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Education

N/A (N/A), 1971-1972, University of California, Los Angeles (enrolled as high school senior)
B.S. (mathematical sciences), 1976, Stanford University (with distinction)
M.S. (computer science), 1978, Carnegie Mellon University
N/A (psychology), 1978-1979, University of California, San Diego (visiting graduate student)
Ph.D. (computer science), 1983, Carnegie Mellon University

Current Positions

Professor, Computer Science Department, University of Southern California, 1999-
Director for Cognitive Architecture Research, Institute for Creative Technologies, University of
Southern California, 2014-
Immediate Past President of the Academic Senate, University of Southern California, 2018-

Experience

Programmer, TRW Inc., 6/73 - 9/73, 6/74 - 9/74, Lockheed Missiles & Space Co., Inc., 6/75 - 9/75,
Amdahl Corp., 1/76 - 4/76, Systems Control Inc. 4/76 - 8/76.
Research Computer Scientist, Computer Science Department, Carnegie Mellon University, 1983-1984.
Acting Assistant Professor, Computer Science and Psychology Departments, Stanford University,
1984.
Assistant Professor, Computer Science and Psychology Departments, Stanford University, 1984-1987.
Assistant Professor, Computer Science Department (on leave), Stanford University, 1987-1989.
Project Leader, Intelligent Systems Division, Information Sciences Institute, University of Southern
California, 1987-1993.
Research Assistant Professor, Computer Science Department, University of Southern California,
1988-1990.
Associate Professor, Computer Science Department, University of Southern California, 1991-1999.
Deputy Director, Intelligent Systems Division, Information Sciences Institute, University of Southern
California, 1993-2002.
New Directions, Information Sciences Institute, University of Southern California, 1998-2000.
Director, New Directions, Information Sciences Institute, University of Southern California, 2000-
2002.
Associate Director, Information Sciences Institute, University of Southern California, 2002-2007.
Deputy Director, Information Sciences Institute, University of Southern California, 2007.
Deputy Director, Center for Rapid Automated Fabrication Technologies, University of Southern
California, 2005-2010.
Project Leader, Institute for Creative Technologies, University of Southern California, 2009-2014.
Chair of the Faculty of the Viterbi School of Engineering, University of Southern California, 2014-
2016.

Academic Vice President, Academic Senate, University of Southern California, 2016-2017.
 President of the Faculty, University of Southern California, 2017-2018.

Memberships

AGI Society (<i>Senior Member</i>)	Association for Computing Machinery
Association for the Advancement of Artificial Intelligence (<i>Fellow</i>)	Biologically Inspired Cognitive Architectures Society
American Association for the Advancement of Science (<i>Fellow</i>)	Cognitive Science Society (<i>Fellow</i>)
American Society for Engineering Education	IEEE & IEEE Computer Society
	Sigma Xi

Honors

National Merit scholarship, 1972
 NSF graduate fellowship, 1976-1979
 Nominated for publisher's prize, *Fourth National Conference on Artificial Intelligence* (AAAI-84), 1984. (With J. E. Laird & A. Newell)
 Award for best written paper, *Ninth National Conference on Artificial Intelligence* (AAAI-91), 1991. (With A. Golding)
 The American Voice Input/Output Society Gary K. Pooock Editor's Award for the Outstanding Paper in the *AVIOS Journal*, 1993. (With A. Golding)
 Fellow of the Association for the Advancement of Artificial Intelligence (AAAI), 1994.
 Special issue, *Tutorials in Quantitative Methods for Psychology*, celebrating 25th anniversary of article on Mechanisms of Skill Acquisition and the Law of Practice, by A. Newell and P. S. Rosenbloom, 2006.
 Who's Who in America, 2010-; Who's Who in the World, 2011-; Who's Who in Science and Engineering, 2011-.
 Kurzweil Award for Best AGI (Artificial General Intelligence) Idea, 2011.
 Kurzweil Award for Best AGI (Artificial General Intelligence) Paper, 2012.
 USC Phi Kappa Phi Faculty Recognition Award (for *On Computing*), 2012-2013.
 Fellow of the Cognitive Science Society, 2014.
 Fellow of the American Association for the Advancement of Science (AAAS), 2017.
 Herbert A. Simon Prize for Advances in Cognitive Systems, 2018. (With J. E. Laird)
 USC Distinguished Faculty Service award, 2019.

