# Curriculum Vitae

*Jeffrey Mark Siskind*
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Tuesday 25 February 2025

## Education

**Technion, Israel Institute of Technology**
B.A. *cum laude* in computer science, November 1979

**Massachusetts Institute of Technology**
S. M. in computer science, January 1989
Thesis title: The Culprit Pointer Method for Selective Backtracking
Advisor: David A. McAllester

**Massachusetts Institute of Technology**
Ph.D. in computer science, February 1992
Thesis title: Naive Physics, Event Perception, Lexical Semantics, and Language Acquisition
Advisor: Robert C. Berwick

## Academic Employment

**Weizmann Institute of Science** **Rehovot, Israel**
July 1974–February 1975
*Researcher, Chemical Physics Department*

**MIT Lincoln Laboratory** **Lexington, Massachusetts**
March 1980–August 1982
*Staff Member, Digital Integrated Circuits Group and Speech Systems Technology Group*

**Xerox PARC** **Palo Alto, California**
June–September 1987
February 1988
June–August 1988
July–September 1989
December 1989–January 1990
*Research Intern, System Sciences Laboratory*

**University of Pennsylvania** **Philadelphia, Pennsylvania**
February 1992–July 1993
*Postdoctoral Fellow, Institute for Research in Cognitive Science*

**University of Toronto** **Toronto, Ontario**
August 1993–December 1995
*Assistant Professor, Department of Computer Science*

**Technion, Israel Institute of Technology** **Haifa, Israel**
February–August 1996
*Senior Lecturer, Department of Electrical Engineering*

**University of Vermont** **Burlington, Vermont**
September 1996–May 1997
*Visiting Assistant Professor, Department of Computer Science and Electrical Engineering*

**NEC Research Institute** **Princeton, New Jersey**
June 1997–December 2001
*Research Scientist, Computer Science Division*

**Purdue University** **West Lafayette, Indiana**
January 2002–August 2019
*Associate Professor, School of Electrical and Computer Engineering*
August 2019–present
*Professor, School of Electrical and Computer Engineering*
September 2003–present
*Affiliate, Linguistics Program*
September 2009–present
*Courtesy Appointment, Department of Computer Science*
September 2016–present
*Courtesy Appointment, Department of Speech, Language, and Hearing Sciences*

Industrial Employment

**MetaLogic, Inc.** **Cambridge, Massachusetts**
April 1982–August 1985
*Founder, Chairman, Treasurer, Vice President, and CTO*
Founded MetaLogic to commercialize the MACPITTS technology developed at MIT. Acting as CEO for the first year, wrote business plan and negotiated contracts with venture capital firms that successfully raised $1.5 million. Set up corporate infrastructure, which included: planning, supervising construction, and furnishing of office space; financing, purchase, and installation of computer facilities; establishing relationships with legal and accounting firms; and growing the staff to a total of ten people. As CTO, managed a technical staff of five through the development and delivery of METASYN, a complex digital integrated circuit design automation system comprising over 50,000 lines of LISP code as well as a large nMOS cell library. Was an active participant in, and major contributor to, that design and implementation effort. Supervised successful completion and installation of the product at customers' facilities, resulting in the design of over a dozen fabricated nMOS ICs, all of which proved fully functional at first silicon. Actively participated in the marketing effort which included preparation of sales literature, giving presentations to potential customers, performing in-the-field market research, formulating product strategy, and organizing and giving trade show presentations.

**Ontologic, Inc.** **Billerica, Massachusetts**
January–May 1987
*Consultant*
Performed consulting services pertaining to the design of a persistent object-oriented database for representing VLSI designs.

**International Systems Services Company** **New York, New York**
June 1987
*Consultant*
Performed consulting services pertaining to automatic test vector generation from high-level behavioral descriptions of digital systems.

**Chestnut Software** **Boston, Massachusetts**
June–August 1990
*Consultant*
Performed consulting services pertaining to the design and implementation of a natural-language front end for database applications.

Grants Received

**1994**

J.M. Siskind, PI, 'Computational Models of Lexical Acquisition and Visual Event Perception,' NSERC operating grant, April 1994–April 1997, $48,000 (Canadian).

**1996**

J.M. Siskind, PI, C. Colbourn, co-PI, and R. Snapp, co-PI, 'A Computer Facility to Support Compute-Intensive Research,' University of Vermont Research Advisory Council, November 1996, $7,497, my share $7,497.

**2001**

J.M. Siskind, co-PI, and R.L. Givan, co-PI, 'Learning Program Behaviors using Temporal Event Logic,' Center for Education and Research in Information Assurance and Security, September 2001–August 2002, $50,000, my share $30,698.59.

**2002**

J.M. Siskind, PI, 'A World-Wide Distributed Repository to Support Fine-Grained Sharing of Source Code,' Cisco University Research Program, December 2002, $83,400.

**2003**

J.M. Siskind, PI, C.A. Bouman, co-PI, and I. Pollak, co-PI, 'Hierarchal Perceptual Organization with the Center-Surround Algorithm,' NSF award 0329156IIS, September 2003–August 2006, $500,000, my share $264,000. Robotics and Computer Vision, the program that funded this proposal, funded only 27 out of the 172 proposals submitted (16%) in 2003.

**2004**

J.M. Siskind, PI, 'Stochastic Spatio-Temporal Grammars for Event Recognition in Video,' Honda Initiation Grant, November 2004, $49,878. Only 5 out of the 125 proposals submitted (4%) were funded in this competition.

**2005**

J.M. Siskind, PI, 'Algorithmic Differentiation of Functional Programs,' NSF award CCF-0438806, May 2005–April 2010, $420,000. Science of Design, the program that funded this proposal, funded only 10% of the proposals submitted in this competition.

