Phillip J. Windley

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EDUCATION

1990 ***PhD*** **University of California, Davis, Computer Science**
Davis, CA. Dissertation: The Verification of Generic Interpreters. Advisor: Professor Karl N. Levitt. Full text: https://babel.hathitrust.org/cgi/pt?id=uc1.x42579

1988 ***MS*** **University of California, Davis, Computer Science**
Davis, CA

1982 ***BS*** **University of Idaho, Metallurgical Engineering**
Moscow, ID

EXPERIENCE

2022 to present *Senior Software Development Manager*
AWS Identity, Automated Reasoning Group

- Manage engineering teams building products with provable security properties for AWS customers

1993 to present *Faculty Member*
Dept. of Computer Science, Brigham Young University

2008 – present, Adjunct Professor
2004 – 2008, Associate Professor
1999 – 2004, Adjunct Professor
1996 – 1999, Associate Professor (tenured/continuing status)
1993 – 1995, Assistant Professor

- Developed courses in Large-scale distributed system (CS462), Programming Languages (CS330), and Hardware Verification (Theorem Proving).
- Mentored 18 Masters and 2 Ph.D. students (details below).
- Director and Founder, Pico Labs conducting research in distributed computing and Internet of Things (15 undergraduate participants)
- Director and Founder, Laboratory for Applied Logic and Enterprise Computing Laboratory.
- Chair, Department Capital Equipment Committee, Undergraduate Curriculum Committee, and Faculty Search Committee
- Conducted research in large scale, enterprise networked applications and formal methods in hardware design. Conducted government and corporate sponsored research in these areas. Received approximately $650,000 in research funding over 5 years.

- Designed and taught classes in programming language concepts and theory, hardware design, formal methods, networking, and large-scale system design.
- Member of University Information Technology and Internet committees.
- Consulted with Internet companies in the design and implementation of large-scale Internet applications.

2014 to 2022 *Enterprise Architect and Principal Engineer*
Office of CIO, Brigham Young University

- Advise CIO on strategic direction and initiatives
- Developed decentralized, distributed-ledger-based architecture for a global education initiative for 15 million people in 188 countries.
- Frequent invited speaker on the use of identity, information technology, and APIs in university settings.
- Led effort across campus with disparate IT groups to consolidate 950 various Web services into single, coherent University API
- Led effort within Office of IT to transform traditional development and operations culture to a DevOps culture for increased organizational agility
- Led innovative, multi-disciplinary Domain of One's Own initiative to provide tools and curricular approaches for teaching 31,000 students to understand construct their personal digital identity across the curriculum
- Mentor and lead Managing Directors of Development, Operations, and Networking in organizational analysis and transformation
- Manage trade-offs between IT functionality and security across campus IT organizations
- Architect and review information governance models, processes, and policies.
- Responsible for reviewing and approving IT acquisitions, managing diverse requirements, and negotiating compromises

2005 to present *Founder and Executive Producer*
Internet Identity Workshop

- IIW is semi-annual workshop on user-centric digital identity where internet identity protocols such as OpenID, OAuth, OpenID Connect, UMA, and FIDO were conceived and nurtured.
- Work with identity industry leaders from around the world to successfully produce and host digital identity event.
- IIW has been held 33 times. The most recent event had 325 participants from around the world. Longest running identity-related conference in the world.

2021 to present Chair
Personal Privacy Oversight Commission, State of Utah

- PPOC was created by HB243 in the 2021 legislative session to provide privacy oversight to governmental entities in Utah.

- As founding chair, organized commission, set up subcommittees, and direct commission business.
- Review privacy practices of governmental entities (state, local, education) throughout Utah.
- Appointed to commission by Utah State Auditor John Dougall in July 2021.

2016 to 2020 *Founder and Chair*
Sovrin Foundation

- Launched and led global non-profit dedicated to building an identity metasystem.
- Recognized leader in self-sovereign identity.
- Developed and led governance efforts with multiple parties from diverse companies, locations, and backgrounds.
- Invited speaker at conferences around the world on self-sovereign identity.
- Led nine-person board of trustees.
- Raised $5 million to fund development and adoption efforts.
- Successfully spun off three open-source projects: Hyperledger Indy, Aries, and Ursa.
- Hired executive management including Executive Director and CTO.
- Managed partnerships with dozens of companies around the globe.
- Led legal strategy and managed attorney relationships with several multinational legal firms.

2007 to 2014 *Founder and Chief Technology Officer*,
Kynetx, Inc.

