating Formalism in Software Engineering," Proceedings of the *DIMACS Symposium on Teaching Logic and Reasoning in an Illogical World*, July 1996.

80. Kannikeswaran, B., R. Radharkrishna, P. Frey, P. Alexander and P. Wilsey, "Formal Specification and Verification of the pGVT Algorithm," Proceedings of the *Formal Methods Europe '96 Symposium*, Lecture Notes in Computer Science **1051**.

81. Penix, J., and P. Alexander, "Design Representation for Automating Software Component Reuse," Proceedings of the *Knowledge-Based Systems for the (Re)Use of Program Libraries Workshop*, INRIA Sophia Antipolis, France, November 1995.

82. Penix, J., P. Baraona and P. Alexander, "Classification and Retrieval of Reusable Components Using Semantic Features," Proceedings of the *Knowledge-Based Software Engineering Conference (KBSE-95)*, IEEE Press, Boston, MA, November 1995, pp. 131-138.

83. Alexander, P., P. Baraona, and J. Penix, "Application of Software Synthesis Techniques to Composite Systems," Proceedings of the *Computers in Engineering Symposium of the American Society of Mechanical Engineers Energy Technology Conference*, ASME Press, Houston, TX, January, 1995.

84. Alexander, P., P. Baraona, and J. Penix, "A Declarative Specification Methodology For System Synthesis," Proceedings of the *International Conference on Electronic Hardware Description Languages*, Society for Computer Simulation, Las Vegas, NV, March 1995, pp. 144-149.

85. Vemuri, R., and H. Carter, and P. Alexander, "Board and MCM Level Synthesis for Embedded Systems: The COMET Cosynthesis Environment," Proceedings of the 1st Annual RASSP Conference, Washington, DC, August 1994.

86. Alexander, P., "Combining Transformational and Derivational Analogy in Larch Specification Generation," Proceedings of the *The 6th International Conference on Software Engineering and Knowledge Engineering*, Knowledge Systems Institute, Riga, Latvia, June 1994, pp. 131-138.

87. Baraona, P., J. Penix, and P. Alexander, "VSPEC: A Declarative Specification Methodology For System Specification," Proceedings of the *IEEE International Symposium and Workshop on Systems Engineering of Computer Based Systems*, IEEE Press, Tucson, AZ, March 1995, pp 261-268.

88. Baraona, P. and P. Alexander "VSPEC: A Language For Digital System Specification," Proceedings of the *AAAI-94 Workshop on Artificial Intelligence and Systems Engineering*, AAAI Press, Seattle, WA, August 1994.

89. Alexander, P., "BENTON: A Multi-agent System for Larch Specification Generation," Proceedings of the *The 5th International Conference on Software Engineering and Knowledge Engineering*, Knowledge Systems Institute, San Francisco, CA, 1993.

90. Alexander, P., "AI Models for Systems Engineering: Lessons Learned from Knowledge-Based Software Engineering," Proceedings of the *AI Models for Systems Engineering, AAAI-93,*, AAAI Press, Washington, DC, July 1993.

91. Holtzman, J. and P. Alexander, "A Proposed Curriculum for Computer Based Systems Engineering," Proceedings of the *The Computer Based Systems Engineering Workshop*, IEEE Press, London, England, June 1992.

92. Alexander, P., C. Tsatsoulis, G. Minden, and J. Holtzman, "Case-Based Planning for Simulation," Proceedings of the *IEE European Planning Conference,* IEE Press, June 1990, pp. 217-220.

93. Alexander, P., C. Tsatsoulis, G. Minden, and J. Holtzman, "A Case-Based System for Simulation Generation and Control," *AI and Simulation: Theory and Practice, Proc. of 1990 Artificial Intelligence and Simulation Conference,* Society for Computer Simulation, April 1990.

94. Alexander, P., C. Tsatsoulis, G. Minden, and J. Holtzman, "Storing Design Knowledge in Cases," Proceedings of the *Proceedings: Case-Based Reasoning Workshop,* DARPA, May 1989, pp. 188-192.

95. Alexander, P., P. Magis, J. Holtzman, and D. Tam, "An Integrated Workstation for Cosite EMC Analysis," Proceedings of the *5th Annual Review of Progress in Applied Electromagnetics,* March 1989.

96. Alexander, P., P. Magis, J. Holtzman, and S. Roy, "A Methodology for Interoperability Analysis," Proceedings of the *Military Communications Conference (MILCOM '89)*, IEEE Press, October 1989, 6 pages.

97. Holtzman, J., G. Minden, P. Alexander, J. Oszorkiewicz, G. Sargent, and R. Yarbro, "A Computer Aided Design Tool for Colocated HF Links," Proceedings of the *Fourth IEE International Conference on HF Radio Techniques*, IEE Press, April 1988, 7 pages.

98. Alexander, P., J. Holtzman, G. Sargent, and K. S. Shanmugan, "COEDS: A CAAD Tool for Shipboard Communication EMC Systems Engineering," Proceedings of the *IEEE Global Telecommunications Conference*, IEEE Press, November 1988, 7 pages.

Books

1. Alexander, P., *An Introduction to Formal Methods*, in progress.
2. Alexander, P., *Programming Languages in Haskell*, published online at http://ku-sldg.github.io/plih/, January 2017.
3. Alexander, P., *System-Level Design with Rosetta*, Morgan Kaufmann Publishers, November 2006.

Book Chapters

1. Peck, M. and P. Alexander, "Rosetta Composition Semantics," in *Progressions and Innovations in Model-Driven Software Engineering*, V. G. Díaz, J. M. C. Lovelle, B. C. P. García-Bustelo, and O. S. Martínez, Editors, IGI Global, 2013.
2. Andrews, D. and P. Alexander, "Laboratory Support for MIPS-style Processor Design," suppliment to *Computer Organization and Design, 3^{rd} Edition*, Hennessey and Patterson, 2004.
3. Penix, J. and P. Alexander, "REBOUND: A Framework for Automated Component Adaptation," in *Component-Based Software Development, Case Studies Volume*, Kung-Kiu Lau, editor.
4. Alexander, P. and D. Barton, "Multi-Faceted Modeling: The Key to Systems Engineering," in *System-on-Chip Methodologies & Design Languages*, P. Ashenden, J. Mermet, R. Seepold Editors, Kluwer Academic Publishers, June 2001.
5. Tsatsoulis, C. and P. Alexander, "Integrating Cases, Sub-cases And Generic Prototypes For Design", in *Issues and Applications of Case-Based Reasoning to Design*, M. L. Maher and P. Pu editors, Lawrence Erlbaum Associates, Mahwah, NJ, 1997, pp. 261-299.

Invited Papers and Presentations

1. P. Alexander, "Flexible Mechanisms for Remote Attestation," invited presentation at *Science of Security Summer PI Meeting*, online hosted by Carnegie Mellon University, July 13-14, 2021.
2. P. Alexander, "Security Over Time or Change Is Bad and Evil," invited panelist at *Hot Topics in Science of Security (HoTSoS'21)*, online hosted by National Security Agency, April 13-14, 2021.
3. P. Alexander, "An Aesthetics for Computing," keynote presentation at *University Scholars Banquet*, The University of Kansas, Lawrence, KS January 26, 2020.
4. P. Alexander, "An Aesthetics for Computing," invited presentation at *Digital Initiative Convening*, The University of Kansas, Lawrence, KS, January 22, 2020.
5. P. Alexander, "Remote Attestation and Trust," invited presentation at *University Blockchain Research Initiative Connect (UBRICon'19)*, University of California at Berkeley, Berkeley, CA, October 3-4, 2019.
6. P. Alexander, "Trust and Proof," invited panel presentation at *Blockchain KC Conference*, Kansas City, MO, April 24, 2019.
7. P. Alexander, "A Science of Security," keynote presentation at *Cyberattacks, Intellectual Property, and University Open Research: The Perfect Storm*, ICCAE Spring Colloquium, The University of Kansas, Lawrence, KS, April 23, 2019.
8. P. Alexander, "Trust and Proof," invited presentation at *2018 KCNSC Trust Consortium*, Department of Energy's Kansas City National Security Campus, Grandview, MO, June 5-6, 2018.

9. S. Helble, Pendergrass, A., Loscocco, P., Alexander, P., Petz, A., Rowe, P., Ramsdell, J., "Principles of Layered Attestation," invited presentation at *High Confidence Software and Systems Conference*, Annapolis, MD, May 7-9, 2018.

10. D. Hardin, Alexander, P., Slind, K. "VeriCores: Cyber-Instrumenting Devices Built from Verified Components," invited presentation at *High Confidence Software and Systems Conference*, Annapolis, MD, May 7-9, 2018.

11. P. Alexander, "The Industrialization of Knowledge," invited presentation at the Lawrence Rotary Club, February 27, 2017.

12. P. Alexander, "Verifying Trusted Computing Infrastructure," invited presentation at University of North Texas, January 20, 2017.