**2010**

J.M. Siskind, PI, AWS research grant, Amazon.com, March 2010–February 2011, 3000 EC2 credits.

J.M. Siskind, PI, 'Emergent Intelligent Behavior through Integrated Investigation of Embodied Natural Language, Reasoning, Learning, Computer Vision, and Robotic Manipulation,' NRL contract N00173-10-1-G023 (DARPA seedling), July–November 2010, $50,000.

J.M. Siskind, lead PI (subcontracts to S. Khan and H. Cheng, Sarnoff Corporation, S. Wang, University of South Carolina, and S. Dickinson, University of Toronto), 'Robust and Principled Visual Intelligence,' ARL cooperative agreement W911NF-10-2-0060 (DARPA Mind's Eye program), July 2010–March 2016, $3,600,000.

**2015**

J.M. Siskind, PI, 'NRI: Collaborative Research: RobotSLANG: Simultaneous Localization, Mapping, and Language Acquisition,' NSF award 1522954-IIS, September 2015–August 2021, $650,000. This is in collaboration with Jason J. Corso of the University of Michigan, who received a separate award 1522904-IIS of $650,000.

**2017**

J.M. Siskind, PI, R.B. Wilbur, co-PI, and E. Malaia, co-PI, 'NCS-FO: Neuroimaging to Advance Computer Vision, NLP, and AI,' NSF award 1734938-IIS, August 2017–September 2023, $1,000,000 (my share $791,762). Part of the BRAIN initiative.

J.M. Siskind, PI, 'Purdue subcontract for the IBM proposal to IARPA DIVA,' contractor's reference number 00068728, 20 September 2017–19 September 2021, $2,749,990. Prime contract: 'Intelligent Video Activity Detection and Recognition,' Department of Interior/Interior Business Center (DOI/IBC) contract number D17PC00341.

**2018**
J.M. Siskind, PI, 'Natural Language Query Refinement Dialog for Video Search,' Siemens Corporation, Corporate Technology, 1 July 2018–31 December 2018, $124,960.

**2022**
J.M. Siskind, PI, 'MILLY – MultI-directional Loosely-Linked ArchetYpe Models for Perceptually-enabled Task Guidance,' DARPA Perceptual Tack Guidance (PTG) program, 7 January 2022–31 December 2024, $949,272. Prime contract: 'MILLY – MultI-directional Loosely-Linked ArchetYpe Models for Perceptually-enabled Task Guidance,' Stevens Institute of Technology, HR0011222003.

## Honors

**1986**
One of 25 annual nationwide recipients of a four year AT&T Ph.D. fellowship, 1986–1990.

**1992**
Nominated for the ACM Distinguished Dissertation Award.

**1993**
The George M. Sprowls Award for 'Outstanding contribution in the field of Electronic Computer and Investigation Research by an EECS Student,' Department of Electrical Engineering and Computer Science, MIT.

**1996**
The Louis and Miriam Benjamin Academic Lectureship, Department of Electrical Engineering, Technion.

**2013**
Best paper award, Annual Meeting of the Association for Computational Linguistics (ACL).

**2015**
Paper published in senior member track, blue-sky ideas subtrack, Conference on Artificial Intelligence (AAAI).

Paper published in award winning papers track, Journal of Artificial Intelligence Research (JAIR).

## Refereed Journal Publications

Citation counts in this and other sections are from Google Scholar on Monday 30 December 2024. Total citations: 9878 (h-index 36). Impact factors are from JCR (2023).

**1995**
J.M. Siskind, 'Grounding Language in Perception,' *Artificial Intelligence Review*, 8(5–6):371–391, 1995, impact factor 10.7, 136 citations.
http://engineering.purdue.edu/~qobi/papers/aireview1995.pdf

**1996**
J.M. Siskind, 'A Computational Study of Cross-Situational Techniques for Learning Word-to-Meaning Mappings,' *Cognition*, 61(1–2):39–91, October–November 1996, impact factor 2.8. Also appeared in *Computational Approaches to Language Acquisition*, M.R. Brent, ed., Elsevier, pp. 39–91, 1996, 716 citations.
http://engineering.purdue.edu/~qobi/papers/cognition1996.pdf

**1997**
R. Mann, A.D. Jepson, and J.M. Siskind, 'The Computational Perception of Scene Dynamics,' *Computer Vision and Image Understanding (CVIU)*, 65(2):113–128, February 1997, impact factor 4.3, 101 citations.
http://engineering.purdue.edu/~qobi/papers/cviu1997.pdf

**2001**

J.M. Siskind, 'Grounding the Lexical Semantics of Verbs in Visual Perception Using Force Dynamics and Event Logic,' *Journal of Artificial Intelligence Research (JAIR)*, 15:31–90, August 2001, impact factor 4.5. Also available as Technical Report 2000-105, NEC Research Institute, Inc., July 2000, 326 citations.
http://engineering.purdue.edu/~qobi/papers/jair2001.pdf

M.R. Brent and J.M. Siskind, 'The Role of Exposure to Isolated Words in Early Vocabulary Development,' *Cognition*, 81(2):B33–B44, September 2001, impact factor 2.8. Also available as Technical Report 99-107, NEC Research Institute, Inc., July 1999. Revised as Technical Report 2000-067R, NEC Research Institute, Inc., May 2000, 685 citations.
http://engineering.purdue.edu/~qobi/papers/cognition2001.pdf

**2002**

A.P. Fern, R.L. Givan, and J.M. Siskind, 'Specific-to-General Learning for Temporal Events with Application to Learning Event Definitions from Video,' *Journal of Artificial Intelligence Research (JAIR)*, 17:379–449, December 2002, impact factor 4.5, 88 citations.
http://engineering.purdue.edu/~qobi/papers/jair2002.pdf

