

CURRICULUM VITA

Xudong He
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EDUCATION

Ph.D. Computer Science, Virginia Tech, 1989
M.S. Computer Science, Nanjing University, China, 1984
B.S. Computer Science, Nanjing University, China, 1982

EMPLOYMENT

8/05-date: Professor, School of Computing and Information Sciences, FIU
9/14-12/14: Visiting Professor, Department of Computer Science, Carnegie Mellon Univ.
8/00-12/13: Director, Center for Advanced Distributed System Engineering, FIU
8/01-7/05: Associate Professor, School of Computer Science, FIU
1/00-7/01: Assistant Professor, School of Computer Science, FIU
9/98-4/99: Visiting Associate Professor, School of Computer Science, FIU
8/95-12/99: Associate Professor, Dept. of Computer Science, North Dakota State Univ.
9/89-7/95: Assistant Professor, Dept. of Computer Science, North Dakota State Univ.

PUBLICATIONS

Journals

- (1) Yujian Fu, Zhijiang Dong, Xudong He: "Formal Modeling and Analysis of Collaborative Humanoid Robotics", *International Journal of Robotics Applications and Technologies*, (IJRAT), vol. 6, no.1, 2018, p. 34-54.
- (2) X. He, Z. Dong, H. Yin, and Y. Fu: "A Framework for Developing Cyber-Physical Systems", *International Journal of Software Engineering and Knowledge Engineering – IJSEKE*, vol. 27, no.9, 2017, 1361 – 1386.
- (3) D. Alam and X. He: "A Method to Analyze Predicate Transition Nets Using SPIN Model Checker", *International Journal of Software Engineering and Knowledge Engineering – IJSEKE*, vol. 27, no.9, 2017, 1455 –1482.
- (4) Lily Chang and Xudong He: "A Methodology to Analyze Multi-Agent Systems Modeled in High Level Petri Nets", *International Journal of Software Engineering and Knowledge Engineering – IJSEKE*, vol.25, no.7, 2015, 1199-1235.
- (5) X. He: "A Comprehensive Survey of Petri Net Modeling in Software Engineering", *International Journal of Software Engineering and Knowledge Engineering - IJSEKE*, vol. 23, no. 5, 2013, 589-626.
- (6) Qianmu Li, Ming Zhu, Xudong He, Yong Qi, A Survey of Delay Tolerant Technology in Internet of Things, *Advances in Information Sciences and Service Sciences*. vol.5, no.6, 2013, 1072-1080.
- (7) L. Chang, S. Shatz, and X. He: "A Methodology for Modeling Multi-agent Systems using Nested Petri Nets", *International Journal of Software Engineering and Knowledge Engineering - IJSEKE*, vol.22, no.7, 2012, 891-926.
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- (10) J. Lian, S. Shatz, and X. He: "Flexible Coordinator Design for Modeling Resource Sharing in Multi-Agent Systems", *Journal of Systems and Software*, vol. 82, no.10, 2009, 1709-1729.
- (11) J. Ding, P. Clarke, G. Argote, and X. He: "A Methodology for Evaluating Test Adequacy Coverage Criteria of High Level Petri Nets", *Information and Software Technology*, vol.51, 2009, 1520-1533.
- (12) L. Chang, J. Ding, X. He, S. Shatz: "A Formal Approach for Modeling Software Agents Coordination", *Comm. of SIWN*, vol. 3, 2008, 58-64.
- (13) Y Fu, Z. Dong, and X. He: "A Translator of Software Architecture Design from SAM to Java". *International Journal of Software Engineering and Knowledge Engineering*, vol. 17, no.6, 2007, 709-755.
- (14) J. Ding, P. Clarke, D. Xu, X. He, and Y. Deng: "A Formal Model-Based Approach for Developing An Interoperable Mobile Agent System", *The Multi-Agent and Grid Systems – An International Journal*, vol.2, no.4, 2006, 401-412.
- (15) J. Ding, D. Xu, Y. Deng, and X. He: "Modeling and Analyzing a Mobile Agent-based Clinic Information System", *International Journal of Intelligent Control Systems*, vol. 10, no. 2, June 2005, 143-151.
- (16) Y. Deng, J. Wang, X. He, and J. Tsai: "Constraint Propagation and Progressive Verification for Component-based Process Model", *International Journal of Software Engineering and Knowledge Engineering*, vol.14, no.5, 2004, 471-496.
- (17) X. He, H. Yu, T. Shi, J. Ding, and Y. Deng: "Formally Analyzing Software Architectural Specifications Using SAM", *Journal of Systems and Software*, vol.71, no.1-2, 2004, 11-29.
- (18) X. He, W. Chu, and H. Yang: "A New Approach to Verify Rule-Based Systems using Petri Nets", *Information and Software Technology*, vol.45, no.10, 2003, 663-670.
- (19) H. Zhu and X. He: "A Methodology for Testing High-Level Petri Nets", *Information and Software Technology*, vol.44, 2002, 473-489.
- (20) D. Xu, X. He, and Y. Deng: "Schedulability Analysis of Real-Time Systems Using Time Petri Nets", *IEEE Transaction on Software Engineering*, vol.28, no.10, 2002, 984-996.
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- (24) X. He and Y. Deng: "Specifying Software Architectural Connectors in SAM", *International Journal of Software Engineering and Knowledge Engineering*, vol.10, no.4, 2000, 411-431.
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- (30) C. Kan and X. He: "A Method for Constructing Algebraic Petri Nets", *Journal of Systems and Software*, vol.35, 1996, 12-27.
- (31) C. Kan and X. He: "Deriving Algebraic Petri Nets Specifications from Structured Analysis - A Case Study", *Information and Software Technology*, vol.37, no.8, 1995, 411-434.
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- (35) J.A.N. Lee and X. He: "A Methodology for Test Selection", *Journal of Systems and Software*, vol.13, no.3, 1990, 177-185.
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- (38) X. He and J. Xu: "The Design of the Static Denotational Semantics of XCY", *Journal of Computer Research and Development* (Chinese), no.7, 1985, 50-55.