13. P. Alexander, "A Rosetta Postmortem," invited presentation at *New Directions in Software Technology (NDIST'16)*, St John, US Virgin Islands, December 4-9, 2016

14. P. Alexander, "Three Pieces of Free Advice," Faculty Keynote at *KU Honors Fall Reception*, November 20, 2016

15. Kline, P. and P. Alexander, "Remote Attestation Protocol Synthesis and Verification," presentation at *Midwest Verification Day (MVD'16)*, Iowa State University, Ames, IA, October 21-22, 2016

16. Petz, A. and P. Alexander, "A Semantics for Attestation Protocols using Session Types in Coq," presentation at *Midwest Verification Day (MVD'16)*, Iowa State University, Ames, IA, October 21-22, 2016

17. Alexander, P., "Trusting Data," invited presentation for *Digital Humanities Seminar* at The University of Kansas, February 15, 2016.

18. Alexander, P., "A Just Machine," invited presentation at *Linda Hall Library*, Kansas City, MO, May 9, 2015.

19. Alexander, P., "Remote Attestation for Cloud-Based Systems," invited presentation at *High Confidence Software and Systems Conference*, Annapolis, MD, May 5-9, 2015.

20. Alexander, P., "Turing and Enigma," invited presentation at *Lawrence Public Library*, Lawrence, KS, February 20, 2015.

21. Alexander, P., "Slinging Symbols," Red Hot Research at *The University of Kansas*, Lawrence, KS, February 6, 2015.

22. Alexander, P., "Bitcoin Basics," invited online talk at *State University of New York at Buffalo*, Buffalo, NY, October 29, 2014.

23. Alexander, P., "An Introduction to Trusted Computing," at The Universty of Kansas Society of Scientists, Lawrence, KS, October 28, 2014.

24. Alexander, P., "The Future of Trust," invited panelist at *Free State Festival*, Lawrence, KS, June 26, 2014.

25. Alexander, P., P. Kulkarni, A. Gill, "ArmoredSoftware: Trust in the Cloud," invited poster presentation at *High Confidence Software and Systems Conference*, Annapolis, MD, May 6-9, 2014.

26. Alexander, P., "A Just Machine," Russell Bradt Undergraduate Colloquium, Department of Mathematics, The University of Kansas, Lawrence, KS, April 25, 2014.

27. Alexander, P., "Can You Trust Me?," invited presentation at University of Tennessee, Knoxville, TN, February 24, 2014.

28. Austin, E. and P. Alexander, "Introducing HaskHOL: A Haskell EDSL for HOL Theorem Proving," presentation at *Midwest Verification Day (MVD'13)*, The University of Illinois at Chicago, Chicago, IL, September, 2013.

29. Alexander, P., B. Halling, "Verifying the TPM 1.2," invited presentation at *High Confidence Software and Systems Conference*, Annapolis, MD, May 5-8, 2013.

30. Alexander, P., "Establishing Trust Remotely: An Introduction to Trusted Computing," invited presentation at Perceptive Software, Olathe, KS, March 15, 2013

31. Alexander, P., "Yay! More Tech!," invited presentation for *Data & Democracy: Our Technology, Our Future*, The Commons, The University of Kansas, Lawrence, KS, February 20, 2013

32. Alexander, P., "On the End of Paper-Based Communication," invited presentation and paper for *The 2012 Merrill Regional Research Retreat*, Nebraska City, NE, July 19, 2012

33. Alexander, P., "A Just Machine," invited presentation at The Kansas City Public Library, Kansas City, MO, May 18, 2012

34. Alexander, P., "Verifying the TPM: How I learned to love the monad," invited presentation at *Greater Kansas City Security Workshop (KanSec'12)*, Kansas State University, Manhattan, KS, March 30, 2012

35. Alexander, P., "Establishing a Shared Secret", Junior Day Faculty Session, The University of Kansas, Lawrence, KS, February 20, 2012

36. Alexander, P., "Verifying the TPM: How I learned to love the Monad," invited talk at The University of Kansas Department of Mathematics Seminar, Lawrence, KS, February 15, 2012

37. Alexander, P., "A Just Machine," invited talk at *The Harnessing Information, Multiplying Knowledge Summit*, The University of Kansas, Lawrence, KS, January 27, 2012

38. Alexander, P., "Do you trust me?," invited talk at *NSA/DHS Stop.Think.Connect Workshop*, The University of Kansas, Lawrence, KS, September 2011

39. Alexander, P., "Do you trust me?," invited talk at *NSA/DHS Stop.Think.Connect Workshop*, The University of Kansas, Lawrence, KS, May 2011

40. Alexander, P., "Smart Grid Attestation," invited presentation at *The New American Dream: SmartGrid/SmartHome/Smart Car*, The Commons at the University of Kansas, Lawrence, KS, May 2011.

41. Frisby, N. and P. Alexander, "Composition in the State-Based Rosetta Domain," presentation at *Midwest Verification Day (MVD'10)*, The University of Iowa, Iowa City, IA, September, 2010.

42. Austin, E., Alexander, P. and Frisby, N., "Challenges Implementing a HOL System in Haskell or: How I Learned to Stop Worrying and Love the Monad," presentation at *Midwest Verification Day (MVD'10)*, The University of Iowa, Iowa City, IA, September, 2010.

43. Alexander, P., "Can you trust me?," invited talk at *Motorola, Inc.*, Lawrence, KS, May 2010.

44. Alexander, P., "Can you trust me?," invited talk at *Software Innovation Assocaition of Kansas (SITAKS)*, Lenexa, KS, August 2009.

45. Alexander, P., "A Tutorial Introduction to Rosetta Semantics," invited tutorial at *The Federation of Design Languages (FDL'08)*, Stuttgart, Germany, September 2008.

46. Alexander, P., "Security as a System-Level Constraint," Google Tech Talk, Mountain View, CA, June 4, 2008.

47. Alexander, P., "Security as a System-Level Constraint," invited presentation at the *NSA High Confidence Software Symposium*, Baltimore, MD, March 5-7, 2008.

48. Alexander, P., "An Introduction to Rosetta and SDR Synthesis," invited presentation at *Rockwell Collins Advanced Technology Center*, Cedar Rapids, IA, February 13, 2008.

49. Alexander, P., "An Introduction to Rosetta," invited tutorial at *The ACM/IEEE International Conference on Automated Software Engineering (ASE'07)*, Atlanta, GA, November 2007.

50. Alexander, P., "Is The System-Level Next?," invited presentation at *Automated Software Engineering State-of-the-Art Workshop*, London, England, August 8, 2007.

51. Alexander, P., "An Introduction to Rosetta," invited presentation at *Kansas State University Department of Computer Science*, Manhattan, KS, June 25, 2007.

52. Burke, D. and P. Alexander, "Introduction to Trust Relations," invited presentation at the *NSA High Confidence Software Symposium (HCSS'07)*, Baltimore, MD, May, 2007.

53. Alexander, P., "System-Leven Analysis of the Supervisor Virtual Platform," invited presentation at *The National Security Agency*, Baltimore, MD, January 30, 2007.

54. Alexander, P., "System-Level Design and Rosetta," invited talk at *The University of Missouri, Kansas City Department of Computer Science*, Kansas City, MO, January 23, 2007.

55. Alexander, P. "An Introduction to Rosetta," invited talk at *Galois Connections*, Beaverton, OR, June 8 2006.

56. Alexander, P. "Bahye-Dole at 25" invited participant, Lawrence, KS, November 18, 2005.

57. Alexander, P. "Cadstone: A Technology Transfer Success Story," invited presentation at *Lawrence Technology Association LTA*, Lawrence, KS, October, 2005.

58. Alexander, P. "NSF Workshop on Modeling and Simulation for Design of Large Software-Intensive Systems," invited participant, Tucson, AZ December 3-4, 2003.

59. Alexander, P. "System Level Security Modeling," invited talk at *Cigital, Inc*, Dulles, VA, May 15, 2003.

60. Alexander, P. "Rosetta: The System Design Language," invited talk at *Federation on Design Languages (FDL'02)*, Marsailles, France, September 23, 2002.

61. Alexander, P. "Who cares about system verification?" invited panel presentation at *Federation on Design Languages (FDL'02)*, Marsailles, France, September 23, 2002.

62. Alexander, P. "System Specification in Rosetta," invited talk at *The National Security Agency*, May 16, 2002.

63. Alexander, P. "Rosetta in Mobile and Power Aware Design," invited talk at *Berkeley Wireless Research Center*, March 13, 2002.

64. Alexander, P. "System Specification Using Rosetta," invited talk at *Cadence Berkeley Labs*, March 13, 2002.

65. Alexander, P. "SLDL Standardization," invited talk at *Office of The Undersecretary of Defense, Advisory Group on Electron Devices Special Technology Area Review on System Design Tools*, January 10, 2002.

66. Alexander, P. "How Dissertations Get Written," invited talk at *Automated Software Engineering (ASE'01) Doctoral Symposium*, November 25, 2001.

67. Alexander, P. "Heterogeneous Modeling of Embedded Systems," invited talk at *DARPA Embedded Software Workshop*, October 9, 2001.