**2003**

S. Wang and J.M. Siskind, 'Image Segmentation with Ratio Cut,' *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 25(6):675–690, June 2003, impact factor 20.8, 462 citations.
http://engineering.purdue.edu/~qobi/papers/tpami2003.pdf

J.M. Siskind, 'Reconstructing Force-Dynamic Models from Video Sequences,' *Artificial Intelligence (AIJ)*, 151(1–2):91–154, December 2003, impact factor 5.1, 44 citations.
http://engineering.purdue.edu/~qobi/papers/aij2003.pdf

**2005**

S. Wang, T. Kubota, J.M. Siskind, and J. Wang, 'Salient Closed Boundary Extraction with Ratio Contour,' *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 27(4):546–561, April 2005, impact factor 20.8, 220 citations.
http://engineering.purdue.edu/~qobi/papers/tpami2005.pdf

**2006**

W. Wang, I. Pollak, T.-S. Wong, C.A. Bouman, M.P. Harper, and J.M. Siskind, 'Hierarchal Stochastic Image Grammars for Classification and Segmentation,' *IEEE Transactions on Image Processing (TIP)*, 15(10):3033–3052, October 2006, impact factor 10.8, 56 citations.
http://engineering.purdue.edu/~qobi/papers/tip2006.pdf

**2007**

J.M. Siskind, J. Sherman, Jr., I. Pollak, M.P. Harper, and C.A. Bouman, 'Spatial Random Tree Grammars for Modeling Hierarchal Structure in Images with Regions of Arbitrary Shape,' *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 29(9):1504–1519, September 2007, impact factor 20.8, 31 citations.
http://engineering.purdue.edu/~qobi/papers/tpami2007.pdf

**2008**

B.A Pearlmutter and J.M. Siskind, 'Reverse-Mode AD in a Functional Framework: Lambda the Ultimate Backpropagator,' *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 30(2):1–36, March 2008, impact factor 1.5, 160 citations.
http://engineering.purdue.edu/~qobi/papers/toplas2008.pdf

J.M. Siskind and B.A. Pearlmutter, 'Nesting Forward-Mode AD in a Functional Framework,' *Higher-Order and Symbolic Computation (HOSC)*, 21(4):361–376, December 2008, 65 citations.
http://engineering.purdue.edu/~qobi/papers/hosc2008.pdf

**2012**

N. Siddharth, A. Barbu, and J.M. Siskind, 'Seeing Unseeability to See the Unseeable,' *Advances in Cognitive Systems (ACS)*, 2:77–94, December 2012, 2 citations.
http://engineering.purdue.edu/~qobi/papers/acs2012a.pdf

A. Barbu, N. Siddharth, A. Michaux, and J.M. Siskind, 'Simultaneous Object Detection, Tracking, and Event Recognition,' *Advances in Cognitive Systems (ACS)*, 2:203–220, December 2012, 28 citations.
http://engineering.purdue.edu/~qobi/papers/acs2012b.pdf

**2015**

H. Yu, N. Siddharth, A. Barbu, and J.M. Siskind, 'A Compositional Framework for Grounding Language Inference, Generation, and Acquisition in Video,' *Journal of Artificial Intelligence Research (JAIR)*, 52:601–713, April 2015, impact factor 4.5, **award winning papers track**, 49 citations.
http://engineering.purdue.edu/~qobi/papers/jair2015.pdf

**2016**

D.P. Barrett, A. Barbu, N. Siddharth, and J.M. Siskind, 'Saying What You're Looking For: Linguistics Meets Video Search,' *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 38(10):2069–2081, October 2016, impact factor 20.8, 21 citations.
http://engineering.purdue.edu/~qobi/papers/tpami2016.pdf

D.P. Barrett, R. Xu, H. Yu, and J.M. Siskind, 'Collecting and Annotating the Large Continuous Action Dataset,' *Machine Vision and Applications (MVAP)*, 27(7):983–995, October 2016, impact factor 2.4, 5 citations.
http://engineering.purdue.edu/~qobi/papers/mvap2016.pdf

D.P. Barrett and J.M. Siskind, 'Action Recognition by Time-Series of Retinotopic Appearance and Motion Features,' *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, 26(12):2250–2263, December 2016, impact factor 8.3, 27 citations.
http://engineering.purdue.edu/~qobi/papers/tcsvt2016.pdf

**2017**

H. Yu and J.M. Siskind, 'Sentence Directed Video Object Codiscovery,' *International Journal of Computer Vision (IJCV)*, 124(3):312–334, September 2017, impact factor 11.6, 21 citations.
http://engineering.purdue.edu/~qobi/papers/ijcv2017.pdf

**2018**

A.G. Baydin, B.A. Pearlmutter, A.A. Radul, and J.M. Siskind, 'Automatic Differentiation in Machine Learning: a Survey,' *Journal of Machine Learning Research (JMLR)*, 18(153):1–43, April 2018, impact factor 4.3, 3966 citations.
http://engineering.purdue.edu/~qobi/papers/jmlr2018.pdf

D.P. Barrett, S.A. Bronikowski, H. Yu, and J.M. Siskind, 'Driving Under the Influence (of Language),' *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, 29(7):2668–2683, July 2018, impact factor 10.2, 20 citations.
http://engineering.purdue.edu/~qobi/papers/tnnls2018.pdf

J.M. Siskind and B.A. Pearlmutter, 'Divide-and-Conquer Checkpointing for Arbitrary Programs with No User Annotation,' *Optimization Methods and Software (OMS)*, 33(4–6):1288–1330, September 2018, impact factor 1.4, 36 citations.
http://engineering.purdue.edu/~qobi/papers/oms2018.pdf