- Developed open-source connected-car platform exploring Internet of Things architectures.
- Led successful Kickstart campaign for connected-car platform Fuse.
- Developed first-of-its-kind Web programming platform for creating client-side Web applications.
- Led development of mobile apps for Android and iOS.
- Responsible for all product development and innovation.
- Developed products for Visa International, Dun and Bradstreet, Acxiom Corp.
- Built cross-functional development team focusing on development, database, operations, and security of all products.
- Raised $2,300,000 in strategic funding.
- Founded and planned business.

2001 to 2002 *Chief Information Officer*
Office of the Governor, State of Utah

- Responsible for vision, strategy, direction, guidelines, policies, planning, coordination, and oversight for information technology for all executive branch agencies of Utah (22,000 employees).
- Reported to the Governor, member of the Governor's Senior Staff and Cabinet

- Worked with departmental and IT executives across state, national, and local government
- Chaired the state's Information and Technology Policy and Strategy Committee, which sets policy and strategy for IT statewide
- Served as member of UEN Steering Committee, UHIN Steering Committee, and Utah Technical Council.
- Developed and implemented eGovernment plan and strategy that resulted in Utah winning numerous awards for eGovernment excellence
- Specific accomplishments include:
    - Successfully deployed dozens of eGovernment applications. The state's eGovernemt portal, Utah.gov won and continues to win national awards for excellence
    - Reorganized critical IT functions across more than 20 departments and agencies to drive Governor's vision of eGovernment
    - Planned and initiated consolidation of key IT programs for increased efficiency and security
    - Established and architected IT Governance programs for all state agencies that are still in use
    - Implemented common directory services and email for all 22,000 employees.
    - Oversaw and approved budget of $120 million for IT (900 IT employees).
    - Created and established a coherent set of policies for digital identity and computer security on state computers systems and networks.
    - Established an enterprise storage solution.
    - Created and implemented rebranding strategy for the state online services including the move to a new URL (utah.gov), new logo, common look and feel across hundreds of separate web sites, and an advertising campaign.
    - Created and drove a customer centric vision for IT services in the State including the establishment of a multi-tiered support environment.

1999 to 2001 *Vice President, Product Development and Operations*
Excite@Home, Redwood City, CA

- Senior corporate officer in Excite@Home's Utah office, responsible for all employees in Utah (110 employees).
- Managed product management, engineering, customer service, network operations, and software quality assurance groups across division (200+ employees).
- Responsible for product development in the Excite Business Applications (EBA) group. EBA provided shared commerce, Internet credit card payment gateway, and managed hosting services for over 50,000 customers.
- Focus on on-time, on-budget delivery and operation of innovative, complex Internet applications.
- Specific accomplishments include:
    - Increased division revenue from $4 million in 1999 to $26 million in 2000 with EBIT of $2.7 million.
    - Responsible for product P&L and budgets.

- Development and operation of a shared hosting product for AT&T which received a PC Magazine Editor's Choice Award.
- Development and operation of *Freetailer* e-commerce product on the Excite network. This product ultimately served over 25,000 merchants.
- Introduction of activity-based costing to product development in EBA.
- Managed planning and build-out for the new Orem facility, including a 3000 square foot, Class A data center.
- Managed operation of large-scale Internet infrastructure including applications that supported tens of thousands of customers, large-scale Internet portals receiving millions of page views per day, and Internet credit card payment gateways.
- Established operational metrics for driving reliability and availability of corporate infrastructure.
- Instituted capacity planning discipline.

1998 to 1999 *Founder, Chief Technology Officer*
iMALL, Inc., Santa Monica, CA

- Responsible for all technical strategies, activities, plans, and policies for iMALL, Inc., an early Internet e-commerce company that was acquired by Excite@Home in 1999.
- Designed, planned, and built a multi-tier Internet application platform for e-commerce.
- Responsible for all product planning as iMALL developed a market, customers, and strategies.
- Specific accomplishments include:
  - Wrote and developed business plan which resulted in iMALL receiving $20 million in private placement investments.
  - Opened Provo UT office and built a technical team of over 80 people from scratch to carry out iMALL's product strategy.
  - Conceived and developed iMALL's e-commerce products, which included one of the earliest hosted e-commerce applications, a product level search engine (`stuff.com`), and the `imall.com` shopping portal.
  - Key member of the senior executive team that sold iMALL, Inc. to Excite@Home for $450 million.