Service

Chair: ACM Special Interest Group on Artificial Intelligence (SIGART), 1987-1989.
 Councilor: American Association for Artificial Intelligence (AAAI), 1992-1995.
 Program Co-Chair: National Conference on Artificial Intelligence (AAAI), 1992.
 Chair: Conference Committee of the American Association for Artificial Intelligence (AAAI), 1998-2001.
 Chair: Soar Workshop, 1987, 1990, 1993.
 Chair: DARPA ISAT Study on "Robot-Agent-Person (RAP) Teams for Emerging Threats", 2001.
 Co-Chair: NSF Workshop on "Responding to the Unexpected", 2002.
 Co-Chair: AAAI Conference Special Track on "Integrated Intelligence", 2011.
 Program Co-Chair: IJCAI-2013 Workshop on "Intelligence Science", 2013.
 Co-Chair: AAAI 2013 Fall Symposium on "Integrated Cognition", 2013.
 Chair, ACM-AAAI Allen Newell Award Committee, 2013-2015.
 Co-Chair: AAAI Conference Special Track on "Cognitive Systems", 2015.
 Vice Chair, Engineering Faculty Council, Viterbi School of Engineering, USC, 2013-2014.

Co-Editor: Special section "Spotlight on Integrated Cognition" in *Biologically Inspired Cognitive Architectures*, 2014.

Co-Chair: Viewpoints, *Communications of the ACM (CACM)*, 2017-.

Co-Chair: AAAI 2017 Fall Symposium on "A Standard Model of the Mind", 2017.

Co-Chair: AAAI 2018 Fall Symposium on "A Common Model of Cognition", 2018.

Area Chair: AAAI Conference, 2019.

Member:

Advisory Board:

Journal of Artificial Intelligence Research, 1993-1998.

Human Computation, 2014-.

Editorial Board:

Machine Learning, 1986-1988, 1992-1995.

Applied Intelligence, 1991-1995.

Journal of Artificial Intelligence Research, 1993-1996.

Cognitive Science, 1996-2000.

IEEE Intelligent Systems, 1999-2003.

World Scientific Publishers book series on *Intelligence Science*, 2010-.

International Journal of Intelligence Science, 2011-.

Journal of Artificial General Intelligence, 2012-.

Associate/Action Editor:

Machine Learning, 1988-1991.

International Journal of Science in Society, 2009.

Program and/or Organizing Committee:

International Joint Conference on Artificial Intelligence (IJCAI), 1987.

AAAI Conference, 1986, 1987, 1988, 1991, 1996, 2014, 2018.

International Machine Learning Conference/Workshop, 1988, 1989, 1991, 1993, 1994.

AAAI Spring Symposium on Integrated Intelligent Architectures, 1991.

ML-91 Workshop on Computational Models of Human Learning, 1991.

International Workshop on Knowledge Compilation and Speedup Learning, 1993.

International Round-Table on Abstract Intelligent Agent (AIA), 1993, 1994.

International Conference on AI Planning Systems, 1994.

International Conference on Multiagent Systems, 1996.

AAAI Fall Symposium on Advances in Cognitive Systems, 2011.

International Conference on Biologically Inspired Cognitive Architectures, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.

International Conference on Artificial General Intelligence, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.

Annual Conference on Advances in Cognitive Systems, 2012, 2013, 2015, 2016, 2017, 2018, 2019.

AAAI Conference Special Track on Cognitive Systems, 2013, 2016, 2017.