68. Alexander, P. "The Rosetta Systems Level Design Language," invited talk for Synopsys Formal Method Group, San Jose, CA, June 4, 2001.

69. Alexander, P. "Modeling Interactions in Heterogeneous Modeling Languages," invited talk at the *DARPA MoBIES Principal Investigator's Meeting*, January 24, 2001.

70. Alexander, P. "Semantic Support for Concurrent Engineering," invited talk at the *DARPA US-EU Mini-Workshop on Tool Integration*, January 22, 2001.

71. Alexander, P. "Multi-Domain Specification in Rosetta," invited talk at The University of California at Berkeley, December 13, 2000.

72. Alexander, P. "Teaching Formal Methods to Undergraduate Students," invited keynote address at the *Working Group on Software Engineering Education and Training*, October 17, 2000.

73. Alexander, P. "System Specification in Rosetta," invited tutorial at *VHDL International User's Forum (VIUF'00)*, Orlando, FL, October 18, 2000.

74. Alexander, P. "Rosetta: Language support for systems level design," invited talk at the *Design for Safety Workshop*, NASA Ames, October 13, 2000.

75. Alexander, P. "Theorem Proving in Higher Order Logic: What you need to learn," invited tutorial at *Theorem Proving in Higher Order Logics (TPHOLS'00)*, August 16, 2000.

76. Alexander, P. "A First Step Towards Systems Level Design," *Iowa State University, Department of Computer Science*, January 27, 2000.

77. Alexander, P. "The Emerging Systems Level Design Language," *Sunflower Lecture Series, The Wichita State University, Department of Electrical and Computer Engineering*, November 12, 1999.

78. Alexander, P. "Rosetta: Objectives and Semantics," *VHDL International Users Forum (VIUF-99)*, October, 1999, Orlando, FL.

79. Alexander, P. "VSPEC: A first step toward system level design," *The University of California, Irvine Department of Computer and Information Science*, Irvine, CA, April 20, 1999.

80. Alexander, P. "VSPEC: A first step toward system level design," *The University of Kansas Department of Electrical Engineering and Computer Science*, Lawrence, KS, April 1, 1999.

81. Alexander, P. "Formal Methods De-mystified," *Syracuse University Department of Electrical Engineering and Computer Science*, Syracuse, NY, March 23, 1999.

82. Alexander, P. "VSPEC: A first step toward system level design," *Syracuse University Department of Electrical Engineering and Computer Science*, Syracuse, NY, March 23, 1999.

83. Alexander, P. "Formal Modeling and Systems Level Design," panel session presentation at *Engineering of Computer Based Systems Symposium and Workshop (ECBS 99)*, Nashville, TN, March 7-12, 1999.

84. Alexander, P. "VSPEC: A first step toward system level design," *The University of Minnesota Department of Computer Science*, Minneapolis, MN, February 13, 1999.

85. Alexander, P. "A Formal Approach to Component Based Design," *National Security Agency*, Baltimore, MD, April 6, 1998.

86. Alexander, P. "Supporting Systems Level Design," *Texas Instruments*, Dallas, TX, April 1, 1998.

87. Alexander, P. "Heterogeneous Network Analysis," *DARPA Networks PI Meeting*, Tucson, AZ, March 11-13, 1998.

88. Alexander, P. "A Formal Basis for Systems Engineering," *Workshop on Model Integrated Computing (WMIC-97)*, The University of Tennessee Space Institute, Tullahoma, TN, July 31 - August 1, 1997.

89. Alexander, P. "Packet Level Security: Experiment and Issues," invited presentation at *DARPA Active Networks Workshop*, The University of Pennsylvania, Philadelphia, PA, June 18-19, 1997.

90. Alexander, P. "Collecting and Preparing Course Materials," invited presentation at *DARPA 21st Century Consortium on Formal Methods Education*, City College, New York, NY, May 9, 1997.

91. Alexander, P. "Formal Systems Architectures," invited presentation at *The First IEEE/DATC Workshop on System Level Design Languages*, April 7-10, 1997.

92. Alexander, P. "The Role of Formal Methods in Model-Based Systems Engineering," invited panel presentation at *The IEEE Symposium and Workshop on Engineering of Computer Based Systems*, Monterey, CA, March 25, 1997.

93. Alexander, P. "Formal Semantics and Active Networks," invited presentation at *The DARPA/ITO Active Networks Workshop*, Baltimore, MD, March 5, 1997.

94. Alexander, P. "Formal Methods: What Industry Seems to Want," invited presentation at *The Rome Labs/DARPA 21st Century Consortium on Formal Methods Education*, Syracuse University, Syracuse, NY, January 24, 1997.

95. Alexander, P. "VSPEC: Motivation and Introduction," invited presentation at *The Future of VHDL Workshop*, Durham, NC, October 31, 1996.

96. Alexander, P. "Abstraction and Heterogeneity: Keys to Verification And Validation," invited panel presentation at *VHDL International User's Forum*, Durham, NC, October 30, 1996.

97. Alexander, P. "Formal Methods De-mystified," invited presentation to The Dayton Area ACM Chapter. Dayton, OH, October 17, 1996.

98. Alexander, P. "Evaluation Throughout the Systems Development Life-cycle: Why testing is not enough," invited presentation at *Engineering of Computer Based Systems Workshop* at the *Eighth IEEE Symposium On Parallel and Distributed Processing*, New Orleans, LA, October 1996.

99. Alexander, P. "VSPEC: Formal Semantic Constraints in VHDL," invited presentation at *The First Systems Level Design Workshop*, Dallas, TX, September 1996.

100. Alexander, P. "Issues in Language Design for Formal Methods Technology Transfer," invited presentation at *National Security Agency TechFest*, Baltimore, MD, August 1996.

101. Alexander, P. "Formal Architecture Synthesis Support," invited observer presentation at *IFIP 2.1 Working Group on Algorithmic Languages and Calculi*, Rancho Santa Fe, CA, June 10–14, 1996.

102. Alexander, P. "A Tutorial Introduction to VSPEC," invited presentation for *Motorola Advanced Simulation and Modeling Group*, May 1996.

103. Alexander, P. "Formal Methods Research at the University of Cincinnati," invited presentation for *National Security Agency R2 Special Projects Office*, Baltimore, MD, March 1996.

104. Alexander, P. "Specification and Verification of Composite Systems," invited plenary address at *ARPA CSTO Joint PIs Meeting*, Orlando, FL, July 10–13, 1995.

105. Alexander, P. "VSPEC: A Declarative Methodology For System Requirements Specification," invited observer presentation at *IFIP 2.4 Working Group on Systems Implementation Languages*, June 5–9, 1995.

106. Alexander, P., H. Carter, and R. Vemuri, "MCM and Board-Level Synthesis from a VHDL-Based Specification Language," *RASSP Principal Investigator's Conference*, January 1995.

107. Alexander, P. "A Gentle Introduction to Object Oriented Analysis," MTL Systems Inc. and Wright-Patterson Avionics Lab, March 1992.

108. Alexander, P., P. Magis, and J. Holtzman, "Determination of the Effects of Cosite Interference and Noise on System Performance," *URSI Antennas and Propagation Meeting*, June 1989.

Exhibitions

1. Goddard, S., L. Krishtalka, and P. Alexander, *Cryptograph: An exhibition for Alan Turing*, Spencer Museum of Art, The University of Kansas, Lawrence, KS, March 24–July 22, 2012

Popular Technical Press

1. Alexander, P., "Internet of Things Security," EdTech Voices column, EdTech Magazine, Winter 2018.
2. Alexander, P., "Designing At The Systems Level: Evolution or Revolution?" invited column in *Electronic Design*, **50**(26), December 9, 2002, pp. 40.
3. Alexander, P., "Rosetta Blooms for System-Level Design," *Integrated Systems Design*, June, 2002, pp. 20-22.
4. Alexander, P. and D. Barton, "Rosetta rolls out system-level language for designers," *Electronic Engineering Times*, June 5, 2000.
5. Alexander, P., "VSPEC: Designing at the Requirements Level," *Electronic Engineering Times*, June 9, 1997.