**2019**

O. Manzyuk, B.A. Pearlmutter, A.A. Radul, D.R. Rush, and J.M. Siskind, 'Perturbation Confusion in Forward Automatic Differentiation of Higher-Order Functions,' *Journal of Functional Programming (JFP)*, 29(e12):1–24, September 2019, impact factor 1.1, 27 citations.
http://engineering.purdue.edu/~qobi/papers/jfp2019.pdf

**2021**
R. Li, J.S. Johansen, H. Ahmed, T.V. Ilyevsky, R.B. Wilbur, H.M. Bharadwaj, and J.M. Siskind, 'The perils and pitfalls of block design for EEG classification experiments,' *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 43(1):316–333, January 2021, impact factor 20.8, 86 citations.
http://engineering.purdue.edu/~qobi/papers/tpami2021.pdf

**2022**
C. Bradley, E. Malaia, J.M. Siskind, and R.B. Wilbur, 'Visual form of ASL verb signs predicts non-signer judgment of transitivity,' *PLoS One*, 17(2):e0262098, February 2022, impact factor 2.9, 5 citations.
http://engineering.purdue.edu/~qobi/papers/plosone2022.pdf

H. Ahmed, R.B. Wilbur, H.M. Bharadwaj, and J.M. Siskind, 'Confounds in the data—Comments on "Decoding Brain Representations by Multimodal Learning of Neural Activity and Visual Features",' *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 44(12):9217–9220, December 2022, impact factor 20.8, 13 citations.
http://engineering.purdue.edu/~qobi/papers/tpami2022.pdf

**2023**
H.M. Bharadwaj, R.B. Wilbur, and J.M. Siskind, 'Still an Ineffective Method with Supertrials/ERPs—Comments on "Decoding Brain Representations by Multimodal Learning of Neural Activity and Visual Features",' *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 45(11):14052–14054, November 2023, impact factor 20.8, 8 citations.
http://engineering.purdue.edu/~qobi/papers/tpami2023.pdf

## Refereed Conference Publications

**1982**
J.M. Siskind, J.R. Southard, and K.W. Crouch, 'Generating Custom High Performance VLSI Designs from Succinct Algorithmic Descriptions,' *Proceedings of the Conference on Advanced Research in VLSI*, pp. 28–40, January 1982, oral 21/82 (25%), 97 citations.
http://engineering.purdue.edu/~qobi/papers/arv1982.pdf

**1990**
J.M. Siskind, 'Acquiring Core Meanings of Words, Represented as Jackendoff-Style Conceptual Structures, From Correlated Streams of Linguistic and Non-Linguistic Input,' *Proceedings of the Twenty Eighth Annual Meeting of the Association for Computational Linguistics (ACL)*, pp. 143–156, June 1990, oral, 52 citations.
http://engineering.purdue.edu/~qobi/papers/acl90.pdf

**1993**
J.M. Siskind and D.A. McAllester, 'Nondeterministic Lisp as a Substrate for Constraint Logic Programming,' *Proceedings of the Eleventh National Conference on Artificial Intelligence (AAAI)*, pp. 133–138, July 1993, oral 135/>500 (<27%), 92 citations.
http://engineering.purdue.edu/~qobi/papers/aaai93.pdf

**1994**
J.M. Siskind, 'Lexical Acquisition in the Presence of Noise and Homonymy,' *Proceedings of the Twelfth National Conference on Artificial Intelligence (AAAI)*, pp. 760–766, July 1994, oral 222/780 (28%), 36 citations.
http://engineering.purdue.edu/~qobi/papers/aaai94.pdf

**1996**
J.M. Siskind and Q. Morris, 'A Maximum-Likelihood Approach to Visual Event Classification,' *Proceedings of the Fourth European Conference on Computer Vision (ECCV)*, pp. 347–360, April 1996, oral 43/328 (13%), 104 citations.
http://engineering.purdue.edu/~qobi/papers/eccv96a.pdf

R. Mann, A.D. Jepson, and J.M. Siskind, 'Computational Perception of Scene Dynamics,' *Proceedings of the Fourth European Conference on Computer Vision (ECCV)*, pp. 528–539, April 1996, poster 123/328 (37%), 52 citations.
http://engineering.purdue.edu/~qobi/papers/eccv96b.pdf

**2000**

J.M. Siskind, 'Visual Event Classification via Force Dynamics,' *Proceedings of the Seventeenth National Conference on Artificial Intelligence (AAAI)*, pp. 149–155, August 2000, oral 143/432 (33%). Also available as Technical Report 2000-007, NEC Research Institute, Inc., January 2000. Revised as Technical Report 2000-047R, NEC Research Institute, Inc., April 2000, 68 citations.
http://engineering.purdue.edu/~qobi/papers/aaai2000.pdf

**2001**

S. Wang and J.M. Siskind, 'Image Segmentation with Minimum Mean Cut,' *Proceedings of the Eighth International Conference on Computer Vision (ICCV)*, pp. 517–524, July 2001, poster 205/596 (34%). Also available as Technical Report 2000-169, NEC Research Institute, Inc., December 2000, 117 citations.
http://engineering.purdue.edu/~qobi/papers/iccv2001.pdf

**2002**

A.P. Fern, R.L. Givan, and J.M. Siskind, 'Specific-to-General Learning for Temporal Events,' *Proceedings of the Eighteenth National Conference on Artificial Intelligence (AAAI)*, pp. 152–158, July 2002, poster 120/470 (25%), 8 citations.
http://engineering.purdue.edu/~qobi/papers/aaai2002a.pdf

A.P. Fern, J.M. Siskind, and R.L. Givan, 'Learning Temporal, Relational, Force-Dynamic Event Definitions from Video,' *Proceedings of the Eighteenth National Conference on Artificial Intelligence (AAAI)*, pp. 159–166, July 2002, oral 47/470 (10%), 23 citations.
http://engineering.purdue.edu/~qobi/papers/aaai2002b.pdf