Conference on Behavior Representation in Modeling and Simulation, 2014.

International Workshop on Artificial Intelligence and Cognition, 2015, 2016, 2017, 2018, 2019.

International Conference on Intelligence Science, 2017, 2018.

IJCAI-17 Workshop on Architectures for Generality and Autonomy, 2017.

Other Professional Committees:

AAAI Fellows Selection Committee, 1997-1999.

AAAI Awards Committee, 1999-2000.

Carnegie Mellon SCS Alumni Award for Undergraduate Excellence Judging Committee, 2010, 2011, 2013.

ACM-AAAI Allen Newell Award Committee, 2011-2016.

ACM Awards Committee, 2013-2105.

DARPA Information Science and Technology (ISAT) Study Group, 1999-2002.

NSF Review Panel, 2008, 2017, 2018.

Contributor:

AFOSR Working Group on "Architectures for Intelligent Real-Time Problem Solving", 1989.

DARPA ISAT Study on "Machine Learning", 1989.

DARPA ISAT Study on "Simulation Technology Assessment", 1992.

DARPA ISAT Study on "Total Recall: Combining Human & Digital Memory", 2000.

DARPA ISAT Study on "Massively Populated Persistent Worlds", 2002.

AAAI Report to ARPA on "Twenty First Century Intelligent Systems", 1994.

AAAI Report to NSF on "Intelligent Systems in the NII", 1994-1995.

DoD Working Group on "Computer Generated Forces", 1998.

Rapporteur: National Academy Research Briefing Panel on Cognitive Science & Artificial Intelligence, 1983.

PhD Dissertations Advised

Dirk Ruiz, *Learning and Problem Solving: What is Learned while Solving the Towers of Hanoi*, Stanford University, Department of Psychology, 1987.

Milind Tambe, *Eliminating Combinatorics from Production Match*, Carnegie Mellon University, School of Computer Science, 1991. (Co-advised with Allen Newell)

Andrew Golding, *Pronouncing Names by a Combination of Rule-Based and Case-Based Reasoning*, Stanford University, Department of Computer Science, 1991.

Amy Unruh, *Using Automatic Abstraction for Problem-Solving and Learning*, Stanford University, Department of Computer Science, 1993.

Soowon Lee, *Multi-Method Planning*, University of Southern California, Department of Computer Science, 1994.

Robert Doorenbos, *Production Matching for Large Learning Systems*, Carnegie Mellon University, School of Computer Science, 1995. (Co-advised with Jill Fain Lehman)

Benjamin Smith, *Induction as Knowledge Integration*, University of Southern California, Department of Computer Science, 1995.

Jihie Kim, *Bounding the Cost of Learned Rules: A Transformation Approach*, University of Southern California, Department of Computer Science, 1996.

Bonghan Cho, *Efficient Production System Match and Constraint Satisfaction Problem Solving*, University of Southern California, Department of Computer Science, 1996. (Co-advised with Milind Tambe)

Himanshu Joshi, *Speech and Language Understanding in Sigma*, University of Southern California, Department of Computer Science, 2018.

Courses Taught

"Introduction to Computing B", Carnegie Mellon University, Spring 1980.

"Artificial Intelligence for Psychologists", Stanford University, Fall 1984, Fall 1985.

"Cognitive Architecture", Stanford University, Spring 1985, Spring 1987.

"Computer Science Colloquium", Stanford University, Spring 1985.

"Learning in Man and Machine", Stanford University, Winter 1986.

"Cognitive Introduction to Artificial Intelligence", Stanford University, Winter 1987.

"Machine Learning", University of Southern California, Spring 1989.

"Advanced Machine Learning", University of Southern California, Spring 1990, Fall 1990, Spring 1991, Spring 1993.

"Artificial Intelligence", University of Southern California, Fall 1991, Fall 1994.

"Integrated Intelligent Systems", University of Southern California, Fall 1992.