Grant Proposals

Awards Funded

1. **Automatic Design of Board- and MCM-Level Digital Systems From a Common VHDL-Based Specification Language** – Co-Principal Investigator with Dr. R. Vemuri (PI) and Dr. H. Carter, August 1993–August 1997, Advanced Research Projects Agency (ARPA) Rapid Prototyping of Application Specific Signal Processors (RASSP) Programm. Award total: $748,003

2. **Continuous Electronics ENhancements using Simulatable Specifications (CEENSS)** – Principal Investigator with TRW (Industry Prime), Motorola, and Mentor Graphics, March 1995–December 1998, Air Force MANTECH. Award total: $401,193

3. **Using Simulation and Formal Methods for Network Performance Prediction** – Principal Investigator with Dr. P. Wilsey, September 1996–September 1999, Defense Advanced Research Projects Agency Information Technology Office (DARPA/ITO) Network Engineering Program. Award Total: $929,009

4. **System Capture, Synthesis and Evaluation Environment (SCSEE)** – Principal Investigator with MTL Systems, Inc. (Industry Prime), September 1996–April 1997, Defense Advanced Projects Research Agency Electronics Technology Office (DARPA/ETO) SBIR Program. Award Total: $28,467

5. **Systems On a Chip Created using Extended Requirements Language (SOCCER) Phase I** – Co-Principal Investigator with EDAptive Computing, Inc. (Industry Prime) and Dr. R. Vemuri (PI), July 1997–July 1998, DARPA Electronics Technology Office (DARPA/ETO). Award Total: $30,000

6. **Systems On a Chip Created using Extended Requirements Language (SOCCER) Phase II** – Principal Investigator with EDAptive Computing, Inc. (Prime Contractor) and Dr. R. Vemuri (Co-Investigator), December 1998–December 2000, Defense Advanced Research Projects Agency (DARPA/ETO). Award Total: $151,000

7. **Systems Level Design Language and Notation** – Principal Investigator with Averstar, Inc (formerly Intermetrics), and Honeywell Laboratories, Air Force Research Laboratory / VITAL. Award Total: $900,000

8. **Parts Obsolescence Management Tools (POMT)** – Principal Investigator with TRW (Industry Prime) and Synopsis, December 1998–December 2000, Air Force MANTECH Parts Obsolescence Management Program. Award Total: $341,298

9. **Systems Level Design Language Mechanical Demo** – Principal Investigator, October 15, 1999 – May 31, 2000, Air Force MANTECH. Award Total: $67,000

10. **A Practical Approach to Modeling Interactions in Systems Meta-Modeling** – Principal Investigator, April 1, 2001 – June 30, 2003, Defense Advanced Research Projects Agency (DARPA) Model-Based Integration of Embedded Systems (MoBIES) Program. Award Total: $300,000

11. **Enterprise Component Integration Framework** – Principal Investigator with EDAptive Computing, Inc. (Industry Prime), January 1, 2002 – December 31, 2003, NASA Ames Research Center. Award Total: $150,000

12. **CART Phase II** – Principal Investigator with EDAptive Computing, Inc. (Industry Prime), January 1, 2002 – December 31, 2003, US Navy. Award Total: $100,000

13. **Rosetta Tool Enhancement** – Principal Investigator with EDAptive Computing, Inc. (Industry Prime), April 1, 2001 – December 31, 2001. Award Total: $40,500

14. **Systems Level Design of Embedded Systems** – Principal Investigator, August 2002–December 2004, National Science Foundation Embedded and Hybrid Systems Program. Award Total: $100,000

15. **GENISYS Phase II** – Principal Investigator with EDAptive Computing, Inc. (Industry Prime), September 1, 2002 – August 31, 2004, NASA Ames Research Center. Award Total: $100,000

16. **REACTOR Phase II** – Principal Investigator with EDAptive Computing, Inc. (Industry Prime), March 1, 2003 – December 15, 2003, Air Force Research Labs, Award Total: $200,000

17. **System-Level Network Modeling** – Principal Investigator, September 2003 – February 2005, National Science Foundation. Award Total: $86,000

18. **A Framework for Re-targeting Radio Designs** – Co-Principal Investigator with G. Minden (PI) and J. Evans, August 1 2007 – July 31 2008, Defense Advanced Research Agency (DARPA). Award Total: $184,000

19. **Rosetta Tool Development** – Principal Investigator, August 1 2006 – July 31 2012, Cadstone, LLC. Award Total: $600,000

20. **Bioinformatics Computing Faculty Renovation** – Co-Investigator, ITTC Lead, April 15 2010 – April 14 2012, National Institutes of Health. Award Total: $4,700,000

21. **Verifying the Trusted Platform Module** – Principal Investigator, May 2012 – May 2014, Battelle Trust. Award Total: $244,544

22. **Initiative for the Arts in Collaborative Research** – Coinvestigator with Saralyn Reece Hardy (PI), Stephen Goddard, Leonard Krishtalka, and Mary Anne Jordan, January 1 2013 – December 31 2015, Research Investment Council. Award Total: $276,661.

23. **Forecasting Emerging Diseases for Communities and Public Health** – Co-Principal Investigator with Townsend Peterson, Jorge Soberòn, Stephen Goddard, Leonard Krishtalka, and Jim Beach, January 1 2013 – December 31 2014, Research Investment Council. Award Total: $300,000.

24. **DoC Center of Excellence** – Principal Investigator, July 1, 2012 – June 30, 2013, Kansas Department of Commerce. Award Total: $250,000.

25. **Midwest Verification Day** – Principal Investigator, September 1, 2012 – August 31, 2013, National Science Foundation. Award Total: $8,000.

26. **Armored Software** – Principal Investigator, September 29, 2013 – September 29, 2017, Department of Defense, Award Total: $2,708,071.

27. **Automated Checklists of Hostile Intent for Low-Level Enhanced Security (ACHILLES)** – KU Principal Investigator with Adventium Labs (Industry Prime), October 14, 2013 – October 13, 2017, Defense Advanced Research Agency (DARPA) Vetting Commodity IT Software and Firmware (VET), Sucontract Total: $584,686.

28. **CertiDig - Using technology to make data sharing safer** – Co-PI with Michael Williams, PI (Journalism), September 2014 – January 2015, Knight Foundation, Award Total: $35,000.

29. **CyberCorps: New Scholarships for Service (SFS) Program at the University of Kansas - Jayhawk SFS** – Co-PI with Bo Luo, Fengjun Li, and Victor Frost, December 2015 – December 2020, National Science Foundation, Award Total: $4,697,514.

30. **Trusted Computing**, Principal Investigator, May 1 2016 – May 31 2017, Kansas Board of Regents, Award Total: $100,000.

31. **Trusted Boot on SoC**, Principal Investigator, November 15 2016 – November 15 2017, Honeywell National Security Campus, Year 1 Total: $137,719.

32. **Toolkit for Evolving Ecosystem Envelopes (TEEE)**, KU Principal Investigator with Adventium Labs (Industry Prime), Defense Advanced Research Projects Agency (DARPA), $190,000.

33. **Establishing Remote Trust in 3D Printers**, Principal Investigator, December 15 2017 – December 15 2018, Honeywell National Security Campus, Year 1 Total: $100,000.

34. **Establishing Remote Trust in Test Equipment**, Principal Investigator, December 15 2017 – December 15 2018, Honeywell National Security Campus, Year 1 Total: $75,000.

35. **StairCASE**, KU Principal Investigator with Rockwell Collins (Industry Prime), Defense Advanced Research Projects Agency (DARPA), $400,000.

36. **Science of Security Lablet**, Principal Investigator, National Security Agency (NSA), $15,000,000.

37. **Establishing Remote Trust in 3D Printers**, Principal Investigator, December 15 2018 – December 15 2019, Honeywell National Security Campus, Year 1 Total: $100,000.

38. **Establishing Remote Trust in Test Equipment**, Principal Investigator, December 15 2018 – December 15 2019, Honeywell National Security Campus, Year 1 Total: $66,000.

39. **University Blockchain Research Initiative**, Principal Investigator, Ripple corporate gift $2,000,000.

40. **Vulnerabilities Out of Learned Timed Automata**, KU Principle Investigator with Adventium Labs (Industry prime), Air Force Research Laboratories (AFRL) NOVA Program, May 2019 – April 2022, Total: $459,520.

Proposals Under Review

1. **Illustrate the Need for UAS Cybersecurity Oversight and Risk Management**, Lead Institution with Oregon State University and Drexel University, 2 years, Federal Aviation Administration. Proposed Award Total: $1,850,194 ($646,469 KU).