1994 to 1996 *Founder, Partner*
Electronic Marketing Services, Provo, UT

- Founded the `imall.com` shopping portal, one of the earliest online shopping sites on the Internet.
- Pioneered key concepts in online commerce including shopping carts, online software for site creation, and electronic transactions.
- Built business model for selling services to merchants who wanted to be online.

1990 to 1993 *Assistant Professor*

University of Idaho, Moscow, ID

- Director and Founder, Laboratory for Applied Logic.
- Conducted research in microprocessor verification and formal methods.
- Designed and taught classes in microprocessor design and programming language concepts.
- Four Masters students supervised.

1982 to 1986 *Member, Technical Staff, Reactor Materials Division*
Naval Reactors, Department of Energy, Washington D.C

- Oversaw material irradiation testing in Advanced Test Reactor.
- Oversaw irradiation testing evaluation in Expended Core Facility and Materials Evaluation Laboratory.
- Conducted reviews of engineering plans for robotic test equipment, HVAC facilities, and other equipment used in irradiation testing.
- Responsible for $60 million/year operating and capital budget for conducting irradiation tests.

BOOKS

Learning Digital Identity. O'Reilly, 2023

The Live Web: Building Event Based Connections in the Cloud. Course Technology, 2011

Digital Identity. O'Reilly, 2005

PATENTS

Rule Engine System Controlling Devices of Disparate Types and Protocols, Patent: US8434056B2, April 2013 (with Sam Curren).

PUBLICATIONS

Windley, Phillip J., "Self-Sovereign Identity: The Architecture of Personal Autonomy and Generativity on the Internet," Blockchain Research Institute, March 2022.

Windley, Phillip J., "Sovrin: An Identity Metasystem for Self-Sovereign Identity," Frontiers in Blockchain, August 2021.

Windley, Phillip J., "Multisource Digital Identity," IEEE Internet Computing, September 2019.

Windley, Phillip J., "API Access Control with OAuth: Coordinating interactions with the Internet of Things.," IEEE Consumer Electronics Magazine, July 2015.

Windley, Phillip J. with Devlin Daley, Bryant Cutler, and Kevin Tew, "Using Reputation to Augment Explicit Authorization," Proceedings of the 2007 ACM Workshop on Digital Identity Management, November 2007.

Windley, Phillip J. with Devlin Daley and Kevin Tew, "A Framework for Building Reputation Systems," Proceedings of WWW2007, May 2007.

Windley, Phillip J., "Formal Modeling and Verification of Microprocessors," IEEE Transactions on Computers, January 1995.

Windley, Phillip J. with Michael Barnett, "Dysfunctional Programming: Teaching Programming using Formal Methods to Non-Computer Science Majors," Journal of Computer Science Education, Volume 5, 1994, pp. 111-122.

Windley, Phillip J. with Paul E. Black, "Verifying Programs with Side-Effects," The Thirty-First Hawaii International Conference on System Sciences (HICSS-31) January 1998

Windley, Phillip J. with Michael Jones, "Restricted Types for HOL," Presented at the 1997 International Conference on the Theorem Provers in Higher-Order Logics, Murray Hill, NJ, August 1997.

Windley, Phillip J. with Trent Larson, "Digitally Signed and Authenticated Theorems on HOL," Presented at the 1997 International Conference on the Theorem Provers in Higher-Order Logics, Murray Hill, NJ, August 1997.

Windley, Phillip J. with Annette Bunker and Michael D. Jones and Trent N. Larson," Alexandria: Libraries of Abstract Verified Hardware Modules," 2nd Workshop on Libraries, Component Modeling, and Quality Assurance, Toledo, Spain, April 1997.

Windley, Phillip J. with Paul E. Black, "Verifying Resilient Software," The Thirtieth Hawaii International Conference on on System Sciences (HICSS-30) January 1997

Windley, Phillip J. with Jerry R. Burch, "Mechanically Checking a Lemma Used in an Automatic Verification Tool," Proceedings of the 1996 Conference on Formal Methods in Computer Aided Design, Palo Alto CA.

Windley, Phillip J. with Paul E. Black, "Inference Rules for Programming Languages with Side Effects in Expressions," Proceedings of the 1996 International Conference on the Theorem Provers in Higher-Order Logics, J. von Wright, J. Grundy, and J. Harrison, editors, Springer-Verlag Lecture Notes in Computer Science Volume 1125, 1996.

Windley, Phillip J. with Michael D. Jones and Trent N. Larson, "Toward GHDL_EVAL: A Framework for Deeply Embedding Simple HDLs in HOL" Supplementary Proceedings of the 1996 International Conference on the Theorem Provers in Higher-Order Logics, J.

von Wright, J. Grundy, and J. Harrison, editors, Springer-Verlag Lecture Notes in Computer Science Volume 1125, 1996.