**2003**

I. Pollak, J.M. Siskind, M.P. Harper, and C.A. Bouman, 'Modeling and Estimation of Spatial Random Trees with Application to Image Classification,' *Proceedings of the 2003 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, volume III, pp. 305–308, Hong Kong, 6–12 April 2003, 1290/2377 (54%), 12 citations.
http://engineering.purdue.edu/~qobi/papers/icassp2003.pdf

I. Pollak, J.M. Siskind, M.P. Harper, and C.A. Bouman, 'Parameter Estimation for Spatial Random Trees Using the EM Algorithm,' *Proceedings of the International Conference on Image Processing (ICIP)*, pp. 257–260, Barcelona, Spain, September 2003, poster 827/1901 (43%), 14 citations.
http://engineering.purdue.edu/~qobi/papers/icip2003.pdf

S. Wang, T. Kubota, and J.M. Siskind, 'Salient Boundary Detection Using Ratio Contour,' *Proceedings of the Conference on Neural Information Processing Systems (NeurIPS)*, pp. 1571–1578, Vancouver, Canada, 9–11 December 2003, poster 198/717 (27%), 31 citations.
http://engineering.purdue.edu/~qobi/papers/neurips2003.pdf

**2007**

B.A. Pearlmutter and J.M. Siskind, 'Lazy Multivariate Higher-Order Forward-Mode AD,' *Proceedings of the Annual Symposium on Principles of Programming Languages (POPL)*, pp. 155–160, Nice, France, 17–19 January 2007, oral 36/200 (18%), 50 citations.
http://engineering.purdue.edu/~qobi/papers/popl2007a.pdf

J.M. Siskind and B.A. Pearlmutter, 'First-Class Nonstandard Interpretations by Opening Closures,' *Proceedings of the Annual Symposium on Principles of Programming Languages (POPL)*, pp. 71–76, Nice, France, 17–19 January 2007, oral 36/200 (18%), 22 citations.
http://engineering.purdue.edu/~qobi/papers/popl2007b.pdf

**2008**

B.A. Pearlmutter and J.M. Siskind, 'Using Programming Language Theory to Make AD Sound and Efficient,' *Proceedings of the International Conference on Algorithmic Differentiation (AD)*, pp. 79–90, Bonn, Germany, 11–15 August 2008, oral, 15 citations.
http://engineering.purdue.edu/~qobi/papers/ad2008.pdf

**2010**

A. Barbu, N. Siddharth, and J.M. Siskind, 'Learning Physically-Instantiated Game Play Through Visual Observation,' *Proceedings of the 2010 IEEE International Conference on Robotics and Automation (ICRA)*, pp. 1879–1886, Anchorage, AK, 3–8 May 2010, oral 856/2062 (42%), 29 citations.
http://engineering.purdue.edu/~qobi/papers/icra2010.pdf

**2011**

N. Siddharth, A. Barbu, and J.M. Siskind, 'A Visual Language Model for Estimating Object Pose and Structure in a Generative Visual Domain,' *Proceedings of the 2011 IEEE International Conference on Robotics and Automation (ICRA)*, pp. 4854–4860, Shanghai, China, 9–13 May 2011, oral 982/2004 (49%), 9 citations.
http://engineering.purdue.edu/~qobi/papers/icra2011.pdf

D. Wingate, N. Goodman, A. Stuhlmüller, and J.M. Siskind, 'Nonstandard Interpretations of Probabilistic Programs for Efficient Inference,' *Proceedings of the Conference on Neural Information Processing Systems (NeurIPS)*, Granada, Spain, 12–15 December 2011, poster 306/1400 (22%), 41 citations.
http://engineering.purdue.edu/~qobi/papers/neurips2011.pdf

**2012**

Z. Zhang, S. Fidler, J.W. Waggoner, Y. Cao, S. Dickinson, J.M. Siskind, and S. Wang, 'Superedge grouping for object localization by combining appearance and shape information,' *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 3266–3273, Providence, RI, 16–21 June 2012, poster 465/1933 (24%), 17 citations.
http://engineering.purdue.edu/~qobi/papers/cvpr2012.pdf

A. Radul, B.A. Pearlmutter, and J.M. Siskind, 'AD in Fortran: Implementation via Prepreprocessor,' *Proceedings of the International Conference on Algorithmic Differentiation (AD)*, pp. 273–284, Fort Collins, CO, 23–27 July 2012, oral, 8 citations.
http://engineering.purdue.edu/~qobi/papers/ad2012.pdf

A. Barbu, A. Bridge, Z. Burchill, D. Coroian, S. Dickinson, S. Fidler, A. Michaux, S. Mussman, N. Siddharth, D. Salvi, L. Schmidt, J. Shangguan, J.M. Siskind, J. Waggoner, S. Wang, J. Wei, Y. Yin, and Z. Zhang, 'Video in sentences out,' *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, pp. 102–112, Catalina, CA, 15–17 August 2012, oral 24/304 (8%), 205 citations.
http://engineering.purdue.edu/~qobi/papers/uai2012.pdf

N. Siddharth, A. Barbu, and J.M. Siskind, 'Seeing Unseeability to See the Unseeable,' *First Annual Conference for Advances in Cognitive Systems (ACS)*, pp. 77–94, Palo Alto, CA, 6–8 December 2012, oral 14/38 (37%).
http://engineering.purdue.edu/~qobi/papers/acs2012a.pdf

A. Barbu, N. Siddharth, A. Michaux, and J.M. Siskind, 'Simultaneous Object Detection, Tracking, and Event Recognition,' *First Annual Conference for Advances in Cognitive Systems (ACS)*, pp. 203–220, Palo Alto, CA, 6–8 December 2012, oral 14/38 (37%).
http://engineering.purdue.edu/~qobi/papers/acs2012b.pdf