- “Introduction to Artificial Intelligence”, University of Southern California, Fall 1993, Spring 2008.
 “New Perspective/Directions for Computing”, University of Southern California, Fall 2007.
 “Foundations of Artificial Intelligence”, University of Southern California, Spring 2008, Spring 2010,
 Spring 2011, Spring 2013.
 “Introduction to Computing”, University of Southern California, Fall 2013, Fall 2014, Fall 2015.

Research Funding

- Gift in support of research, Hughes Aircraft Company Research Laboratories, 1985, \$20,000.
 Gift in support of research, Hughes Aircraft Company Research Laboratories, 1987, \$25,000.
 “The SOAR Project”, Hughes Aircraft Company Research Laboratories, 3/1/1988 to 12/31/1988,
 \$20,044.¹
 “Research on Abstraction in Soar”, Hughes Aircraft Company Research Laboratories, 1/1/1989 to
 9/30/1989, \$24,325.¹
 “Proposal for Research on Soar: An Architecture for General Intelligence and Learning”, Defense
 Advanced Research Projects Agency (DARPA), 8/22/86 to 3/31/1990, \$487,859.
 “Research on Abstraction in Soar”, Hughes Aircraft Company Research Laboratories, 1/1/1990 to
 6/30/1990, \$20,159.¹
 “Research on Soar”, National Aeronautics and Space Administration (NASA) Ames Research Center,
 1/1/1988 to 12/31/1990, \$211,688.
 Gift in support of Neuro-Soar research, Hughes Aircraft Company Research Laboratories, 1990 to
 1991, \$37,859.
 “Experiments in Skill Acquisition: Integrating explanation-based learning with abstraction, macro-
 operators, and nonlinear plans”, Defense Advanced Research Projects Agency (DARPA) and
 the Office of Naval Research (ONR), 5/1/1989 to 4/30/1992, \$431,013.
 Gift in support of Neuro-Soar research, Hughes Aircraft Company Research Laboratories, 1991 to
 1992, \$30,000.
 Gift in support of research on simulation agents, Hughes Aircraft Company Research Laboratories,
 1992, \$5,400.
 “Towards Knowledge-Based Simulated Agents”, Defense Advanced Research Projects Agency
 (DARPA), 6/18/1992 to 6/17/1993, \$138,278 (\$50,000 of this is a subcontract to Carnegie
 Mellon University).
 “Rosenbloom Powell 94”, Powell Foundation, 7/1/1993 to 9/30/1994, \$16,100.
 “Intelligent automated forces for SIMNET”, Office of Naval Research (ONR), 4/1/1991 to
 12/31/1994, \$160,000.
 “Powell/Rosenbloom”, Powell Foundation, 1/1/1993 to 12/31/1994, \$11,500.
 “Learning to Use Devices”, National Aeronautics and Space Administration (NASA) Ames Research
 Center, 1/1/1991 to 5/31/1995, \$270,854.
 “Intelligent Automated Agents and Analysis Tools for Simulated Environments”, Advanced Research
 Projects Agency (ARPA) and Naval Research Laboratory (NRL), as a subcontract from the
 University of Michigan, 7/15/1992 to 7/14/1995, \$1,361,234.
 Grant in support of the Soar theory of human cognition, James S. McDonnell Foundation (by way of
 Carnegie Mellon University), 1992 to 1995, \$20,000.
 “Assessment of Soar for Command Decision Making”, US Army Artificial Intelligence Center,
 6/19/1996 to 9/19/1996, \$7,500.
 “Intelligent Forces for Simulated Environments”, Defense Advanced Research Projects Agency
 (DARPA) and the Naval Command, Control, and Ocean Surveillance Center, RDTE Division
 (NRaD), 2/15/1995 to 2/14/1998, \$5,244,988.

¹ A contract to Stanford University, with Nils Nilsson as the official PI (since I left Stanford), but with me still in charge of proposal writing and research guidance.