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- (39) Xudong He: "A Personal Journey in Petri Nets Research", "Carl Adam Petri - His Ideas, Personality, and Impact: Personal Stories", (Wolfgang Reisig ed.), Springer Verlag, 2019 (in press).
- (40) Yujian Fu, Zhijiang Dong, Xudong He: "Architecture-Centered Integrated Verification", *Modern Software Engineering Concepts and Practices: Advanced Approaches*, IGI Global, 2011, 104-124.
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Refereed International Conference Proceedings

- (49) Xudong He: "An Approach to Build and Verify Stable Neural Network Controllers for Cyber Physical Systems with Non-Linear Dynamics", Proc. of the IEEE 23rd International Conference on Software Quality, Reliability and Security, Chiang Mai, Thailand, 2023.
- (50) Xudong He: "Building Safe and Stable Deep Neural Net Controllers through Deep Reinforcement Learning and Deep Imitation Learning", Proc. of the IEEE 22nd International Conference on Software Quality, Reliability and Security, Guangzhou, China, 2022.

- (51) Xudong He: “Analyzing Cyber Physical Systems with Learning Enabled Components using Hybrid Predicate Transition Nets”, Proc. of the 34th International Conference on Software Engineering and Knowledge Engineering, July 1 – 10 (Online), 2022.
- (52) Xudong He: “Modeling Cyber Physical Systems with Learning Enabled Components using Hybrid Predicate Transition Nets”, Proc. of 2021 IEEE 21th International Conference on Software Quality, Reliability and Security Companion (QRS-C), Hainan, China, 2021.
- (53) Xudong He: “Modeling and Analyzing Smart Contracts using Predicate Transition Nets”, Proc. of 2020 IEEE 20th International Conference on Software Quality, Reliability and Security Companion (QRS-C), Macau, China, 2020.
- (54) Xudong He and Dewan Alam: “Hybrid Predicate Transition Nets - A Formal Method for Modeling and Analyzing Cyber-Physical Systems”, Proc. of The 2019 IEEE International Conference on Software Quality, Reliability & Security (QRS’19), Sofia, Bulgaria, 2019, 216-227.
- (55) Xudong He, Zhijiang Dong, Yujian Fu: “A Systematic Approach for Developing Cyber Physical Systems”, Proc. of the 30th International Conference on Software Engineering & Knowledge Engineering (SEKE’18), Redwood, CA, 2018, 456-461.
- (56) Dewan Mohammad Moksedul Alam, Xudong He, William C. Chu: “Modeling and Analyzing Hybrid Systems Using Hybrid Predicate Transition Nets”, Proc. of the 30th International Conference on Software Engineering & Knowledge Engineering (SEKE’18), Redwood, CA, 2018, 391-396.
- (57) Xudong He: “Modeling and Analyzing Cyber Physical Systems Using High Level Petri Nets”. *Proc. of The 2018 IEEE International Conference on Software Quality, Reliability & Security (QRS’18)*, QRS Companion, Lisbon, Portugal, 2018, 469-476.
- (58) Zhuo Sun, Reng Zeng, Xudong He: “A Method for Predicting Two-Variable Atomicity Violations”, *Proc. of The 2018 IEEE International Conference on Software Quality, Reliability & Security (QRS’18)*, Lisbon, Portugal, 2018, 103-110.
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- (60) X. He, Z. Dong, H. Yin, and Y. Fu: “A Framework for Developing Cyber Physical Systems”, *Proc. of the 29th International Conference on Software Engineering & Knowledge Engineering (SEKE’17)*, July 5 - July 7, 2017, Pittsburgh, USA (**Best Paper Award**).
- (61) D. Alam, and X. He: “A Method to Analyze High Level Petri Nets using SPIN Model Checker”, *Proc. of the 29th International Conference on Software Engineering & Knowledge Engineering (SEKE’17)*, July 5 - July 7, 2017, Pittsburgh, USA.
- (62) Xudong He and Yujian Fu: “Modeling and Analyzing Security Patterns using High Level Petri Nets”, Proc. of the 28th International Conference on Software Engineering and Knowledge Engineering (SEKE16), Redwood, CA, July 1 – 3, 2016.
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- (64) Jose Pereyra, Ali Mostafavi, and Xudong He: “Multi-Agent Framework for Complex Adaptive Modeling of Interdependent Critical Infrastructure Systems”, *Proc. of the 2016 Construction Research Congress (CRC 16)*, San Juan, Puerto Rico, May 31 – June 2, 2016.
- (65) Fangxiong Xiao, Huaqing Min, Xu Bo, and Xudong He: “A Formal Modeling Method for Cost-Aware Service Composition”, *Proc. of the 25th International Conference on Software Engineering and Data Engineering (SEDE 15)*, San Diego, CA, Oct. 12 – 14, 2015.
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- (67) Reng Zeng, Zhuo Sun, Su Liu, and Xudong He: “A Method for Improving the Precision and Coverage of Atomicity Violation Predictions”, *Proc. of 21st International Conference on Tools and*