Windley, Phillip J. with Robert H. Beers, "Abstracting Signals: The Waveform Library," Supplementary Proceedings of the 1996 International Conference on the Theorem Provers in Higher-Order Logics, J. von Wright, J. Grundy, and J. Harrison, editors, Springer-Verlag Lecture Notes in Computer Science Volume 1125, 1996.

Windley, Phillip J. with Paul E. Black, Kelly M. Hall, Michael D. Jones, and Trent N. Larson, "A Brief Introduction to Formal Methods," Proceedings of the Custom Integrated Circuits Conference, San Diego CA, May 1996.

Windley, Phillip J. with Paul E. Black, "Automatically Synthesized Term Denotation Predicates: A Proof Aid," Proceedings of the 1995 International Workshop on the Higher-Order Logic Theorem Proving and its Applications, E. Thomas Schubert, Phillip J. Windley, and James Alves-Foss, editors, Springer-Verlag Lecture Notes in Computer Science Volume 971, 1995.

Windley, Phillip J., "Verifying Pipelined Microprocessors," Proceedings of the 1995 IFIP Conference on Hardware Description Languages and their Applications (CHDL), Tokyo Japan, 1995.

Windley, Phillip J. with Michael Coe, "Correctness Models of Pipelined Microprocessors," Proceedings of the 1994 Conference on Theorem Provers in Circuit Design, Thomas Kropf and Ramayya Kumar, editors, 1994.

Windley, Phillip J., "Specifying Instruction Set Architectures in HOL: A Primer," Proceedings of the 1994 International Workshop on the Higher-Order Logic Theorem Proving and its Applications, Thomas Melham and Juanito Camilleri, editors, Springer-Verlag Lecture Notes in Computer Science Volume 859, 1994.

Windley, Phillip J., "Using make to Manage Large Proofs ," Presented at the 1994 International Workshop on the Higher-Order Logic Theorem Proving and its Applications.

Windley, Phillip J., "Correctness Properties for Iterated Hardware Structures," Proceedings of the 1993 NASA Symposium on VLSI Design, Albuquerque NM, November 1993.

Windley, Phillip J. with Mark Aagard and Miriam Leeser, "Towards a Super Duper Hardware Tactic," Proceedings of the 1993 International Workshop on the Higher-Order Logic Theorem Proving and its Applications, Jeffery J. Joyce and Carl Seger, editors, August 1993.

Windley, Phillip J. with David A. Fura, "Abstraction Techniques for Modeling Real-World Interface Chips," Proceedings of the 1993 International Workshop on the Higher-

Order Logic Theorem Proving and its Applications, Jeffery J. Joyce and Carl Seger, editors, August 1993.

Windley, Phillip J. with E. Thomas Schubert and Karl Levitt, "Report on the UCD Microcoded Viper Verification Project," Proceedings of the 1993 International Workshop on the Higher-Order Logic Theorem Proving and its Applications, Jeffery J. Joyce and Carl Seger, editors, August 1993.

Windley, Phillip J., "A Theory of Generic Interpreters," Proceedings of the 1993 Conference on Correct Hardware Design Methodologies (CHARME), Springer-Verlag Lecture Notes in Computer Science Volume 683, Arles, France, 1993.

Windley, Phillip J. with Jody W. Gambles, "Reasoning about the VHDL Standard Logic Package Signal Data Type," Proceedings of the 1993 IFIP Conference on Hardware Description Languages and their Applications (CHDL), Ottawa Canada, 1993.

Windley, Phillip J. with Bruce A. Richman, "ACAD: A Hierarchical Approach to CMOS Design Analysis," Proceedings of the 1993 IEEE Custom Integrated Circuits Conference, May 1993.

Windley, Phillip J. with Kelly Hall, "Simulating Microprocessors from Formal Specifications," Proceedings of the 1992 International Workshop on the Higher-Order Logic Theorem Proving and its Applications, L. J. M. Calesen and M. J. C. Gordon, editors, North-Holland, 1993.

Windley, Phillip J., "Abstract Theories in HOL," Proceedings of the 1992 International Workshop on the Higher-Order Logic Theorem Proving and its Applications, L. J. M. Calesen and M. J. C. Gordon, editors, North-Holland, 1993.

Windley, Phillip J., "Instruction Set Commutivity," Proceedings of the 1992 NASA Symposium on VLSI Design, October 1992.