Teaching and Advising

Course No.	Name	Cr.	Sem/Qtr	Students	Rating
University of Cincinnati - Rating System 1.0 (best) to 5.0 (worst)					
20-260-493	Software Engineering	3	93-2	13	1.52
20-260-495	Software Engineering Lab	1	93-2	13	1.52††
20-260-793	Advanced Software Engineering*	3	93-3	29	1.46
20-260-793	Advanced Software Engineering	3	94-1	22	1.42
20-260-493	Software Engineering	3	94-2	25	1.58
20-260-495	Software Engineering Lab	1	94-2	25	1.58††
20-260-235	Digital System Design	3	94-3	50	1.67
20-260-237	Digital System Design Lab	2	94-3	43	1.67††
20-260-493	Software Engineering**	3	95-1	32	Invalid data†
20-260-639	Software Engineering**	3	95-1	32	Invalid data†
20-260-495	Software Engineering Lab	1	95-1	11	Invalid data††
20-260-793	Advanced Software Engineering	3	95-2	20	1.4
20-260-683	Compiler Theory	3	95-3	37	1.3
20-260-685	Compiler Theory Lab	1	95-3	37	1.3††
20-260-493	Software Engineering**	3	96-1	15	1.2
20-260-639	Software Engineering**	3	96-1	25	1.1
20-260-495	Software Engineering Lab	1	96-1	15	1.2††
20-260-793	Advanced Software Engineering	3	96-2	13	1.0
20-260-812	Formal Software Synthesis*	3	96-3	12	1.2
20-260-493	Software Engineering**	3	97-1	20	1.08
20-260-639	Software Engineering**	3	97-1	51	1.14
20-260-495	Software Engineering Lab	1	97-1	20	1.08††
20-260-793	Advanced Software Engineering	3	97-2	25	1.29
20-260-862	Advanced Formal Methods*	3	97-3	12	1.55
20-260-493	Software Engineering	3	98-1	20	1.29
20-260-639	Software Engineering	3	98-1	45	1.29
20-260-495	Software Engineering Lab	1	98-1	20	1.29 ††
20-260-793	Advanced Software Engineering	3	98-2	25	1.25
20-260-812	Formal Software Synthesis	3	98-3	12	No Eval
20-260-493	Software Engineering	3	99-1	20	1.11
20-260-639	Software Engineering	3	99-1	45	1.12
20-260-495	Software Engineering Lab	1	99-1	20	1.11 ††
20-260-793	Advanced Software Engineering	3	99-2	25	
20-260-812	Advanced Formal Specification	3	99-3	12	
University of Kansas - Rating System 5.0 (best) to 1.0 (worst)					
EECS 140	Intro to Digital Logic	4	Fa99	60	4.54
EECS 443	Digital Systems Design	4	Sp00		4.93
EECS 848	Software Engineering II	3	Sp00	38	4.79
EECS 140	Intro to Digital Logic	4	Fa00	61	4.75
EECS 443	Digital Systems Design	4	Sp01	48	4.84
EECS 700	Systems Requirements Modeling*	3	Sp01	43	4.72
EECS 368	Programming Language Paradigms*	3	Fa01	66	4.79
EECS 443	Digital Systems Design	4	Sp02	25	4.87
EECS 755	Systems Requirements Modeling	3	Sp02	32	4.79
EECS 368	Programming Language Paradigms	3	Fa02	46	4.79
EECS 800	Software Architecture*	3	Fa02	34	4.76
EECS 443	Digital Systems Design	4	Sp03	51	4.79
EECS 762	Programming Language Foundations I	3	Sp03	20	4.94

Course No.	Name	Cr.	Qtr/Sem	Students	Rating
EECS 368	Programming Language Paradigms	3	Fa03	35	4.83
EECS 755	Systems Requirements Modeling	3	Fa03	25	5.00
EECS 443	Digital Systems Design	4	Sp04	60	4.71
EECS 665	Compiler Construction	3	Sp04	35	4.89
EECS 368	Programming Language Paradigms	3	Fa04	45	4.86
EECS 762	Programming Language Foundations I	3	Fa04	19	5.00
EECS 443	Digital Systems Design	4	Sp05	45	4.94
EECS 800	Programming Language Foundations II*	3	Sp05	11	5.00
EECS 755	Systems Requirements Modeling	3	Fa05	20	4.72
EECS 368	Programming Language Paradigms	3	Fa05	30	4.88
HNRS 190	Honors Tutorial*	1	Fa05	17	N/A
EECS 900	Static Analysis of Software*	3	Sp06	8	4.83
EECS 443	Digital Systems Design	4	Sp06	38	4.94
HNRS 190	Honors Tutorial	1	Fa06	15	N/A
EECS 762	Programming Language Foundations I	3	Fa06	17	5.00
EECS 443	Digital Systems Design	4	Sp07	48	4.84
EECS 690	Generic Programming*	3	Sp07	28	4.82
HNRS 190	Honors Tutorial	1	Fa07	15	N/A
EECS 368	Programming Language Paradigms	3	Fa07	15	5.00
EECS 755	Systems Requirements Modeling	3	Fa07	21	5.00
EECS 443	Digital Systems Design	4	Sp08	35	4.80
EECS 662	Programming Languages	3	Fa08	19	4.88
EECS 762	Programming Language Foundations I	3	Fa08	17	4.93
HNRS 190	Honors Tutorial	1	Fa08	12	N/A
EECS 443	Digital Systems Design	4	Sp09	53	4.89
EECS 843	Programming Language Foundations II	3	Sp09	7	5.00
EECS 755	Systems Requirements Modeling	3	Fa09	14	5.00
EECS 662	Programming Languages	3	Sp10	27	4.90
EECS 762	Programming Language Foundations I	3	Fa10	8	5.00
HNRS 190	Honors Tutorial	1	Fa10	12	N/A
EECS 662	Programming Languages	3	Sp11	10	5.00
EECS 755	Software Requirements Modeling	3	Fa11	5	5.00
HNRS 190	Honors Tutorial	1	Fa11	10	N/A
EECS 662	Programming Languages	3	Sp12	21	4.94
EECS 800	Model Checking*	3	Sp12	7	5.0
HNRS 190	Honors Tutorial	1	Fa12	10	N/A
EECS 762	Programming Language Foundations I	3	Fa12	20	5.0
EECS 662	Programming Languages	3	Sp13	30	4.92
HNRS 310	University Scholars Seminar	3	Sp13	20	N/A
EECS 755	Software Requirements Modeling	3	Fa13	29	4.94
HNRS 190	Honors Tutorial	1	Fa13	12	N/A
EECS 662	Programming Languages	3	Sp14	25	4.96
EECS 762	Programming Language Foundations I	3	Fa14	32	4.97
HNRS 190	Honors Tutorial	1	Fa14	10	N/A
EECS 800	Decision Procedures & Model Checking	3	Sp15	4	5.0
EECS 662	Programming Languages	3	Fa15	22	5.00
EECS 755	Software Requirements Modeling	3	Fa15	28	5.0
HNRS 190	Honors Tutorial	1	Fa15	10	N/A
EECS 843	Programming Language Foundations II	3	Sp16	12	5.0
EECS 662	Programming Languages	3	Sp16	38	5.00

Course No.	Name	Cr.	Qtr/Sem	Students	Rating
EECS 762	Programming Language Foundations I	3	Fa16	28	4.90
HNRS 190	Honors Tutorial	1	Fa16	10	N/A
EECS 662	Programming Languages	3	Sp17	64	4.96
EECS 755	Software Requirements Modeling	3	Fa17	30	4.91
HNRS 190	Honors Tutorial	1	Fa17	10	N/A
EECS 662	Programming Languages	3	Sp18	49	4.74
EECS 662	Programming Languages	3	Fa18	45	4.96
HNRS 190	Honors Tutorial	1	Fa18	10	N/A
EECS 742	Static Analysis	3	Sp19	25	4.80
EECS 662	Programming Languages	3	Fa19	55	4.95
HNRS 190	Honors Tutorial	1	Fa19	10	N/A
EECS 755	Software Requirements Modeling	3	Sp20	27	N/A
EECS 662	Programming Languages	3	Fa20	62	N/A
HNRS 190	Honors Tutorial	1	Fa20	12	N/A
EECS 762	Programming Language Foundations I	3	Sp21	ant.	

* denotes a new course

** denotes the same course, co-listed

† denotes course whose evaluation data was invalid due to errors in evaluation software

†† denotes lab course evaluated as a part of the lecture course

Note: Teaching ratings at The University of Cincinnati are on a scale of 1-5 with 1 being the highest possible score. Ratings at The University of Kansas are on a scale of 5-1 with 5 being the highest possible score.

Ph.D. Students Graduated

1. Phillip Baraona, *Formal Definition of the* VSPEC *Larch Interface Language*, April 1998
2. John Penix, *Formal Retrieval and Reuse of Components and Architectures*, April 1998
   (a) Dissertation proposal selected for 1997 International Conference on Software Engineering Doctoral Symposium
   (b) NASA Ames Internship, Winter 1997
   (c) Departmental nominee for Dean's Distinguished Dissertation Fellowship
   (d) ECECS Department Outstanding Dissertation Award 1997-98
3. Murali Rangarajan, *Automated Analysis Component Architectures*, December 2000
   (a) Dissertation proposal selected for 1999 Automated Software Engineering Doctoral Symposium
4. Cindy Kong, *Modular Semantics for Model-Oriented Design*, Jul 2004
   (a) NASA Ames Summer Fellowship, Summer 2001
   (b) Dissertation proposal selected for 2001 Automated Software Engineering Doctoral Symposium
5. Garrin Kimmell *System Synthesis from a Monadic Functional Language*, December 2008
   (a) University of Kansas EECS Department Moore Award for Outstanding Dissertation, 2009
   (b) Selected for Postdoctoral position at University of Iowa
   (c) Research Scientist, The Kestrel Institute
6. Jennifer Streb, *A Methodology for Automated Verification of Rosetta Specification Transformations*, April 2011
   (a) University of Kansas School of Engineering Chafee/Stroble PhD Fellowship
7. Mark Snyder, *Type Directed Specification refinement*, July 2011
   (a) Term Assistant Professor, Computer Science Department, George Mason University
8. Wesley Peck, *Model Transformation for Hardware/Software Co-design*, December 2011
9. Nicolas Frisby, *Reducing the Cost of Precise Types*, August, 2012