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- (68) K. Morris, P. Clarke, X. He, F. Costa, and M. Allison: “A Method for Validating Intent Model Behavior in DSVMs”, *Proc. of the 16th IEEE International Symposium on High Assurance Systems Engineering (HASE 15)*, Daytona Beach, Florida, USA, January 8 – 10, 2015, 247 – 254.
- (69) M. Allison, P. Clarke, and X. He: “A Generic Model of Execution for Synthesizing Interpreted Domain-Specific Models”, *Proc. of the 2015 International Conference on Soft Computing and Software Engineering (SCSE 15)*, *Procedia Computer Science*, vol. 62, Berkeley, CA, March 3 – 4, 2015, 495 – 504.
- (70) Su Liu, Reng Zeng, Zhuo Sun, and Xudong He: “Bounded Model Checking High Level Petri Nets in PIPE+Verifier”, *Proc. of International Conference on Formal Engineering Methods (ICFEM 14)*, LNCS vol. 8829, Luxembourg, Nov. 1 – 5, 2014, 348–363.
- (71) Reng Zeng, Zhuo Sun, Su Liu, and Xudong He: “McPatom: A Predictive Analysis Tool for Atomicity Violation using Model Checking”, *Proc. of 19th International SPIN Workshop on Model Checking of Software (SPIN 12)*, Oxford, UK, 23-24 July 2012, 191-207.
- (72) Su Liu, Reng Zeng, Zhuo Sun, and Xudong He: “SAMAT - A Tool for Software Architecture Modeling and Analysis”, *Proc. of the 24th International Conference on Software Engineering and Knowledge Engineering*, San Francisco, CA, July, 2012, 352-358.
- (73) Su Liu, Reng Zeng, Xudong He: “PIPE+ - A Modeling Tool for High Level Petri Nets”, *Proc. of International Conference on Software Engineering and Knowledge Engineering (SEKE11)*, Miami, July 2011, 115 - 121.
- (74) Reng Zeng, Yu Huang, Su Liu, Peter J. Clarke, Xudong He, Gwendolyn W. van der Linden, Jon L. Ebert: “SC-xScript: An Embedded Script Language for Scientific Computation in Embedded Systems”, *Proc. of International Conference on Software Engineering and Knowledge Engineering (SEKE11)*, Miami, July 2011, 308 - 314.
- (75) Reng Zeng, Xudong He, Wil Aalst: “A Method to Mine Workflows from Provenance for Assisting Scientific Workflow Composition”, *Proc. of IEEE 2011 Fifth International Workshop on Scientific Workflows (SWF 2011)*, Washington, D.C., July 2011, 169-175.
- (76) Reng Zeng, Xudong He, Jiafei Li, Zheng Liu, W.M.P. van der Aalst: “A Method to Build and Analyze Scientific Workflows from Provenance through Process Mining”, *Proc. of 3rd USENIX Workshop on the Theory and Practice of Provenance (TaPP 2011)*, Heraklion, Crete, Greece, June 21-22, 2011.
- (77) Lily Chang and Xudong He: “A Model Transformation Approach for Verifying Multi-Agent Systems using SPIN”, *Proc. of 26th ACM Symposium on Applied Computing*, Taichung, Taiwan, March, 2011, 37-42.
- (78) R. Zeng and X. He: “Analyzing a Formal Specification of Mondex using Model Checking”, *Proc. of International Colloquium on Theoretical Aspects of Computing*, September 1-3, 2010, Natal, Rio Grande do Norte, Brazil, 214-229.
- (79) L. Chang and X. He: “A Multi-Agent Model for a Business Continuity Information Network”, *Proc. of the International Conference on Software Engineering and Knowledge Engineering (SEKE10)*, San Francisco, July, 2010, 657-663.
- (80) L. Chang and X. He: “Towards Adaptable BDI Agent: a Formal Aspect-Oriented Modeling Approach”, *Proc. of the International Conference on Software Engineering and Knowledge Engineering (SEKE09)*, Boston, July, 2009, 189-193.
- (81) L. Chang and X. He: “Specifying Agent Knowledge using Predicate Transition Nets”, *Proc. of Workshop on Petri Nets and Distributed Systems (PNDS09)*, Paris, France, June, 2009.
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- (83) R. Zeng, J. Liu, and X. He: “A Formal Specification of Mondex Using SAM”, *Proc. of Service Oriented System Engineering*, Taiwan, Dec. 2008, 97-102.

- (84) Y. Fu, Z. Dong, J. Ding, and X. He: "Mapping Software Architecture Specification to Rewriting Logic", *Proc. of the 8th International Conference on Software Quality (QSIC'08)*, Oxford, U.K., Aug., 2008, 376-381.
- (85) X. He: "A Formal Framework for Software System Modeling, Analysis and Realization". *Proc. of Software Engineering Research and Practice 2008*, Las Vegas, July, 2008, 627-633. (**Invited Keynote**).
- (86) L. Chang, X. He, J. Lian, and S. Shatz: "Applying a Nested Petri Net Modeling Paradigm to Coordination of Sensor Networks with Mobile Agents", *Proc. of Workshop on Petri Nets and Distributed Systems (PNDS08)*, Xian, China, June, 2008, 132-145
- (87) G. Argote, P. Clarke, X. He, Y. Fu, and L. Shi: "A Formal Approach for Translating a SAM Architecture to PROMELA", *Proc. of the International Conference on Software Engineering and Knowledge Engineering (SEKE08)*, San Francisco, July, 2008, 440-447.
- (88) J. Ding, G. Argote, P. Clarke, and X. He: "Evaluating Test Adequacy Coverage of High Level Petri Nets Using Spin", *Proc. of the 3rd Workshop on Automation of Software Testing*, Leipzig, Germany, 11 May 2008, 71-78.
- (89) J. Ding, L. Mo, and X. He: "An Approach for Specification Construction Using Property Preserving Refinement Patterns", *Proc. of the 23rd ACM Symposium on Applied Computing*, Fortaleza, Ceara, Brazil, March 16 – 20, 2008, 797-803.
- (90) Y. Fu, Z. Dong, G. Argote, L. Shi, and X. He: "An Approach to Validating Translation Correctness from SAM to Java", *Proc. of the International Conference on Software Engineering and Knowledge Engineering (SEKE07)*, Boston, July, 2007, 45-51.
- (91) A. Lian, S. Shatz, and X. He: "Component Based Multi-Agent System Modeling and Analysis: A Case Study", *Proc. of the 2007 International Conference on Software Engineering Research and Practice (SERP'07)*, Las Vegas, June 25-28, 2007, 183-189.
- (92) D. Xu and X. He: "Generation of Test Requirements from Aspectual Use Cases", *Proc. of the 3rd Workshop on Testing of Aspect-Oriented Programs (WTAOP07)*, March 12-13, 2007 Vancouver, British Columbia, Canada, 17-22.
- (93) Y. Fu, Z. Dong, and X. He: "A Method for Realizing Software Architecture Design", *Proc. of the 6th International Conference on Software Quality (QSIC'06)*, Beijing, China., Oct., 2006, 57-64.
- (94) Y. Fu, Z. Dong, and X. He: "Modeling, Validating and Automating Composition of Web Services", *Proc. of the 6th International Conference on Web Engineering*, Palo Alto, California, U.S.A., July, 2006, 217-224 (**Best Paper Finalist**).
- (95) Y. Fu, Z. Dong, and X. He: "Formalizing and Validating UML Architecture Description of Web Systems", *Proc. of Second International Workshop on Model Driven Web Engineering (MDWE'06)*, Palo Alto, California, U.S.A., July, 2006.
- (96) Y. Huang, and X. He: "A Method for Modeling Object-Oriented Systems with PZ Nets", *Proc. of the International Conference on Software Engineering and Knowledge Engineering (SEKE06)*, San Francisco, 2006, 456-462.
- (97) H. Yu, D. Liu, Z. Shao, and X. He: "Modeling Complex Software Systems using An Aspect-oriented Extension of Object-Z", *Proc. of the International Conference on Software Engineering and Knowledge Engineering (SEKE06)*, San Francisco, 2006, 11-16.
- (98) W. Sun, T. Shi, G. Argote, Y. Deng, and X. He: "Achieving Better System Design through Formal Modeling and Analysis", *Proc. of the International Conference on Software Engineering and Knowledge Engineering (SEKE06)*, San Francisco, 2006, 463-468.
- (99) Z. Dong, Y. Fu, and X. He: "A Framework for Component-Based System Modeling", *Proc. of the International Conference on Software Engineering and Knowledge Engineering (SEKE06)*, San Francisco, 2006, 290-295.
- (100) Y. Fu, Z. Dong, and X. He: "An Approach to Web Services oriented Modeling and Validation", *Proc. of International Workshop on Service-Oriented Software Engineering*, Shanghai, China, May, 2006.
- (101) Z. Dong, Y. Fu, and X. He: "UML Consistency Checking through Transformation based Petri Net Framework", *Proc. of Workshop on Consistency in Model Driven Engineering*, Germany, Nov. 2005.