Windley, Phillip J. with Jody W. Gambles, "Incorporating Formal Verification Into VLSI Design Methodology," Proceedings of the 1992 NASA Symposium on VLSI Design, October 1992.

Windley, Phillip J. with J. Frenzel, S. Alves, and K. Prisbrey, "Genetic Algorithms and Hydrometallurgical Equilibrium," 1992 Society of Metallurgical Engineers Meeting, Phoenix AZ, February 1992.

Windley, Phillip J. with Jody W. Gambles, "A Verification Logic Representation of Indeterministic Signal Strengths," Proceedings of the 1991 NASA Symposium on VLSI Design, October 1991.

Windley, Phillip J. with M. Alahmad, "Specifying and Verifying Reliable VLSI Sequential Controllers," Proceedings of the 1991 NASA Symposium on VLSI Design, October 1991.

Windley, Phillip J., "The Formal Specification of a High-Speed CMOS Correlator," Proceedings of the 1991 NASA Symposium on VLSI Design, October 1991.

Windley, Phillip J., "The Practical Verification of Microprocessor Designs," 1991 INEL Computing Symposium, September 1991.

Windley, Phillip J. with Jody W. Gambles, "An HOL Theory for Logic States with Indeterminate Strengths," Proceedings of the 1991 International Workshop on the HOL Theorem Prover and its Applications, August 1991.

Windley, Phillip J., "Using Correctness Results to Verify Behavioral Properties of Microprocessors," Proceedings of the IEEE Conference on Computer Assurance, Systems Integrity, Software Safety, and Process Security (COMPASS), June 1991.

Windley, Phillip J., "Abstract Hardware," Proceedings of the IFIP WG 10.2 International Workshop in Formal Methods in VLSI Design, January 1991.

Windley, Phillip J., "A Hierarchical Methodology for Verifying Microprogrammed Microprocessors," Proceedings of the IEEE Symposium on Research in Security and Privacy, May 1990.

Windley, Phillip J., "An Approach to Rapidly Prototyping Robot Control Languages," International Journal of Robotics and Automation, Volume 4(1), March 1989.

INVITED PAPERS, BOOKS, AND PROCEDINGS

Windley, Phillip J. and Ganesh Gopalakhrishnan , editors, *Proceedings of the 1998 Formal Methods in Computer-Aided Design*, Lecture Notes in Computer Science, Vol. 1522. Springer Verlag. November, 1998.

Windley, Phillip J., E. Thomas Schubert, and James Alves-Foss, editors, *Proceedings of the 1995 International Workshop on the Higher-Order Logic Theorem Proving and its Applications*, Lecture Notes in Computer Science Volume 971, . Springer Verlag. September 1995.

Windley, Phillip J. and James F. Frenzel, "Microprocessor Applications," The Electrical Engineering Handbook, CRC Press, 1995 (second edition).

Windley, Phillip J. and James F. Frenzel, "Microprocessor Applications," The Electrical Engineering Handbook, CRC Press, 1993.

Windley, Phillip J., "Verification of VLSI Designs," Proceedings of the 1991 NASA Symposium on VLSI Design, October 1991.

Windley, Phillip J., "The Practical Verification of Microprocessor Designs," *Proceedings of the 1991 International Workshop on the HOL Theorem Prover and its Applications*, August 1991.

Windley, Phillip J., "The Practical Verification of Microprocessor Designs," *IEEE COMPCON Proceedings*, San Francisco CA, February 1991.

Windley, Phillip J., Myla M. Archer, Karl N. Levitt, and Jeffrey J. Joyce (eds.), *Proceedings of the 1991 International Workshop on the HOL Theorem Prover and its Applications*, IEEE Computer Society Press, August 1991.

PhD DISSERTATIONS SUPERVISED

Larson, Trent N., *A Formal Method to Analyze Framework-Based Software Systems*, 2001.

Black, Paul A., *Verification of a Secure Web Server*, February 1998

MASTERS THESES SUPERVISED

Daley, Devlin, *Backflip: A Principled Approach to Online attribute Verification*, December 2010.

Wilcox, Terry C. Jr., *Dynamic Load Balancing of Virtual Machines Hosted on Xen*, April 2009.

Cutler, Bryant, *Simple, Secure, Selective Delegation in Online Identity Systems*, August 2008.

Goodrich, Brian, *Extending Web Application Development to the User-Editable Space*, April 2008.

Olsen, Dar R. III, *Putting the Web Services Specifications to REST*, April 2008.