- “Adaptive Agent and Agent-Group Modeling for Automated Target Identification”, Wright-Patterson AFB, as a subcontract from Sverdrup Technology, Inc., 1/1/1997 to 6/30/1998, \$99,991. (co-PI)
- “Flexible Group Behavior”, Defense Advanced Research Projects Agency (DARPA), as a subcontract from The University of Michigan, 4/28/1997 to 9/30/1999, \$1,525,683.
- “An Emotional Cognitive Architecture for Synthetic Forces”, Army Research Institute (ARI), 1/1/1998 to 12/31/2000, \$294,210. (Transferred to new PI Jonathan Gratch when I changed jobs.)
- “Adaptive Synthetic Forces”, Office of Naval Research (ONR), 1/1/1998 to 12/31/2000, \$304,032.
- “Digital Government: Responding to the Unexpected”, National Science Foundation (NSF), 3/15/02 to 2/29/04, \$232,633.
- “Heterogeneous, Peer-to-Peer, Robot-Agent-Person (RAP) Teams”, Defense Advanced Research Projects Agency (DARPA), 7/1/2002 to 10/27/2003, \$450,000.
- “CCT Provost Collaborative and Interdisciplinary Research”, USC Centers for Creative Technologies (CCT), 6/1/2008-6/30/2010, \$336,419.
- “Virtual Human Cognitive Architecture Research”, U.S. Army RDECOM, 11/1/2009-10/31/2012, \$795,671.
- “A Unified Architectural Approach to the Hybrid Mixed Challenge of Situation Assessment and Prediction”, Air Force Office of Scientific Research (AFOSR), 8/20/2010-8/19/2013, \$593,208.
- “A New Breed of Architecture for Virtual Humans”, U.S. Army, 11/1/2011-12/31/2015, \$2,042,079.
- “Towards a Socio-Cognitive Graphical Architecture”, Office of Naval Research (ONR), 1/1/2012-12/31/2014, \$794,609.
- “Sigma: An Architecture for Knowledgeable, Emotional, Adaptive and Interactive Intelligent Agents”, U.S. Army, 11/1/2014-4/30/2018, \$2,165,473
- “Theory of Mind in Sigma”, Office of Naval Research (ONR), 6/1/2015-5/31/2018, \$896,517.
- “Toward Human-Like Autonomous Social Cognitive Systems (THASCS)”, U.S. Army, 11/1/2017-12/31/2019, \$1,327,393.
- “Agents with Theory of Mind for Intelligent Collaboration (ATOMIC)”, Defense Advanced Research Projects Agency (DARPA), 12/1/19-11/30/23, \$6,333,277 (my portion: \$660,000).
- Rosenbloom, P. S. (PI), 53-0821-5177, “Personality and Conversational Question-Answering in Human-like Autonomous Social Cognitive Systems Continued (PCQAC)”, U.S. Army, W911NF-14-D-0005, 11/1/19-10/31/20, \$400,000.
- “Neural-Abductive Explanation”, US Army AI Task Force (and Carnegie Mellon University), 4/1/20-3/31/22, \$600,000. Submitted.
- Rosenbloom, P. S. (PI), “Personality and Conversational Question-Answering in Human-like Autonomous Social Cognitive Systems Continued (PCQAC)”, U.S. Army, 11/1/19-10/31/20, \$160,000. Submitted.

Publications

Doctoral Dissertation

- Rosenbloom, P. S. (1983). *The Chunking of Goal Hierarchies: A Model of Practice and Stimulus-Response Compatibility*, Carnegie-Mellon University. (Available in Laird, J. E., Rosenbloom, P. S., and Newell, A. *Universal Subgoalting and Chunking: The Automatic Generation and Learning of Goal Hierarchies*, Hingham, MA: Kluwer, 1986.)

Books and Proceedings

- Laird, J. E., Rosenbloom, P. S. & Newell, A. (1986). *Universal Subgoalting and Chunking: The Automatic Generation and Learning of Goal Hierarchies*. Hingham, MA: Kluwer Academic Publishers.