- (102) Z. Dong, Y. Fu, Yue Fu, and X. He: “Automated Runtime Validation of Software Architecture Design”, *Proc. of the Second International Conference on Distributed Computing and Internet Technology*, 2005, Bhubaneswar, India, December 22-24, 2005, 446-457.
- (103) Y. Fu, Z. Dong, and X. He: “An Approach to Validation of Software Architecture”, *Proc. of the 12th Asia-Pacific Software Engineering Conference*, Taiwan, Dec. 2005, 375-384.
- (104) J. Ding, Z. Dai, J. Wang, and X. He: “Formally Modeling and Analyzing a Secure Mobile Agent Finder”, *Proc. of the IEEE Conference on System, Man, and Cybernetics*, Hawaii, 2005, 47-52.
- (105) Z. Dong, Y. Fu, and X. He: “An Integrated Run-Time Monitoring Framework for Software Architecture Verification”, *Proc. of the 9th IASTED International Conference on Software Engineering and Applications*, Phoenix, Nov. 2005.
- (106) H. Yu, D. Liu, L. Yang, X. He : “Formal Aspect-oriented Modeling and Analysis by AspectZ”, *Proc. of the International Conference on Software Engineering and Knowledge Engineering*, Taipei, Taiwan, 2005, 175-180.
- (107) Y. Fu, Z. Dong, and X. He: “A Methodology of Automated Realization of A Software Architecture Design”, *Proc. of the International Conference on Software Engineering and Knowledge Engineering*, Taipei, Taiwan, 2005, 412-417.
- (108) J. Ding, D. Xu, Y. Deng, P. Clarke, X. He: “Design of an Interoperable Mobile Agent System based on predicate Transition Net Model”, *Proc. of the International Conference on Software Engineering and Knowledge Engineering*, Taipei, Taiwan, 2005, 560-565.
- (109) H. Yu, D. Liu, X. He, L. Yang, and S. Gao: “Secure Software Architecture Design by Aspect-Orientation”, *Proc. of the 10th IEEE Conference on Engineering Complex Computer Syetsms*, Shanghai, China, 2005, 47-55.
- (110) X. He: “A Framework for Ensuring System Dependability from Design to Implementation”, *Proc. of the 3rd International Workshop on Modeling, Simulation, Verification and Validation of Enterprise Information Systems*, Miami, 2005, 3-12. (**Invited Keynote**).
- (111) Z. Dai, X. He, J. Ding, and S. Gao: “Modeling and Analyzing Security Protocols in SAM: A Case Study”, *Proc. of IASTED International Conference on Software Engineering and Applications (SEA 2004)*, Cambridge, MA, 2004, 115-121.
- (112) S. Gao, Y. Deng, H. Yu, X. He, K. Beznosov, K. Cooper: “Applying Aspect-Orientation in Designing Security Systems - A Case Study”, *Proc. of International Conference on Software Engineering and Knowledge Engineering 2004*, Banff, Canada, 2004, 360-365.
- (113) H. Yu, X. He, Y. Deng, L. Mo: “Integrating Security Administration into Software Architecture Design”, *Proc. of International Conference on Software Engineering and Knowledge Engineering 2004*, Banff, Canada, 2004, 416-420.
- (114) H. Yu, X. He, Y. Deng, L. Mo: “A Formal Approach to Design Secure Software Architectures”, *Proc. of IEEE High Assurance Systems Engineering Conference*, Tampa, FL, 2004, 289-290.
- (115) H. Reza and X. He: “An Integrated Method to Software Architecture”, *Proc. of SEKE 2003*, CA, 2003, 398-405.
- (116) Z. Dong, Y. Fu, and X. He: “Deriving Hierarchical Predicate/Transition Nets from Statechart Diagrams – A Case Study”, *Proc. of SEKE 2003*, California, 2003, 150-157.
- (117) H. Yu, X. He, S. Gao, and Y. Deng: “Formal Software Architecture Design of Secure Distributed Systems”, *Proc. of SEKE 2003*, California, 2003, 450-457.
- (118) H. Reza and X. He: “Pattern-Based Software Architecture: A Case Study”, *Proc. of the IEEE International Conference on Information Technology: Coding and Computing*, Las Vegas, 2003, 592-597.
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- (120) T. Shi and X. He: “A Methodology for Dependability and Performability Analysis In SAM”, *Proc. of The International Conference on Dependable Systems and Networks*, San Francisco, CA, June 2003, 679-688.