**2013**

Y. Cao, D. Barrett, A. Barbu, N. Siddharth, H. Yu, A. Michaux, Y. Lin, S. Dickinson, J.M. Siskind, and S. Wang, 'Recognize Human Activities from Partially Observed Videos,' *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 2658–2665, Portland, OR, 25–27 June 2013, poster 472/1870 (25.2%), 243 citations.
http://engineering.purdue.edu/~qobi/papers/cvpr2013.pdf

H. Yu and J.M. Siskind, 'Grounded Language Learning from Video Described with Sentences,' *Proceedings of the 51st Annual Meeting of the Association for Computational Linguistics (ACL)*, pp. 56–63, Sofia, Bulgaria, 4–9 August 2013, oral 175/662 (26.4%), **best paper award**, 176 citations.
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## Book Chapters

**1997**
J.M. Siskind, 'Visual Event Perception,' in *Symbolic Visual Learning*, K. Ikeuchi and M. Veloso ed., Oxford University Press, chapter 9, pp. 225–263, January 1997, 9 citations.
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**2000**
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## Workshop Publications

**1991**
J.M. Siskind, 'Dispelling Myths about Language Bootstrapping,' *Proceedings of the AAAI Spring Symposium on Machine Learning of Natural Language and Ontology*, pp. 157–164, March 1991, oral, 14 citations.
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**1993**

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**1994**

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**1995**

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**2014**

A. Barbu, N. Siddharth, and J.M. Siskind, 'Language-Driven Video Retrieval,' *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshop on Vision Meets Cognition (CVPR Workshop)*, Columbus, OH, 23 June 2014, poster, 4 citations.
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**1991**
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A.G. Baydin, B.A. Pearlmutter, and J.M. Siskind, 'Tricks from Deep Learning,' arXiv:1611.03777, 10 November 2016.
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**2017**
J.M. Siskind and B.A. Pearlmutter, 'Divide-and-Conquer Checkpointing for Arbitrary Programs with No User Annotation,' arXiv:1708.06799, 22 August 2017.
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**2018**
V. Dhiman, S. Banerjee, B. Griffin, J.M. Siskind, and J.J. Corso, 'A Critical Investigation of Deep Reinforcement Learning for Navigation,' arXiv:1802.02274, 7 February 2018, 37 citations.
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**2020**
H. Ahmed, R.B. Wilbur, H.M. Bharadwaj, and J.M. Siskind, 'Object classification from randomized EEG trials,' arXiv:2004.06046, 9 April 2020.
http://arxiv.org/abs/2004.06046

J.S. Johansen, T.V. Ilyevsky, and J.M. Siskind, 'The Amazing Race$^{TM}$: Robot Edition,' arXiv:2010.15033, 28 October 2020, 1 citation.
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J.A. Kilgallen, B.A. Pearlmutter, and J.M. Siskind, 'Learning exemplar representations in single-trial EEG category decoding,' arXiv:2406.16902, 31 May 2024.
http://arxiv.org/abs/2406.16902

B.A. Pearlmutter and J.M. Siskind, 'Automatic Differentiation: Inverse Accumulation Mode,' arXiv:2411.18786, 27 Nov 2024.
http://arxiv.org/abs/2411.18786

## Invited Presentations

**1982**
*IEEE Asilomar Microcomputer Workshop*, April 1982.

*Edinburgh Conference on Silicon Compilation*, July 1982.

**1984**
*IEEE Catalina Workshop on Logic Synthesis and Silicon Compilation*, April 1984.

Panel discussion on Silicon Compilation, *ACM IEEE Design Automation Conference (DAC)*, June 1984.

**1985**
Panel discussion on Silicon Compilation, *Custom Integrated Circuits Conference (CICC)*, May 1985.

**1991**
'Dispelling Myths about Language Bootstrapping,' *Boston University Conference on Language Development*, October 1991.

**1994**
'Computational Models of Lexical Acquisition and Event Perception in Support of Lexical Acquisition,' *Workshop on Cognitive Models of Language Acquisition*, April 1994.

**1999**
'Visual Event Perception,' Invited presentation at *ICCV Workshop on Integration of Speech and Image Understanding*, Corfu, Greece, Tuesday 21 September 1999, declined.

**2002**
*Commonsense Symposium*, April 2002.

**2003**
'Computational Modeling of Child Language Acquisition: A retrospective on Fifteen Years of Research,' CNRS, June 2003.

**2004**
'Stochastic Spatio-Temporal Grammars for Images and Video,' *AAAI Workshop on Anchoring*, July 2004.

'Stochastic Spatio-Temporal Grammars for Images and Video,' AI in the Wild, *Belgian-Dutch Conference on Artificial Intelligence (BNAIC)*, October 2004.

**2007**
'Learning to Represent the Lexical Semantics of Verbs with Force Dynamics from Visual Input,' Trinity College, Dublin, Tuesday 16 January 2007.

'Stochastic Spatio-Temporal Grammars for Images and Video,' *NeurIPS Workshop on The Grammar of Vision: Probabilistic Grammar-Based Models for Visual Scene Understanding and Object Categorization*, Saturday 8 December 2007.

**2008**
Invited to participate and present at the *Dagstuhl Seminar on Logic and Probability for Scene Interpretation*, Sunday 17–Friday 22 February 2008, declined due to family illness.

'AD for Probabilistic Programming,' *NeurIPS Workshop on Probabilistic Programming: Universal Languages and Inference; systems; and applications*, Saturday 13 December 2008.

**2011**
'Generating English Utterances to Describe Events in Video,' *CVPR Workshop on Activity Recognition Competition*, Monday 20 June 2011.