- Laird, J. E., Langley, P., Mitchell, T. M. & Rosenbloom, P. S. (Eds.). (1991). *Working Notes of the AAAI Spring Symposium on Integrated Intelligent Architectures*. Stanford, CA: AAAI. (Appeared as a special section of *SIGART Bulletin*, Vol. 2, Num. 4, August 1991.)
- Rosenbloom, P. S., Laird, J. E. & Newell, A. (Eds.). (1993). *The Soar Papers: Research on Integrated Intelligence (Volume One)*. Cambridge, MA: MIT Press.
- Rosenbloom, P. S., Laird, J. E. & Newell, A. (Eds.). (1993). *The Soar Papers: Research on Integrated Intelligence (Volume Two)*. Cambridge, MA: MIT Press.
- Arens, Y. & Rosenbloom, P. (Eds.). (2002). *Responding to the Unexpected: Report of the Workshop Held in New York City, February 27 – March 1, 2002*.
- Rosenbloom, P. S. (2012). *On Computing: The Fourth Great Scientific Domain*. Cambridge, MA: MIT Press.

Rigorously Refereed Journal Articles

- Rosenbloom, P. S. (1982). A world-championship-level Othello program. *Artificial Intelligence*, 19, 279-320.
- Rosenbloom, P. S., Laird, J. E., McDermott, J., Newell, A. & Orciuch, E. (1985). R1-Soar: An experiment in knowledge-intensive programming in a problem-solving architecture. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 7, 561-569.
- Laird, J. E., Rosenbloom, P. S. & Newell, A. (1986). Chunking in Soar: The anatomy of a general learning mechanism. *Machine Learning*, 1, 11-46.
- Laird, J. E., Newell, A. & Rosenbloom, P. S. (1987). Soar: An architecture for general intelligence. *Artificial Intelligence*, 33, 1-64.
- Tambe, M., Newell, A. & Rosenbloom, P. S. (1990). The problem of expensive chunks and its solution by restricting expressiveness. *Machine Learning*, 5, 299-348.
- Rosenbloom, P. S., Laird, J. E., Newell, A. & McCarl, R. (1991). A preliminary analysis of the Soar architecture as a basis for general intelligence. *Artificial Intelligence*, 47, 289-325.
- Golding, A. & Rosenbloom, P. S. (1993). A comparison of Anapron with seven other name-pronunciation systems. *Journal of the American Voice I/O Society*, 14, 1-21.
- Tambe, M. & Rosenbloom, P. S. (1994). Investigating production system representations for non-combinatorial match. *Artificial Intelligence*, 68, 155-199.
- Golding, A. R. & Rosenbloom, P. S. (1996). Improving accuracy by combining rule-based and case-based reasoning. *Artificial Intelligence*, 87, 215-254.
- Tambe, M. & Rosenbloom, P. S. (1996). Event tracking in a dynamic multi-agent environment. *Computational Intelligence*, 12, 499-521.
- Kim, J. & Rosenbloom, P. S. (2000). Bounding the cost of learned rules. *Artificial Intelligence*, 120, 43-80.
- Rosenbloom, P. S. (2004). A new framework for Computer Science and Engineering. *IEEE Computer*, 37, 23-28.
- Rosenbloom, P. S. (2006). A cognitive odyssey: From the power law of practice to a general learning mechanism and beyond. *Tutorials in Quantitative Methods for Psychology*, 2, 43-51.
- Rosenbloom, P. S. (2009). The great scientific domains and society: A metascience perspective from the domain of computing. *The International Journal of Science in Society*, 1 (1), 133-144.
- Rosenbloom, P. S. (2011). Rethinking cognitive architecture via graphical models. *Cognitive Systems Research*, 12 (2), 198-209.
- Rosenbloom, P. S. (2012). Towards a conceptual framework for the digital humanities. *Digital Humanities Quarterly*, 6 (2).
- Joshi, H., Rosenbloom, P. S. & Ustun, V. (2014). Isolated word recognition in the Sigma cognitive architecture. *Biologically Inspired Cognitive Architectures*, 10, 1-9.
- Rosenbloom, P. S., Demski, A. & Ustun, V. (2015). Efficient message computation in Sigma's graphical architecture. *Biologically Inspired Cognitive Architectures*, 11, 1-9.
- Joshi, H., Rosenbloom, P. S. & Ustun, V. (2016). Continuous phone recognition in the Sigma cognitive architecture. *Biologically Inspired Cognitive Architectures*, 18, 23-32.