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- (124) X. He, J. Ding, and Y. Deng: “Analyzing SAM Architectural Specifications Using Model Checking”, *Proc. of SEKE2002*, Italy, 2002, 271-274.
- (125) H. Reza and X. He: “Petri Net Patterns: Elements of Reusable Petri Net Specifications”, *Proc. of the 2002 International Conference on Software Engineering Research and Practice*, Las Vegas, July, 2002, 173-179.
- (126) T. Shi and X. He: “Modeling and Analyzing the Software Architecture of A Communication Protocol Using SAM”, *Software Architecture- System Design, Development and Maintenance* (eds. J. Bosch, M. Gentleman, C. Hofmeister, and J. Kuusela), Kluwer Academic Publishers, 2002, 63-78.
- (127) Z. Dong and X. He: “Integrating UML Statechart and Collaboration Diagrams Using Hierarchical Predicate Transition Nets”, *Lecture Notes in Informatics*, vol. P-7, 2001, 99-112.
- (128) X. Liu, Y. Deng, and X. He: “Development of A Distributed Time Petri Net Simulator in the SAM Framework”, *Proc. of the Symp. On Performance Evaluation of Computer and Telecommunication Systems*, Orlando, 2001, 223-230.
- (129) H. Zhu and X. He: “An Observation Theory of Integration Testing for Component-Based Software Development”, *Proc. of the 25th International Computer Software and Application Conference (COMPSAC'2001)*, Chicago, 2001, 363-370.
- (130) H. Zhu and X. He: “Constructions of Behavior Observation Schemes in Software Testing”, *Proc. Of the 5th High Assurance Computer Systems (HASE2000)*, New Mexico, Nov. 2000, 7-16.
- (131) X. He: “Formalizing Class Diagrams Using Hierarchical Predicate Transition Nets”, *Proc. of the 24th International Computer Software and Application Conference (COMPSAC'2000)*, Taiwan, Oct., 2000, 217-222.
- (132) S. Lewandowski and X. He: “Automating the Generation of Code for A Hierarchical Predicate Transition Net Based Design”, *Proc. of the 12th International Conference on Software Engineering and Knowledge Engineering*, Chicago, July, 2000, 15-22.
- (133) H. Zhu and X. He: “A Theory of Testing High-Level Petri Nets”, *Proc. of the IFIP 16th World Computer Congress*, Beijing, China, August, 2000, 443-450.
- (134) X. He: “Formalizing Use Case Diagrams in Hierarchical Predicate Transition Nets”, *Proc. of the IFIP 16th World Computer Congress*, Beijing, China, August, 2000, 484-491.
- (135) W. Chu, C. Lu, C. Shiu and X. He: “Pattern Based Software Re-engineering: A Case Study”, *Proc. of the Asia Pacific Software Engineering Conference (APSEC'99)*, 1999, 300-308.
- (136) S. Zhou, H. Yang, P. Luker, W. Chu, and X.He: "A Useful Approach to Developing Reverse Engineering Metrics", *Proc. of the 23rd International Computer Software and Application Conference (COMPSAC'99)*, Pheonix, 1999, 320-321.
- (137) W. Chu, J.Shiu, C. Lu, and X. He: "A Semi-Formal Approach to Assist Software Design with Reuse", *Proc. of International Conference on Software Maintenance (ICSM'99)*, Oxford, England, 1999, 256-264.
- (138) X. He, F. Zeng, and Y. Deng: "Specifying Software Architectural Connectors in SAM", *Proc. of 11th International Conf. on Software Engineering and Knowledge Engineering (SEKE'99)*, Kaiserlautern, Germany, 1999, 144-151 (**Best Paper Award**).
- (139) X. He, W. Chu, H. Yang, and S. Yang: “A Reachability Graph Technique for Verifying Rule Based Systems”, *Proc. of the 23rd International Computer Software and Application Conference (COMPSAC'99)*, Pheonix, Arizona, 1999, 462-467.
- (140) J. Wang, Y. Deng, and X. He: “A Formal Architectural Specification Model for Real-Time Systems”, *Proc. of the IASTED Conference on Software Engineering* , Las Vegas, 1998, 11-14.

- (141) S. Lewandowski and X. He: "A Java Framework for Implementing Hierarchical Predicate Transition Nets", *Proc. of the 10th International Conference on Software Engineering and Knowledge Engineering (SEKE'98)*, San Francisco, 1998, 261-268.
- (142) X. He: "Transformations on Hierarchical Predicate Transition Nets: Abstractions and Refinements", *Proc. of the 22nd International Computer Software and Application Conference (COMPSAC'98)*, Vienna, Austria, 1998, 164-169.
- (143) X. He and W. Yao: "From Hierarchical Predicate Transition Nets to CC++ Program Skeletons - Translation Architecture and Rules", *Proc. of the 21th Annual International Computer Software and Applications Conference (COMPSAC'97)*, Washington, D.C., 1997, 64-69.
- (144) X. He and Y. Ding: "Object-Oriented Specification using Hierarchical Predicate Transition Nets", *Proc. of 2nd International Workshop on Object-Oriented Programming and Models of Concurrency (OOMC'96)*, Osaka, Japan, 1996, 72-79.
- (145) W. Yao and X. He: "Mapping Petri Nets to Parallel Programs in CC++", *Proc. of the 20th Annual International Computer Software and Applications Conference (COMPSAC'96)*, Seoul, Korea, 1996, 70-75.
- (146) X. He: "A Formal Definition of Hierarchical Predicate Transition Nets", *Proc. of the 17th International Conference on Application and Theory of Petri Nets (ICATPN'96)*, *Lecture Notes in Computer Science*, vol. 1091, Osaka, Japan, 1996, 212-229.
- (147) X. He: "A Method for Analyzing Properties of Hierarchical Predicate Transition Nets", *Proc. of the 19th Annual International Computer Software and Applications Conference (COMPSAC'95)*, Dallas, TX, August, 1995, 50-55.
- (148) X. He: "PZ Nets - A Formal Method Integrating Petri Nest with Z", *Proc. of the 7th International Conference on Software Engineering and Knowledge Engineering (SEKE'95)*, Rockvill, MD, June, 1995, 173-180.
- (149) C. Kan and X. He: "Algebraic Petri Nets and Their Applications", *Proc. of the ACM Annual Computing Science Conference (CSC'94)*, Phoenix, Arizona, March, 1994, 396-403.
- (150) X. He and Y. Ding: "A Temporal Logic Approach for Analyzing Safety Properties of Predicate Transition Nets", *Proc. of the 12th IFIP World Computer Congress (Information Processing'92)*, Madrid, Spain, 1992, 127-133.
- (151) X. He and C.H. Yang: "Structured Analysis Using Hierarchical Predicate Transition Nets", *Proc. of the 16th Int'l Computer Software and Applications Conf. (COMPSAC'92)*, Chicago, 1992, 212-217.
- (152) X. He: "Specifying and Verifying Real-Time Systems Using Time Petri Nets and Real-Time Temporal Logic", *Proc. of the 6th Annual Conference on Computer Assurance (COMPASS'91)*, Gaithersburg, MD, June, 1991, 135-140.
- (153) X. He: "Temporal Predicate Transition Nets and Their Applications", *Proc. of the 14th Int'l Computer Software and Applications Conference (COMPSAC'90)*, Chicago, 1990, 261-266.
- (154) X. He and J.A.N. Lee: "A New Methodology for Writing Predicate Transition Petri Nets Specifications", *Proc. of the 1st Annual Symposium on Parallel and Distributed Processing*, Dallas, Texas, May, 1989, 26-27.
- (155) X. He and J.A.N. Lee: "Deriving Temporal Logic Specifications from Predicate Transition Petri Net Specifications", *Proc. of the 1st Int'l Conference on Software Engineering and Knowledge Engineering (SEKE90)*, Chicago, June, 1989, 116-121.
- (156) X. He, R. Iyengar and J. Roach: "A Systematic Study of Unification", *Proc. of the 3rd International Symposium on Knowledge Engineering*, Madrid, Spain, Oct. 1988, 27-36.
- (157) X. He and J.A.N. Lee: "A Strategy for Integrating Formalisms in Software Development", *Proc. of the 6th Annual CIPS Edmonton Computer Conference*, Edmonton, Canada, Nov. 1988, 33-42.
- (158) X. He, R. Russell and J.W. Dickey: "Workload Analysis Expert System and Optimizer", *Proc. of the 7th International Conference on Cybernetics and Systems*, London, Sept. 1987, 68-73.