'Mediating Cross-Modal Perception, Motor Control, Language, and Reasoning with Common and Deep Semantic Representations,' *AAAI Workshop on Language-Action Tools for Cognitive Artificial Agents: Integrating Vision, Action, and Language*, Sunday 7 August 2011.

'Grounding Natural Language in Computer Vision and Robotics,' *NeurIPS Workshop on Integrating Language and Vision*, Friday 16 December 2011.

**2012**
'Mediating Cross-Modal Perception, Motor Control, Language, and Reasoning with Common and Deep Semantic Representations,' University of Buffalo (SUNY), Wednesday 7 March 2012.

**2013**
'Learning to Say What You See and See What You Say,' *Joint NAACL/ICML Symposium on Natural Language Processing (NLP) and Machine Learning (ML)*, Saturday 15 June 2013.

'Seeing and Saying: Compositionally Linking Vision and Language,' *UW MSR Summer Institute: Understanding Situated Language in Everyday Life*, Wednesday 24 July 2013.

**2014**

'Seeing, Saying, Doing, and Thinking: The Compositional Structure of Perception, Language, Action, and Thought,' *AAAI Spring Symposia: Knowledge Representation and Reasoning in Robotics and Qualitative Representations for Robots*, Monday 24 March 2014.

'Learning to Ground Sentences in Video,' *NeurIPS Workshop on Learning Semantics*, Friday 12 December 2014.

**2015**

'What every machine-learning researcher should know about AD,' *DALI Workshop on Probabilistic Programming*, Friday 10 April 2015.

'Computers XOR Vision XOR Language,' *CVPR Workshop on Vision and Language*, Thursday 11 June 2015.

'Common Sense Through Language Grounded in Vision and Motor Control,' *CogSci Workshop on Language & Commonsense: Integrating across psychology, linguistics, and computer science*, Wednesday 22 July 2015.

'Sentence-directed video object codetection (from egocentric mobile-robot video),' *ICCV Workshop on Describing and Understanding Video & The Large Scale Movie Description Challenge (LSMDC)*, Saturday 12 December 2015.

**2016**

'Verbs in the Human Brain,' *Indiana Neuroimaging Symposium*, Friday 18 November 2016.

'The tension between convenience and performance in automatic differentiation,' *NeurIPS Workshop on The Future of Gradient-Based Machine Learning Software*, Saturday 10 December 2016.

**2017**

'Binomial Checkpointing for Arbitrary Programs with No User Annotation,' *SIAM Conference on Computational Science and Engineering (CSE) minisymposium on AD*, Tuesday 28 February 2017.

'The Linguistic Nature of Human Visual Perception and its Consequences for Building Cognitive Systems,' *Advances in Cognitive Systems (ACS)*, Saturday 13 May 2017, canceled due to illness.

*CVPR Workshop on Vision Meets Cognition: Functionality, Physics, Intentionality and Causality*, Friday 21 July 2017, canceled due to illness.

'Driving Under the Influence (of Language),' *1st Workshop on Autonomy, Robotics and Cognition*, Tuesday 3 October 2017.

'Joint Language-Vision Inference in Machines and Humans,' *2017 International Symposium on Perception, Action, and Cognitive Systems*, Friday 3 November 2017.

'Divide-and-Conquer Checkpointing for Arbitrary Programs with No User Annotation,' *NeurIPS Workshop on The Future of Gradient-Based Machine Learning Software & Techniques*, Saturday 9 December 2017.

**2018**

'Learning Grounded Game Play,' *CVPR Workshop on Fine-grained Instructional Video undERstanding (FIVER)*, Monday 18 June 2018.

'Playing with Toys,' *The CVPR Workshop on Vision Meets Cognition: Functionality, Physics, Intentionality and Causality (FPIC)*, Monday 18 June 2018.

'Three Approaches to Training Object and Activity Detectors with Less Annotation,' *CVPR Workshop on Vision with Biased or Scarce Data (VBSD)*, Friday 22 June 2018.

**2019**

'Linguistics Meets Image and Video Retrieval,' *ICCV Workshop on Linguistics Meets Image and Video Retrieval*, Monday 28 October 2019.

**2021**

'Scheme as a framework for Deep Learning,' *ICFP Workshop on Scheme and Functional Programming*, Friday 27 August 2021.

## Teaching Experience

**University of Pennsylvania** **Philadelphia, Pennsylvania**
September–December 1992
*Adjunct Professor, Department of Computer and Information Science*
CIS520, the graduate introductory core course on artificial intelligence, Fall 1992.

**University of Toronto** **Toronto, Ontario**
August 1993–December 1995
*Assistant Professor, Department of Computer Science*
CSC324, the undergraduate programming languages course, Fall 1995.
CSC484, the undergraduate introductory course on artificial intelligence, Spring 1994, Spring 1995.
CSC485/CSC2501, the graduate introductory course on natural-language understanding, Fall 1993, Fall 1994, Fall 1995.
CSC2528, the graduate reading seminar on computational linguistics, Spring 1994, Spring 1995.

**Technion, Israel Institute of Technology** **Haifa, Israel**
February–August 1996
*Senior Lecturer, Department of Electrical Engineering*
048864, a graduate seminar on visual event perception, Spring 1996.

**University of Vermont** **Burlington, Vermont**
September 1996–May 1997
*Visiting Assistant Professor, Department of Computer Science and Electrical Engineering*
CS103, the undergraduate programming languages course, Fall 1996, Spring 1997.
CS251, the undergraduate introductory course on artificial intelligence, Fall 1996.
CS295, the undergraduate introductory course on computational linguistics, Spring 1997.