- Rosenbloom, P. S., Demski, A. & Ustun, V. (2016). The Sigma cognitive architecture and system: Towards functionally elegant grand unification. *Journal of Artificial General Intelligence*, 7, 1-103.
- Joshi, H., Rosenbloom, P. S. & Ustun, V. (2018). Exact, tractable inference in the Sigma cognitive architecture via sum-product networks. *Advances in Cognitive Systems*, 7, 39-55.
- Rosenbloom, P. S., Joshi, H. & Ustun, V. (2019). (Sub)Symbolic × (a)symmetric × (non)combinatory: A map of AI approaches spanning symbolic/statistical to neural/ML. *Advances in Cognitive Systems*. In press.
- Stocco, A., Steine-Hanson, Z., Koh, N., Laird, J. E., Lebiere, C. & Rosenbloom, P. S. (2019). Analysis of the Human Connectome Data Supports the Notion of A “Common Model of Cognition” for Human and Human-Like Intelligence. *Neuroimage*. Submitted.

Other Publications in Journals, Magazines, and Newspapers

- Rosenbloom, P. S. (1984). Review of "The Modularity of Mind" by J. A. Fodor. *American Scientist*, 72, 634.
- Rosenbloom, P. S. (1987). Weak versus strong claims about the algorithmic level: Commentary on "Methodologies for studying human knowledge" by J. R. Anderson. *The Behavioral and Brain Sciences*, 10, 490.
- Laird, J. E., Hucka, M., Huffman, S. B., & Rosenbloom, P. S. (1991). An analysis of Soar as an integrated architecture. *SIGART Bulletin*, 2, 98-103.
- Rosenbloom, P. S. (1991). Climbing the hill of cognitive-science theory. *Psychological Science*, 2, 308-311.
- Laird, J. E. & Rosenbloom, P. S. (1991, Winter). Report on the AAAI 1991 Spring Symposium on "Integrated Intelligent Architectures". *AI Magazine*, 12, 35-36.
- Laird, J. E. & Rosenbloom, P. S. (1992, Winter). In pursuit of mind: The research of Allen Newell. *AI Magazine*, 13, 17-45.
- Rosenbloom, P. S. & Laird, J. E. (1993). On *Unified Theories of Cognition*: A response to the reviews. *Artificial Intelligence*, 59, 389-413.
- Tambe, M., Johnson, W. L., Jones, R. M., Koss, F., Laird, J. E., Rosenbloom, P. S. & Schwamb, K. B. (1995, Spring). Intelligent agents for interactive simulation environments. *AI Magazine*, 16, 15-39.
- Arens, Y. & Rosenbloom, P. S. (2003). Responding to the Unexpected. *Communications of the ACM*, 46, 33-35.
- Denning, P. J. & Rosenbloom, P. S. (2009). Computing: The fourth great domain of science. *Communications of the ACM*, 52, 27-29.
- Rosenbloom, P. S. (2010). Computing and computation. *ACM Ubiquity Symposium: 'What is Computation?'*. DOI=10.1145/1895419.1897729
<http://doi.acm.org/10.1145/1895419.1897729>
- Rosenbloom, P. S. (2012). Computing and computation. *The Computer Journal*, Special Focus on the Centenary of Alan Turing, 55, 820-824. (Updated reprint of Rosenbloom, 2010, in *ACM Ubiquity*).
- Rosenbloom, P. S. (2013). Computing as a science. *The Huffington Post*.
http://www.huffingtonpost.com/paul-s-rosenbloom/post_4540_b_2923678.html
- Rosenbloom, P. S. (2013). The Sigma cognitive architecture and system. *AISB Quarterly*, 136, 4-13.
- Rosenbloom, P. S. (2014). The computing sciences and STEM education. *ACM Ubiquity Symposium: The Science in Computer Science*.
- Burns, G., Gil, Y., Liu, Y., Villanueva-Rosales, N., Risi, S., Lehman, J., Clune, J., Lebiere, C., Rosenbloom, P. S., van Harmelen, F., Hendler, J. A., Hitzler, P., Janowic, K., Swarup, S. (2014). Reports on the 2013 AAAI Fall Symposium Series. *AI Magazine*, 35, 69-74.
- Lebiere, C. & Rosenbloom, P. S. (2014). Editorial on integrated cognition. *Biologically Inspired Cognitive Architectures*, 8, 89-90.