FUNDED RESEARCH

- (1) X. He (PI): “A Method to Verify the Stability of Neural Network Controllers for Cyber Physical Systems with Non-Linear Dynamics”, Air Force Research Lab Summer Faculty Fellowship, \$20K, 5/2023 – 7/2023.
- (2) X. He (PI): “Verifying the Safety and Stability of Controllers built using Deep Reinforcement Learning”, Air Force Research Lab Summer Faculty Fellowship, \$30K, 5/2022 – 7/2022 and 9/2022 – 10/2022 (Extension Award).
- (3) X. He (co-PI): “Graduate Assistance in Cybersecurity and Artificial Intelligence at Florida International University”, U.S. Department of Education, \$545,000, 9/1/21 – 8/30/2024.
- (4) X. He (PI): “Assurance of Cyber Physical Systems with Machine Learning Components”, Air Force Research Lab Summer Faculty Fellowship, \$22,800, 5/2021 – 8/2021.
- (5) X. He (PI): “Applying hybrid high-level Petri nets to model and analyze learning enabled components in CPSs”, Air Force Research Lab Summer Faculty Fellowship, \$22,800, 5/2020 – 8/2020.
- (6) X. He (PI): “A Runtime Checker with Evolutionary Algorithm Decision Making”, Air Force Research Lab., \$349,757, 1/2015 – 12/2017.
- (7) X. He (co-PI): “Center for Innovative Information Systems Engineering”, NSF, HRD-0833093, \$5,000,000, 8/2008 – 7/2015. **Component PI** with budget \$825,000, 8/2008-7/2015.
- (8) X. He (PI): “Petri Nets Controller for Robotic Grasping”, NSF SBIR IIA, subcontract from Energid, Inc., \$70,000. 9/15/11 – 12/15/12.
- (9) X. He (co-PI): “Graduate Assistance in Computer Science at Florida International University”, Department of Education, \$545,000, 9/1/09 – 8/30/2012.
- (10) X. He (PI): “An Integrated Software Tool for Modeling and Model-based Control of Semiconductor Manufacturing Equipment”, NSF SBIR IIA subcontract from SC Solutions, Inc., \$105,000, 5/1/08 – 4/31/09.
- (11) X. He (PI): “Graduate Assistance in Computer Science at Florida International University”, Department of Education, \$383,643, 9/1/07 – 8/30/2010.
- (12) X. He (PI): “Development of New Simulation Software for Advanced Energy Systems”, NSF, HRD-0317692 (Supplement), \$100,000, 8/1/06 – 7/31/07.
- (13) X. He (PI): “Distributed Flexible-Resource Scheduling in Production Systems”, NSF SBIR IIA subcontract from LS Optimal, Inc., \$105,000, 8/1/06 – 7/31/07.
- (14) X. He (co-PI): “Center of Emerging Technologies for Advanced Information Processing and High-Confidence Systems”, NSF, HRD-0317692, \$4,500,000, 8/2003 – 7/2008. **Component PI** with budget \$900,000, 8/2003-7/2008.
- (15) X. He (PI): “Specification and Analysis of Software Architectures of High-Assurance Systems”, NASA, NAG2-1440, Faculty Award for Research, \$287,338, 10/1/2000 – 9/30/2003.
- (16) X. He (co-PI): “CREST: Florida A&M University/Florida International University Center for Distributed Computing: Theory, Development and Application”, NSF, HRD-9707076, \$5,000,000 (9/1/97 – 8/31/02). **Component PI** with budget \$400,000, 9/1/00 – 8/31/03.
- (17) X. He (PI): “A Theory and Methodology for Testing Concurrent Software Systems”, NSF, \$29,013, 5/1/98 – 4/31/2001.
- (18) X. He (PI): “Deriving Formal Specifications from Informal Object-Oriented Specifications”, DoD, ONR, \$323,619, 5/15/98 – 5/15/2001.
- (19) X. He (PI): “Deriving Formal Specifications from Object-Oriented Analysis”, NSF, EPSCoR (Experimental Programs for Stimulating Competitive Research), \$10,000, 7/1/97 – 6/30/98.
- (20) X. He (PI): “Theory, Analysis and Application of Hierarchical Predicate Transition Nets”, NSF, Research Initiation Award, \$85,878, 8/15/93 – 7/31/97.
- (21) X. He (PI): “Specifying and Verifying Concurrent and Distributed Systems Using Hierarchical Predicate Transition Nets”, NDSU, Seed Grant, \$4,000, 5/1/95 – 4/31/96.
- (22) X. He (PI): “Specifying and Verifying Concurrent and Distributed Systems Using Hierarchical Predicate Transition Nets”, NSF, EPSCoR, \$48,000, 10/15/92 – 6/30/95.

- (23) X. He (PI): “Integrating Predicate Transition Nets with the Algebraic Approach in the Formal Specification of Software Systems”, *NSF, EPSCoR*, \$14,000, 10/15/90 – 10/15/91.