(a) Selected for Postdoctoral Research Internship, Microsoft Research, Cambridge
(b) Dissertation proposal selected for 2008 Automated Software Engineering Doctoral Symposium

10. Evan Austin, *HaskHOL: Verifying Haskell in Haskell*
    (a) Department of Defense Science, Mathematics, And Research for Transformation Program Fellowship (SMART) recipient
    (b) Funded participant National Science Foundation Summer School on Formal Techniques

Ph.D. Students In Progress

1. Adam Petz, *Attestation Protocol Specification using Session Types*
    (a) Funded participant National Science Foundation Summer School on Formal Techniques
2. Tj Barclay, *Sound Extraction of CakeML From Coq*
3. Michael Neises, *Contextual Inspection*
4. Anna Fritz, *Attestation Protocol Negotiation*

Master's Students Graduated

1. Rajasekhar Sayana, *Automatic Partial Evaluation of VHDL Specifications*, 1994
2. Tareq Altakrouri, *Formal Verification of the Move Machine Using Boyer–Moore Logic*, 1994
3. Liming Cai, *Formal Modeling of Constraint Propagation Using Algebraic Specification Techniques*, 1994
4. David Keihl, *Post-processing and Visualization of Jet Turbine Data*, 1995
5. Colin Vogt, *Automated Fuzzy Fault Tree Analysis*, 1996
6. Sathiyanarayanan Vijayaraghavan, *Larch Shared Language Parsing and PVS Translation*, 1996
7. Iqbal Mutabanna, *Formal models for active network security*, 1999
8. Amitvikram Rajkhowa, *Formal constraint modeling and verification*, 1999
9. Kshama Jambhekhar, *Test vector generation from VSPEC requirements*, 2000
10. Arun Venkataraman, *Specification composition in VSPEC*, 2000
11. Cindy Kong, *Formal Modeling of Active Network Nodes*, 2000
12. Makarand Patil, *Automated Component Retrieval*, 2000
13. Sarjoun Doumit, *ANSE/ActiveSPEC orbit integration*, 2000
14. Krishna Ranganathan, *Test Vector Generation from Rosetta requirements*, 2001
15. Srinivas Akkipeddi, *Advanced Test Vector Generation from Rosetta Test Requirements*, 2001
16. Roshan Kamath, *Type checking in Rosetta*, 2002
17. Murthy Kakarlamudi, *Test Vector Generation in XML from Rosetta*, 2003
18. Brandon Morel, *Automated Component Adaptation*, 2003
19. Kalpesh Zinjuwadia, *Component inversion for test vector generation*, 2005
20. Philip Weaver*, *Reflective Metaprogramming in Rosetta*, 2007
21. Mark Snyder*, *A Paramorphic, Constraint-Based, Algebra-Sequenced Type Checker for Rosetta*, 2007
22. Evan Austin*, *HaskHOL: A Haskell Hosted Domain Specific Language Representation of HOL Light*, July 2007
23. Megan Peck, *Composition Semantics of the Rosetta Specification Language*, August 2012
24. Brigid Halling, *Towards a Verified TPM*, May 2013
25. Bharath Chandra Elluru, *Measuring an Embedded Device*, January 2016
26. Adam Petz, *A Semantics for Attestation Protocols using Session Types in Coq*, August, 2016
27. Paul Klein, *Remote Attestation Protocol Verification with a Privacy Emphasis*, July, 2018
28. Josiah Gray, *Implementing TPM Commands in the Copland Remote Attestation Language*, December, 2020
29. Anna Fritz, *Type Dependent Policy Language*, May, 2021

* denotes Honors Thesis

Master's Students In Progress

1. Grant Jurgensen, *seL4-based Attestation Architecture*, 2019 – Present
2. Anna Seib, *Automated Device Characterization*, 2019 – Present

Dissertation Committee Participation

1. David Sims, 1993, Chair: Dr. Debra Hensgen
2. Avinash Palaniswamy, 1994, Chair: Dr. Philip Wilsey
3. Ram Vemuri, 1994, Chair: Dr. Ranga Vemuri
4. Ramanand Mandayam, 1994, Chair: Dr. Ranga Vemuri
5. Nand Kumar, 1994, Chair: Dr. Ranga Vemuri
6. William Bradley, 1999, Chair: Dr. Ranga Vemuri
7. Tom Sharp, 1996, Chair: Dr. Art Helmicki
8. Nael Abu-Ghazaleh, 1997, Chair: Dr. Philip Wilsey
9. Srinivas Katkoori, 1997, Chair: Dr. Ranga Vemuri
10. Natesan Venkateswaran, 1996, Chair: Dr. Dinesh Bhatia
11. Lun Ye, 1996, Chair: Dr. Hal Carter
12. Peter Frey, in 1998, Chair: Dr. Hal Carter
13. Narasimhan Narendra, 1998, Chair: Dr. Ranga Vemuri
14. John M. Emmertt, 1999, Chair: Dr. Dinesh Bhatia
15. Karam Chatha, 2001, Chair: Dr. Ranga Vemuri
16. Nazanine Mansouri, 2001, Chair: Dr. Ranga Vemuri
17. Christopher Young, 1999, Chair: Dr. Philip Wilsey
18. Bernd Fischer, 2001, Chair: Dr. Gregor Snelting (Passau University, Germany)
19. Michele Van Dyne, 2003, Chair: Dr. Costas Tsatsoulis
20. Razali Jidin, 2005, Chair: Dr. David Andrews
21. David Janzen, 2006, Chair: Dr. Hossein Saiedian
22. Erik Anderson, 2007, Chair: Dr. David Andrews
23. Aravind Chandramouli, 2007, Chair: Dr. Susan Gauch
24. Timothy Newman, 2008, Chair: Dr. Joseph Evans
25. Manoj Kummini, 2008, Chair: Dr. Craig Huneke (University of Kansas Department of Mathematics)
26. Justin Ehrlich, 2010, Chair: Dr. James Miller
27. Brandon Humpert, 2011, Chair: Dr. Jeremy Martin (University of Kansas Department of Mathematics)
28. John Gibbons, 2014, Chair: Dr. Arvin Agah
29. Dan Hien, 2017, Chair: Dr. Hossein Saiedian
30. Justin Dawson, 2018, Chair: Dr. Andrew Gill
31. Mark Grebe, 2018, Chair: Dr. Andrew Gill
32. Peter Lewis, 2018, Chair: David Nualart (University of Kansas Department of Mathematics)
33. Trent Warbis, 2018, Chair: Steve Leisring (University of Kansas Department of Music)
34. Jongho Kim, 2018, Chair: Steve Leisring (University of Kansas Department of Music)
35. Bennet Goeckner, in progress, Chair: Jeremy Martin (University of Kansas Department of Mathematics)
36. Ramon Alvarado, in progress, Chair: Dr. John Symons (University of Kansas Department of Philosophy)
37. Nishitha Ayyalapu, in progress, Chair: Dr. Ron Hui
38. Muhammad Anan, in progress, Chair: Dr. Hossein Saiedian

Undergraduate Student Project Advising

1. Christopher Sizemore, *Continuous Casting Process Control*, 1993
2. Kevin Lisac, *Cyclomatic Complexity Modeling Software**, 1994
3. J. Thomas Rose, *Health Care Provider's Network*, 1994
4. Christopher Sakkas, *PC Voice Mail System*, 1994

5. Angie Schoster, *Inventory Database Development*, 1995
6. Tom Gresham, REFINE *to* VHDL *Translator*, 1995
7. Dale Langdon, *Teaching Evaluation Software*, 1995
8. Joe Becknell, *Case-Based Software Reuse System*, 1996
9. Saloni Schroff, *Engineering Drawing Database System*, 1996
10. Zane Mumford, *Graphical State Machine Input Device*, 1997
11. James Norris, *Graphical Petri-net Input Device*, 1997
12. Brad Hoestedler, Ashfaq Hussein, Sumit Jain, *Integrated graphical information display*, 1998
13. David Smith, Charles Buchert, *Software Performance Report system*, 1998
14. Todd Galloway, *Software component retrieval and reuse*, 1998
15. Thomas Zentmeyer, *Digital sound processing board and software*, 1998
16. Brandon Morel, *Comp. Study of Systems Level Design Languages*, 2001 (Honors Undergraduate Project)
17. Nick Smith, *Synthesis of an Embedded Processor*, 2002 (Honors Undergraduate Project)
18. Justin Ward, *Mathematical Structure of Music*, 2002 (Undergraduate Research Award Winner)
19. Michael Adams, *Rosetta ROM Walker*[*], 2004 (Honors Undergraduate Project)
20. Jennifer Streb, *Choreography Representation Language*, 2004
21. Nicholas Frisby[†,*], *Typed Assembly Language*, 2005 (Honors Undergraduate Project)
22. Justin Ward[**], *Polytypic first-order theorem prover*, 2005 (Honors Undergraduate Project, NSF Fellowship Honorable Mention)
23. Philip Weaver, *Lava CPU Specification*, 2005 (Honors Undergraduate Project)
24. Gideon van de Liefvoort, *Modeling KURM09 using Erlang*, 2009 (Honors Undergraduate Project)
25. Ryan Kanoknulchai, *Graphical Rosetta Editor in Eclipse*, 2010 (Honors Undergraduate Project)
26. Jessica Ims, *PCR Extension Verification*, 2013 – 2014 (Honors Undergraduate Project)
27. Kayla Sale, *Ecological Niche Modeling Using Model Checking*, 2013 – 2015 (Initiative for Maximizing Student Diversity Scholar)
28. Hannah Johnson, *Galois Connection Modeling*, 2015 – 2018 (University Scholars Mentor)
29. Lisa Lauschke, *Galois Connection Modeling*, 2017 – 2018
30. Odalis Hernandez, *Intuitionistic Logic Proofs*, 2017 – 2018
31. Andrew Monroe, *Undecided*, 2017 – present (University Scholars Mentor)
32. Sarah Scott, *APDT Interpreter Development*, 2017 – Present

[*] denotes winner of Outstanding Sr. Project Award.