- Laird, J. E., Lebiere, C. & Rosenbloom, P. S. (2017). A Standard Model of the Mind: Toward a Common Computational Framework across Artificial Intelligence, Cognitive Science, Neuroscience, and Robotics. *AI Magazine*, 38, 13-26.
- Flenner, A., Fraune, M. R., Hiatt, L., M., Kendall, T., Laird, J. E., Lebiere, C., Rosenbloom, P. S., Stein, F., Topp, E. A., Unhelkar, V. V. & Zhao, Y. (2018). Reports of the AAAI 2017 Fall Symposium Series. *AI Magazine*, 39, 81-86.
- Adler, A., Dasgupta, P., Depalma, N., Eslami, M., Freedman, R. G., Laird, J. E., Lebiere, C., Lohan, K., Mead, R., Roberts, M., Rosenbloom, P. S., Senft, E., Stein, F., Williams, T., Wray, K. H., Yaman, F. & Zilberstein, S. (2019). Reports of the 2018 AAAI Fall Symposium. *AI Magazine*, 40, 66-72.
- Rosenbloom, P. S. & Forbus, K. D. (2019). Expanding and repositioning cognitive science. *Topics in Cognitive Science*, 11, 918-927.

Rigorously Refereed Conference Papers

- Rosenbloom, P. S. & Newell, A. (1982). Learning by chunking: Summary of a task and a model, *Proceedings of the National Conference on Artificial Intelligence* (pp. 255-257). Pittsburgh, PA: AAAI.
- Laird, J. E., Rosenbloom, P. S. & Newell, A. (1984). Towards chunking as a general learning mechanism, *Proceedings of the National Conference on Artificial Intelligence* (pp. 188-192). Austin, TX: AAAI.
- John, B. E., Rosenbloom, P. S. & Newell, A. (1985). A theory of stimulus-response compatibility applied to human-computer interaction. In L. B. a. B. Curtis (Ed.), *Proceedings of CHI '85, Human Factors in Computing Systems* (pp. 213-219). San Francisco, CA: ACM/SIGCHI.
- Rosenbloom, P. S. & Laird, J. E. (1986). Mapping explanation-based generalization onto Soar, *Proceedings of the Fifth National Conference on Artificial Intelligence* (pp. 561-567). Philadelphia, PA: AAAI.
- Golding, A. R., Rosenbloom, P. S. & Laird, J. E. (1987). Learning general search control from outside guidance, *Proceedings of the Tenth International Joint Conference on Artificial Intelligence* (pp. 334-337). Milan, Italy: IJCAI.
- Rosenbloom, P. S., Laird, J. E. & Newell, A. (1987). Knowledge level learning in Soar, *Proceedings of Sixth National Conference on Artificial Intelligence* (pp. 499-504). Seattle, WA: AAAI.
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