TEACHING

Courses Taught at FIU

- (1) CEN4010 Software Engineering I (spring 2004, fall 2007, spring 2016)
- (2) CEN4021 Software Engineering II (spring 2013)
- (3) CEN5011 Advanced Software Engineering (fall 2000 & 2001, summer 2004, fall 2012, 2013, spring 2017)
- (4) CEN5064 Software Design (spring 2006)
- (5) CEN5087 Software and Data Modeling (fall 2013, 2016 – 2018, 2022 & spring 2014 – 2023)
- (6) CEN 6070 Software Verification (fall 2006 & 2008, spring 2010, 2012)
- (7) CEN6075 Software Specification (fall 2005-2007, spring 2011 & 2014)
- (8) CEN6612 Advanced Topics in Software Engineering (spring 2001 & 2003)
- (9) CEN6993 Software Verification (spring 2005)
- (10) COP6556 Semantics of Programming Languages (spring 2000, 2002, 2004, 2011)
- (11) COP4555 Principles of Programming Languages (fall 2011, spring 2012, summer 2014 – 2017, fall 2021, 2022)
- (12) COT5407 Introduction to Algorithms (spring & fall, 2020 & 2022, spring, 2023)
- (13) COT6405 Analysis of Algorithms (spring 2000 & 2001, fall 2002 & 2003)
- (14) COT6421 Theory of Computation II (spring 2002 & 2003, fall 2010)
- (15) CIS5900 Independent Studies (taught over 20 independent studies since 2000).

Courses Taught at North Dakota State Univ.

- (1) CS222 Discrete Mathematics (fall, 1995)
- (2) CS213 System Analysis and Design (fall, 1989 - 91)
- (3) CS313 System Testing and Maintenance (winter, 1990 - 92)
- (4) CS316 System Testing and Maintenance (spring, 1993-98)
- (5) CS413 Information Systems Design (spring, 1990 - 92)
- (6) CS508 Math. Foundations of Prog. Methodology (fall, 1990)
- (7) CS526 Automated Theorem Proving (spring, 1990)
- (8) CS583 Formal Methods in Software Eng. (winter, 1991)
- (9) CS713 Software Engineering I (fall, 1992-97, 99)
- (10) CS714 Software Engineering II (spring, 1993 & 95 & 97-98)
- (11) CS783 Software Design Patterns & Architectures (spring, 1996)
- (12) CS789 Automated Theorem Proving (spring, 1994)

GRADUATE STUDENT ADVISING

I am the sole major advisor or co-advisor identified by *, of the following students. I have also served on about 100 M.S. and Ph.D. theses committees.

Graduates at FIU

D. Alam (Ph.D.) 7/20	Z. Sun (Ph.D.) 12/18	S. Liu (Ph.D.) 7/14
R. Zeng (Ph.D.) 7/13	L. Chang (Ph.D.) 4/11	G. Argote (Ph.D.), 4/09
*W. Sun (Ph.D.), 4/08	Y. Fu (Ph.D.), 4/07	Z. Dong (Ph.D.), 7/06
T. Shi (Ph.D.), 4/06	*S. Gao (Ph.D.), 12/05	L. Mo (Ph.D.), 11/04
J. Ding (Ph.D.), 4/04	S. Miner (M.S.), 9/04	A. Awadallah (M.S.), 4/04

S. Gururaj (M.S.), 11/03	V. Masuram (M.S.), 6/03	X. Li (M.S.), 11/02	N.
Gupta (M.S.), 11/01	T. Millege (M.S.), 11/01	W. Caldwell (M.S.), 11/01	
R. Fernandez (M.S.), 11/01	*J. Ding (M.S.), 7/00	* Y. Zhu (M.S.), 7/00	

Graduates at NDSU

H. Reza (Ph.D.), 4/02	W. Yao (Ph.D.), 4/96	C.Y. Kan (Ph.D.), 4/94	
S. Ahmed (M.S.), 7/00	B. Marthi (M.S.), 12/99	W. Wang (M.S.), 12/99	
U. Kelda (M.S.), 12/99	Y. Hou (M.S.), 12/99	M. Qin (M.S.), 11/99	
Y. He (M.S.), 7/98	T. Al-Rushaid (M.S.), 4/98	S. Zhou (M.S.), 4/98	
S. Cong (M.S.), 3/98	M. Chowdhury (M.S.), 8/97	Q. Chen (M.S.), 5/97	
X. Zhou (M.S.), 4/97	D. Ingala (M.S.), 4/97	X. Ma (M.S.), 8/96	
H. Winands (M.S.), 5/96	X. Tong (M.S.), 5/96	S. Bhaskara (M.S.), 12/95	
Q. Wang (M.S.), 12/95	T.B. Mohan (M.S.), 11/95	S. Jayaraman (M.S.), 4/95	
S. Barua (M.S.), 12/94	S. Rizwan (M.S.), 12/94	S. Shie (M.S.), 6/94	\
V. Krishnan (M.S.), 12/93			

PROFESSIONAL HONORS & AWARDS

- Annual Faculty Service Excellence Award, School of Computing and Information Sciences, FIU, 2013.
- Annual Faculty Research Excellence Award, School of Computing and Information Sciences, FIU, 2009.
- Excellence in Faculty Scholarship, FIU, 2008.
- Executive Dean's Award in Service, College of Engineering and Computing, 2006.
- Ranked among the top 15 scholars in Systems and Software Engineering worldwide during 1999 – 2003 by *Journal of Systems and Software*, vol.76, no.1, 2005, 91-97.
- FIU Faculty Award for Excellence in Research, 2005.
- Annual Faculty Service Excellence Award, School of Computing and Information Sciences, FIU, 2005.
- Annual Faculty Teaching Excellence Award, School of Computer Science, FIU, 2003.
- Best Paper Award, The 28th International Conference on Software Engineering & Knowledge Engineering, 2017.
- Best Paper Award, The 11th International Conference on Software Engineering & Knowledge Engineering, 1999.
- Who's Who in Information Technology, 1997.
- Who's Who in Science and Engineering, 1995.
- Research Initiation Award, NSF, 1993.
- Who's Who Among Young American Professionals, 1992
- Annual Graduate Student Research Excellence Award, Virginia Tech, 1989
- Epsilon Pi Upsilon, Virginia Tech, 1986.
- European and American Student Association Fellowship, Ministry of Education, China, 1985 – 1986.

PROFESSIONAL ACTIVITIES

Editorial Board

- *Transactions on Application and Theory of Petri Nets and Other Concurrency Models*, Springer Verlag.
- *International Journal on Software Engineering and Knowledge Engineering*, World Scientific.
- *Software Engineering Journal*, International Scholar Research Network.