[**] denotes winner of Oustanding Computer Science Senior

[†] denotes winner of Oustanding Computer Engineering Senior

Service

Professional Activities and Organizations

1. Senior Member IEEE professional society.
2. Member IEEE Engineering of Computer Based Systems Technical Committee.
   (a) Representative to IEEE Technical Council on Embedded Systems, 2005-2007.
   (b) Chair, 2001-2005.
   (c) Vice Chair, 1999-2001.
   (d) Member, Executive Committee, 1995-2007.
   (e) Chair, Testing Working Group, 1995-1999.
   (f) Member, Education Working Group, 1995-1999.
3. Member IEEE Design Automation Standards Committee.
   (a) Chair, Rosetta Study Group, 2006-2007.
   (b) Chair, P1699 Rosetta Working Group, 2007-present.
   (c) Member, Ron Waxman Award Committee, 2008.
4. Senior Member ACM
5. Member Accellera EDA Standards Organization, 2001-2004
   (a) Chair, Rosetta Standardization Committee, 2001-2004 (Now the IEEE DASC P1699 Rosetta Working Group)
   (b) Member, Semantics Standardization Committee, 2001-2004.
6. Member VHDL International Systems Level Design Language Working Group, 1996-2000 (Became the Accellera EDA Standards Organization)
7. Invited Member VHDL International User's Forum Advisory Board, 1996-99.
8. Invited External Participant, National Security Agency Strategic Planning Meeting.
9. Invited External Reviewer, Carnegie Mellon University VHDL Model Checking Project. Sponsored by the National Security Agency.
10. Invited Member Rome Labs/DARPA 21st Century Engineering Consortium for Formal Methods Education.
11. Proposal Reviewer, Science Foundation Ireland, 2001.

Editor/Program Committee/Chair

1. Associate Editor – *Journal of Software and Systems Modeling (SoSyM)*, March 2006-present.
2. Editorial Board – *PeerJ Computer Science*, January 2015-present.
3. Editorial Advisory Board – Versita Open Access Book Program, March 2012 – present.
4. General Chair – *Hot Topics in the Science of Security*, 2020.
5. General Chair – *New Directions in Software Technology*, 2019.
6. General Chair – *Midwest Verification Day (MVD 2012)*, September 2012.
7. General Chair – *Automated Software Engineering (ASE 2011)*, November 2011.
8. Organizer – *Science of Security Workshop on Securing the Internet of Things*, October, 2018.
9. Organizer – *KU/FCC Cyber Security Workshop*, November 3, 2016.
10. Organizer – *NSA/DHS Stop.Think.Connect Workshop*, May 2011.
11. Steering Committee – *High Confidence Software and Systems Symposium (HCSS)*, May 2016 - present.
12. Steering Committee – *Midwest Verification Day*, September 2012 - September 2014.
13. Steering Committee – *Automated Software Engineering Conference*, September 2000-September 2010, September 2011-September 2014.
14. Steering Committee – *Engineering of Computer-Based Systems Symposium and Workshops*, May 2001-2005.
15. Program Co-Chair – *High Confidence Software and Systems Symposium (HCSS'17)*, May 2017.
16. Program Co-Chair – *High Confidence Software and Systems Symposium (HCSS'18)*, May 2018.

17. Program Co-Chair – *Automated Software Engineering (ASE 2000)*, September 2000.
18. Guest Editor – *Automated Software Engineering Journal, Special Issue of Papers from ASE'00* **10**(2).
19. Doctoral Symposium Chair – *Automated Software Engineering (ASE-99)*, September 1999.
20. Doctoral Symposium Panelist – *IEEE/ACM Automated Software Engineering Conference (ASE)*, 1998, 1999, 2003, 2005.
21. Program Committee – *Hot Topics in the Science of Security (HoTSoS)*, 2019.
22. Program Committee – *Colloquium for Information Systems Security Education (CISSE)*, 2011, 2012.
23. Program Committee – *IEEE/ACM Automated Software Engineering Conference)*, 1997-2009, 2015.
24. Tutorials Chair and Panel Organizer – *IEEE/ACM Automated Software Engineering Conference (ASE-97)*, November 1997.
25. Program Chair – *IEEE Symposium and Workshop on Systems Engineering of Computer Based Systems*, 1999.
26. Program Committee and Session Chair – *IEEE Symposium and Workshop on Systems Engineering of Computer Based Systems*, 1995-01.
27. Session Organizer – Rosetta Special Session, *The Federation of Design Languages (FDL'08)*, Stuttgart, Germany, September 2008.
28. Program Committee – *Computer Science and Engineering Education and Training (CSEET)*, 2007-2008
29. Program Committee – *Formal Methods and Models for Codesign (MEMOCODE'04)*, June 2004.
30. Program Committee – *Design and Test in Europe (DATE 2003)*, March, 2003.
31. Program Committee – *Formal Methods in Software Practice (FMSP 2000)*, October 2000.
32. Program Committee – *MASCOTS*, 1998.
33. Program Committee, Tutorials Chair and Moderator – *Workshop on Industrial Strength Formal Techniques*, October 1998.
34. Program Committee – *Software Engineering and Knowledge Engineering*, 1998-99.
35. Panel Organizer and Moderator – "Systems Level Design and VHDL" at *VHDL International User's Forum*, October 1997.
36. Program Committee and Session Chair – *VHDL International User's Forum*, October 1997.
37. Agents and Activity Cluster Leader – *DARPA High Confidence Networks Workshop*, June 1997.
38. Co-Chair – First IEEE/DATC Workshop on Systems Level Design Languages, April 1997.
39. Co-Chair – First Meeting of the EDA Industry Council Systems Level Design Language Committee, April 1997.
40. Program Committee – *VHDL International Users Forum*, 1995, 2000.
41. Program Committee – *International Conference on Tools with AI*, 1995.
42. Chair and Organizer – *AAAI-94 Workshop on AI and Systems Engineering*, July 1994.
43. Program Committee – *AAAI-93 Workshop on AI Models for Systems Engineering*, July 1994.

Conference/Journal/Proposal Reviewer

1. National Science Foundation (NSF)
2. Army Research Office (ARO)
3. ACM Transactions on Software Engineering Methodology
4. Automated Software Engineering Journal
5. Cambridge University Press
6. Formal Methods in Systems Design
7. Science of Computer Programming
8. IEEE Expert
9. IEEE Transactions on Software Engineering
10. IEEE Transactions on Systems, Man, and Cybernetics
11. IEEE Transactions on Knowledge and Data Engineering
12. IEEE Transactions on Computer Aided Design of Electronic Circuits
13. IEEE Transactions on Dependable and Secure Computing
14. International Journal on Artificial Intelligence Tools
15. Journal of Applied Logic

16. Journal of Computer Communications
17. Journal of Parallel and Distributed Computing
18. Journal of Software and System Modeling
19. Journal of System Sciences Special Issue on Formal Methods Technology Transfer
20. Journal of Universal Computer Science Special Issue on Integration of Deduction Systems
21. Simulation: Transactions of the Society for Modeling and Simulation international
22. Morgan Kaufmann Publishers
23. VLSI Design
24. IEEE RFID, 2010
25. Formal Methods in Computer Aided Design (FMCAD), 2008
26. Design and Test in Europe (DATE), 2003-04
27. Federation on Design Languages (FDL), 2000-2002
28. Hawaii International Conference on System Sciences (HICSS), 1997-2002
29. International Conference on Software Engineering (ICSE) Software Engineering Education Track, 2003.
30. International Conference on Tools with AI (ICTAI), 1995-96
31. IEEE Design Automation Conference (DAC), 2000-04
32. IEEE Workshop and Symposium on Engineering of Computer-Based Systems (ECBS), 1995-04
33. Workshop on Industrial Strength Formal Techniques (WIFT), 1998
34. Software Engineering and Knowledge Engineering Conference (SEKE), 1998-99