Warne, Thomas R., *A Microformatted Registry Alternative*, August 2006.

Tew, Kevin, *SKUERY: Manipulation of S-Expressions using XQuery Techniques*, April 2006.

Zhuang, Yuan*, Formal Specification and Verification of Synchronous Exceptions of a Pipelined Microprocessor*, September 1999.

Beers, Robert H., *Formal Verification of an Interrupt-Based Computer System in a Theorem Proving Environment*, March 1999.

Bunker, Annette, *A Hardware Combinator for Tree-Shaped Circuits*, September 1998.

Larsen, Trent N., *Register Transfer Languages for Hardware Abstractions*, December 1997.

Jones, Michael D., *Representing Abstract Theories using Predicate Types*, June 1997.

Bignall, A. Rosina, Hueristic *Path-Analysis of Accesses to a World Wide Web Site*, November 1996.

Stoddard, Brad, *Annotating Read-Only Documents*, June 1996.

Coe, Michael L., Results *from Verifying a Pipelined Microprocessor*, November 1994.

Walters, Derreck D., *Logic for Denotational Semantics Analysis of Algorithms*, March 1994.

Richman, Bruce A., *ACAD: A CMOS Analog Design Tool*, January 1993.

Gambles, Jody W., *Incorporating Formal Verification into VLSI Design Methodology*, May 1992.

FUNDED RESEARCH

National Science Foundation, "A Distributed, Type-Based Library of Abstract Hardware Modules," December 1994-November 1997, $190,943.

National Security Agency University Programs, "A Verified Microprocessor System," July 1994-June 1996, $120,000.

Boeing Corporation, "Transaction Modeling in Hardware Verification," June 1992-January 1993, $14,938.

NASA Space Engineering Research Center for VLSI Design, "Abstract Modules in Hardware Verification," November 1992-October 1993, $38,658.

NASA Space Engineering Research Center for VLSI Design, "Using Generic Theories to Model Hardware," November 1991-October 1992, $36,750.

National Science Foundation, "Integrating Formal Verification with VLSI Design," September 1991-August 1993, $69,636.

National Security Agency University Programs, "A Verified Microprocessor with Security Features," June 1991-May 1993, $98,795.

Boeing Corporation, “Specification of a Processor Interface Unit,” May 1991-May 1992, $34,967.

Research Council Seed Grant, “Custom VLSI Devices for Molecular Biology,” $6000 (with Dr. James F. Frenzel).

NASA Space Engineering Research Center for VLSI Design, “Formal Specification of a High Speed CMOS Correlator,” March 1991-October 1991, $31,138.

University Travel Grant, January 1991, $595.

AWARDS AND PROFESSIONAL ACTIVITIES

Chair, Utah Personal Privacy Oversight Commission, 2021-present

Publisher, Windley’s Technometria at www.windley.com, 2002-present

Member, Board of Directors, CBOps, LLC (sold to ClearSale), 2017-2022

Chair, Board of Trustees, Sovrin Foundation, 2016-2020

Executive Producer, IT Conversations, Internet’s first technology podcast with tens of thousands of listeners. 2005-2012

Member, Board of Directors, Utah Open Source Foundation, 2009-2011

Member, Board of Directors, Open Source High School of Utah, 2007

Member, Board of Directors, Direct Pointe, 2005-2011

Member, Board of Directors, Sento Corp. (SNTO), 2003-2007

Advisory Board Member, ContentWatch, 2005-2009

Advisory Board Member, PingID Network, 2002-2009

Advisory Board Member, Canyon Park Technology Center, 2002-2006

Board Member, Utah Information Technology Association (now Utah Technology Council), 2001-2003

Member, Steering Committee, Utah Education Network, 2001-2002

Member, Steering Committee, Utah Health Information Network, 2001-2002

Member, College Advisory Committee, College of Physical and Mathematical Sciences, Brigham Young University, 2001-2003

Member, College Advisory Committee, School of Computer Science and Engineering, Utah Valley University, 2002-2003

Outstanding Teaching Award, University of Idaho Computer Science Department, May 1993.

OTHER TRAINING

2000 ***Pilot license*** *FAA licensed Private Pilot. Certificate No. 3892680.*
Owned and flew a Cessna Turbo 210 and a Piper Arrow.

2000 ***Certificate*** *Executive Management,*
University of Michigan, Management Development Program
Ann Arbor, MI

1983 ***Certificate*** *Nuclear Propulsion Engineering,*
Westinghouse Bettis Reactor Engineering School
Pittsburgh, PA