Program Committees

- Served on program committees of 7 International Conferences, Symposia, and Workshops in 2023.
- Served on program committees of 7 International Conferences, Symposia, and Workshops in 2022.
- Served on program committees of 6 International Conferences, Symposia, and Workshops in 2021.
- Served on program committees of 7 International Conferences, Symposia, and Workshops in 2020.
- Served on program committees of 8 International Conferences, Symposia, and Workshops in 2019.
- Served on program committees of 7 International Conferences, Symposia, and Workshops in 2018.
- Served on program committees of 5 International Conferences, Symposia, and Workshops in 2017.
- Served on program committees of 5 International Conferences, Symposia, and Workshops in 2016.
- Served on program committees of 5 International Conferences, Symposia, and Workshops in 2015.
- Served on program committees of 4 International Conferences, Symposia, and Workshops in 2014.
- Served on program committees of 6 International Conferences, Symposia, and Workshops in 2013.
- Served on program committees of 8 International Conferences, Symposia, and Workshops in 2012.
- Served on program committees of 8 International Conferences, Symposia, and Workshops in 2011.
- Served on program committees of 10 International Conferences, Symposia, and Workshops in 2010.
- Served on program committees of 10 International Conferences, Symposia, and Workshops in 2009.
- Served on program committees of 10 International Conferences, Symposia, and Workshops in 2008.
- Served on program committees of 12 International Conferences, Symposia, and Workshops in 2007.
- Organizing Chair, 26th International Conference of Applications and Theory of Petri Nets (ICATPN), Miami, June, 2005.
- 27th International Conference of Applications and Theory of Petri Nets (ICATPN), 2006.
- 16th and 17th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2005 & 2006.
- ACM / IEEE 8th International Conference on Model Driven Engineering Languages and Systems – Symposium on Education, Jamaica, Oct. 2005,
- International Workshop on Agent-Oriented Software Development Methodologies (AOSDM), 2005 & 2006
- International Workshop on Integration of Software Engineering and Agent Technology (ISEAT), 2006.
- International Conference on Software Engineering Research and Practice (SERP), 2005 & 2006.
- 5th & 6th International Conference on Quality Software (QSIC), 2005 & 2006.
- 3rd & 4th Workshop on Modeling, Verification, Validation, and Simulation of Enterprise Information Systems, 2005 & 2006.
- 1st – 3rd International Workshop on Quality Assurance and Testing of Web-based Applications, 2004 - 2006
- 25th International Conference of Applications and Theory of Petri Nets (ICATPN), 2004
- 15th IEEE International Conferences on Tools with Artificial Intelligence, 2003.
- IEEE International Conference on Information Reuse and Integration (IRI), 2003 – 2006
- 1st IEEE Multimedia Software Engineering Conference (MSE), 2002
- 16th IFIP World Computer Congress (WCC), 2000
- 20th, 21st, 22nd, 23rd, 24th, 25th Int'l Computer Software and Applications Conf. (COMPSAC), 1996 – 2001.
- 3rd, 5th IEEE High-Assurance Systems Eng. Symp. (HASE), 1998 & 2000.
- Vice Program Chair, 21st Int'l Computer Software and Applications Conf. (COMPSAC'97), 1997.

Curricula Committee

- Member of the Discrete Structure Group of the Joint IEEE Computer Society/ACM Task Force on the "Year 2001 Model Curricula for Computing" (CC-2001), 1998 – 2001.

Reviewer

- National Science Foundation - Software Engineering Division Research Proposals
- ACM Transactions on Software Engineering and Methodology
- Formal Aspects of Computing
- IEEE Transactions on Software Engineering
- IEEE Transactions on Data and Knowledge Engineering
- IEEE Transactions on Parallel and Distributed Systems
- IEEE Transactions on Systems, Man, and Cybernetics
- IEEE Transactions on Robotics and Automation
- International Journal of Foundations of Computer Science
- Information and Software Technology
- Journal of Systems & Software
- Annals of Software Engineering
- The Computer Journal
- International Journal of Software Engineering and Knowledge Engineering
- IEEE Computer
- IEEE Software
- Many international conferences

Membership

- ACM – Senior member
- IEEE Computer Society – Senior member

UNIVERSITY SERVICE

FIU

- Graduate Committee Chair, School of Computing and Information Sciences, 8/2009 – 8/2023.
- Faculty Search Committee co-Chair, 2022.
- Faculty Search Committee Chair, 2018.
- Human Resource Committee Chair, 8/2015 – 5/2016.
- Human Resource Committee Member, 2010 – 2013, 2016, 2017, 2018, 2019, 2020, 2021, 2022
- Graduate Program Director, School of Computing and Information Sciences, 8/2006 – 6/2009.
- Director, Center for Advanced Distributed System Engineering, School of Computer Science, 8/2000 – 12/2013.
- College Profession Committee, College of Engineering and Computing, 2005 – 2011.
- Panel reviewer, 2003 FIU Research Foundation Provost's Summer Research Proposal Competition, 2003.
- School of Computer Science Library Committee Representative, College of Arts and Science, 1/2000 – 1/2002.
- Graduate Committee Chair, School of Computer Science, 8/2000 – 8/2006.
- Faculty Recruitment Committee Member, School of Computer Science, 2002 & 2003.
- Computer Science Foundation Area Coordinator, 8/2012 – 8/2015.
- Software Engineering Area Coordinator, New Graduate Course Development, School of Computer Science, 2003 – 2010.
- Coordinator, Undergraduate Software Engineering Area Accreditation, School of Computer Science, 2003.
- Member, Human Resource Committee, School of Computer Science, 2001 – 2002.

- College Library Representative, School of Computer Science, 2000 – 2002.
- Graduate Thesis Committee Member of 20+ Students, School of Computer Science, 2000 – date.
- Ph.D. Qualifying Exam Member of 30+ Students, School of Computer Science, 2000 – date.

NDSU

- Steering Committee Member, NDSU Cultural Diversity Committee, 1996 – 1999.
- Tenure & Promotion Committee Member, College of Arts & Science, 1997 – 1999.
- Graduate Committee Member, Department of Computer Science, 1990 – 1999.
- Faculty Recruitment Committee Member, Department of Computer Science, 1990 – 1992 & 1995 – 1997.
- Graduate Thesis Committee Member of 50+ Students, Department of Computer Science, 1989 – 1999.