University Service

1. Member, KU Higuchi Endowment Research Achievement Awards Selection Committee, 2020.
2. Chair, Graduate Studies Advisory Committee, 2019.
3. Member, Center for the Remote Sensing of Ice Sheets (CReSIS) Director Search Committee, 2019 – 2020.
4. Member, KUCR Director of Research Development Search Committee, 2019.
5. Member, Honors Program Director Search Committee, 2019.
6. Member, Chief Information Officer search committee, November 2017 – May 2018.
7. Member, University of Kansas Physics Department Review Committee, 2016.
8. University of Kansas Center for Research Committee on Promotions, August 2016 – August 2019.
9. University of Kansas Center for Research Board Member, January 2012 – December 2020, Executive Committee Member, January 2012-2024
10. Co-Chair, *Harnessing Information, Multiplying Knowledge* strategic initiative, The University of Kansas, July 2011 – September 2012.
11. Member, University Senate Academic Computing and Electronic Communications Committee, 2012-2015.
12. Member, Center for Undergraduate Research Steering Committee, 2012 – 2014.
13. Board Member, Institute for Digital Research in the Humanities, 2014 – present.
14. Affiliated Scholar, Surveillance Studies Research Center, 2013 – present.
15. Advisory Board Member, Gunn Center for the Study of Science Fiction, 2014 – present.
16. Brosseau Creativity Award Selection Committee, 2015.
17. Director and co-founder, Information Assurance Laboratory, The University of Kansas Information and Telecommunication Technology Center, 2008 – 2012.
18. Member, Vice Provost and Dean for Undergraduate Studies search committee, 2013.
19. Member, Honors Program Director search committee, 2013, 2018.
20. Member, HBC Director search committee, 2013.
21. Member, Associate Vice Chancellor for Research search committee, 2012.
22. Member and Chair, University of Kansas Biomedical Engineering Research Center (BERC) Five Year Review Committee, 2012.
23. Member, Business Center Steering Committee, 2012 – 2013.
24. Core Management Team, The University of Kansas Information and Telecommunications Technology Center, 2005 – 2009.

25. Director and co-founder, Computer Systems Design Laboratory, The University of Kansas Information and Telecommunications Technology Center, 2003 – 2010.
26. Member, KU Technology Commercialization Director search committee, 2011.
27. Member, KU Information Technology Director search committee, 2011 – 2012.
28. Member, University Scholarly Achievement Award Selection Committee, Fall 2010 – present, Chair 2013 – present.
29. Member, University of Kansas Honors Council, Spring 2007 – present.
    (a) Member, Honors Research Committee, Fall 2007.
    (b) Member, University Scholars Selection Committee, Fall 2008 – present.
30. University Honors Adviser
31. University Honors Tutorial instructor
    (a) *A Just Machine*, Fall 2013 – present.
    (b) *Security and Privacy*, Fall 2011.
    (c) *The Meaning of Things: Math, Music, and Magic*, Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2012.
    (d) *Music Programming: Exploring the ties between music, math and computer science*, Fall 2005.
32. University Scholars Seminar Instructor, *Searching for a Just Machine*, Spring 2013.
33. University Scholars Faculty Mentor, University of Kansas, 2004 – 2006, 2014 – 2016, 2018 – Present.
34. Faculty Mentor, University of Kansas Math and Science Center, 2004 – 2005.

School/Center Service

1. Chair, KU Research Promotion Committee 2016-2019.
2. Member, School of Engineering Dean search committee, 2012-2013.
3. Member, School of Engineering Phase II Expansion Building Committee, 2012-2013.
4. Member, School of Engineering Promotion and Tenure Committee, June 2010-June 2014, Chair 2011-2012, lead author School of Engineering Promotion and Tenure Guideline revisions, 2012.
5. Chair, NSA/DHS Center for Academic Excellence ad hoc Application Committee, 2008-2009.
6. Invited Speaker, Society of Women Engineers Weekend of Engineering Camp, The University of Kansas School of Engineering, Fall 2007.
7. Self Undergraduate Fellowship Committee, The University of Kansas School of Engineering, 2007-2018.
8. Invited Speaker, Self Foundations Workshop, Spring 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012, Spring 2014.
9. Faculty Coordinator, Electrical Engineering and Computer Science Thematic Learning Community (TLC), 2005-2006.
10. Invited Speaker, University of Kansas Honors Program, 2005.
11. Invited Speaker, University of Kansas Engineering EXPO, 2002,2004.
12. University of Cincinnati College of Engineering Awards Committee, 1998-1999.
13. Invited Speaker, Engineering Tribunal and National Association of Engineering Student Councils' National Conference, October 1997.
14. Departmental Representative to the Dean's Strategic Planning Committee on Education, 1997.
15. University of Cincinnati SHARP Plus Faculty Advisor, Summers 1997-98.
16. University of Cincinnati Emerging Ethnic Engineers Faculty Advocate, 1996-1999.
17. University of Cincinnati Emerging Ethnic Engineers GEM Program Review Committee, 1996.
18. University of Cincinnati College of Engineering Computing Resource Policy Committee, member, 1995-1999.
19. University of Cincinnati Ad Hoc College Computing for the year 2000 Committee, member 1996-1999.
20. University of Cincinnati ECE/CS Space and Equipment merger committee, member and co-chair, 1993-1994.
21. University of Cincinnati College of Engineering Special Grievance Committee, member, 1994-95.
22. University of Cincinnati Design Clinic Jurist, 1992-93, 1994-96.
23. Invited Speaker, Engineering Summer Camp for Women, The University of Cincinnati, Summers 1994-96.

Department Service

1. University of Kansas EECS Post-Tenure Review Committee, 2020-present.
2. University of Kansas EECS CS Minor Committee, 2020-present.
3. University of Kansas EECS Untenured Faculty Review Committee, 2011-present.
4. University of Kansas EECS Promotion & Tenure Review Committee, 2010-present.
5. University of Kansas EECS Promotion & Tenure Advocate, Fall 2007, Fall 2009, Fall 2010, Fall 2011, Fall 2012, Fall 2017.
6. University of Kansas EECS PhD Qualifying Exam Committee, 2010-present.
7. University of Kansas EECS Department Chair Search Committee, 2008-2009, 2013-2014.
8. University of Kansas EECS Faculty Search Committee, Chair 2017-2018, 2013-2014, 2008-2009, 2007-2008, 2006-2007, 2005-2006; member 2019-2020, 2001-2003.
9. University of Kansas EECS System Administrator Search Committee, 2006-2007.
10. University of Kansas EECS Undergraduate Honors Committee, 2011-2012.
11. University of Kansas EECS Faculty Awards Committee, Chair 2005-2008.
12. University of Kansas EECS *Programming Languages* Curriculum Review Committee, Chair, 2004-2005.
13. University of Kansas EECS Strategic Planning Committee, 2003-2004.
14. University of Kansas EECS PhD Review Committee, 2003-2004.
15. University of Kansas EECS Equipment Committee, 1999-2003, chair, 2002-2003.
16. University of Kansas EECS Graduate Admissions and Recruitment Committee, 1999-2005.
17. University of Kansas EECS Enrollment Study Committee, 1999-2001.
18. University of Cincinnati HKN Honorary Society faculty adviser, 1993-1999
19. University of Cincinnati Freshman Computer Engineering Class adviser, 1997-1999
20. University of Cincinnati Sophomore Computer Engineering Class adviser, 1996-98
21. University of Cincinnati Junior Computer Engineering Class adviser, 1993-96
22. University of Cincinnati Computer Engineering Curriculum Committee, 1992-1999
23. University of Cincinnati Computer Engineering Graduate Degree Requirements Committee, 1994
24. University of Cincinnati University Summer Fellowship Review Committee, 1996
25. University of Cincinnati Outstanding Master's Thesis and Ph.D. Dissertation Selection Committee, 1996
26. University of Cincinnati Computer Engineering/Computer Science Master's Degree Merger Committee, 1996

Community Service

1. Alexander, P., "Perspectives: Equity in Higher Education," invited panelist at *University of Kansas Honors Program*, Lawrence, KS, March 8,2016.
2. Alexander, P., "Turing and Enigma," invited presentation at *Lawrence Public Library*, Lawrence, KS, February 20, 2015.
3. Invited Speaker, "A Just Machine", *Science Pioneers*, Kansas City, MO, Fall 2009.
4. Invited Speaker, Lawrence Regional Technology Center, Fall 2006.
5. Invited Speaker, Entrepreneurial Thematic Learning Center, Spring 2006.
6. Invited Speaker, Lawrence Technology Association, Fall 2005.
7. Invited Speaker, University of Kansas Honors Tutorial, Fall 2004.
8. Invited Speaker, The University of Kansas Engineering Expo, 2002, 2003.
9. Invited speaker, "Careers in Computer Engineering", Elder High School, Introduction to Engineering Course, Cincinnati, OH. September 15, 1995.
10. Advisor, "A World Wide Web Scavenger Hunt", Darshan Jani, Walnut Hills High School.