**Princeton University** **Princeton, New Jersey**
September 1998–February 1999
*Visiting Lecturer, Department of Computer Science*
COS302, the undergraduate introductory course on artificial intelligence, Fall 1998.

**Purdue University** **West Lafayette, Indiana**
January 2002–August 2019
*Associate Professor in the School of Electrical and Computer Engineering*
August 2019–present
*Professor in the School of Electrical and Computer Engineering*
ECE47300, the undergraduate introductory course on artificial intelligence, Spring 2002, Spring 2003, Spring 2004, Spring 2005, Spring 2006, Spring 2007, Spring 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Spring 2018, Spring 2019.
ECE57000, the graduate introductory course on artificial intelligence, Fall 2002, Fall 2003, Fall 2004, Fall 2005, Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2016, Fall 2017, Fall 2018.
ECE59500CV, Deep Learning for Computer Vision, Fall 2020, Fall 2021.
ECE59500NL, Natural Language Processing, Spring 2021.
ECE49595CV, Computer Vision, Fall 2023.
ECE49595NL, Natural Language Processing, Spring 2024, Spring 2025.

## Current Students

none

## Former Students

**2005**

Vamsi Vytla, M.S., May 2005, *Recovering Unobservable Properties of a Visual Scene Using Perceiver Framework*, Purdue University, employment: Schlumberger, Lawrence Berkeley Laboratory.

Pranay Gupta, M.S., December 2005, *Visual Perception and Imitation Grounded in Action*, Purdue University, employment: Google.

**2013**

Andrei Barbu, Ph.D., December 2013, *Reasoning Across Language and Vision in Machines and Humans*, Purdue University, employment: postdoc MIT, research scientist (permanent soft-money position) MIT.

**2014**

Siddharth Narayanaswamy, Ph.D., May 2014, *Compositionality in Vision and Language*, Purdue University, employment: postdoc Stanford, postdoc Oxford, reader University of Edinburgh.

**2016**

Daniel Paul Barrett, Ph.D., May 2016, *Learning in Vision and Robotics*, Purdue University, employment: Sandia National Laboratories.

Scott Alan Bronikowski, Ph.D., May 2016, *Grounding Robot Motion in Natural Language and Visual Perception*, Purdue University, employment: General Motors, Toyota.

Haonan Yu, Ph.D., May 2016, *Grounding Language in Video*, Purdue University, employment: Baidu Research, Facebook, Horizon Robotics.

**2021**

Jared Johansen, Ph.D., May 2021, *The Amazing Race: Robot Edition*, Purdue University, employment: EpiSci.

Thomas Ilyevsky, Ph.D., May 2021, *Autonomous Perception and Navigation in Unknown Indoor Environments*, Purdue University, employment: IMC Financial.

## External Service

**1990**

Session chair, Phonology and Syntax, *Annual Conference of the Cognitive Science Society (CogSci)*, 1990.

**1991**

Member student session program committee, *Annual Meeting of the Association for Computation Linguistics (ACL)*, 1991.

**1995**

Member program committee, *International Workshop on Constraint-Based Reasoning, International Conference of the Florida Artificial Intelligence Research Society (FLAIRS)*, 1995.

Member program committee, *Computational Models for Integrating Language and Vision, AAAI Fall Symposium Series*, 1995.

**1996**

Member program committee, *National Conference on Artificial Intelligence (AAAI)*, 1996.

Member program committee, *Second International Workshop on Constraint Based Reasoning, International Conference of the Florida Artificial Intelligence Research Society (FLAIRS)*, 1996.

Member program committee, *Workshop on the Representations and Processes between Vision and Natural Language, European Conference on Artificial Intelligence (ECAI)*, 1996.

Member international advisory committee, *Association for Computational Linguistics Special Interest Group on Natural Language Learning (SIGNLL)*, 1996–1997.

**1997**
Member program committee, *Conference on Computational Psycholinguistics (CPL)*, 1997.

**1999**
Member program committee, *Workshop on Computational Natural Language Learning, Conference of the European Chapter of the Association for Computational Linguistics (EACL)*, 1999.

**2001**
Member program committee, *Musical Constraints Workshop, Seventh International Conference on Principles and Practice of Constraint Programming*, 2001.

**2003**
Member program committee, *Scheme Workshop*, 2003.

Co-chair and co-organizer, *Workshop on Learning Word Meaning from Non-Linguistic Data, Human Language Technology and North American Association for Computational Linguistics (HLT-NAACL)*, with Regina Barzilay and Ehud Reiter, 2003.

**2004**
Member program committee, *Workshop on Psycho-computational Models of Human Language Acquisition (PsychoComp), International Conference on Computational Linguistics (COLING)*, 2004.

Member program committee, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2004.

Member program committee, *IEEE Workshop on Perceptual Organization in Computer Vision (POCV), IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2004.

**2005**
Member program committee, *Annual Conference of the Cognitive Science Society (CogSci)*, 2005.

Member program committee, *International Joint Conference on Artificial Intelligence (IJCAI)*, 2005.

**2006**
Member program committee, *Annual Conference of the Cognitive Science Society (CogSci)*, 2006.

Member program committee, *International Conference on Development and Learning (ICDL)*, 2006.

Co-chair and co-organizer, *IEEE Workshop on Perceptual Organization in Computer Vision (POCV), IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, with James Elder, 2006.

**2007**
Member program committee, *National Conference on Artificial Intelligence (AAAI)*, 2007.

Member program committee, *International Conference on Development and Learning (ICDL)*, 2007.

External hiring-panel member (faculty search and interview committee), *National University of Ireland Maynooth (NUIM)*, 2007.

**2008**
Member program committee, *National Conference on Artificial Intelligence (AAAI)*, 2008.

Member program committee, *European Lisp Symposium (ELS)*, 2008.

**2010**
Member program committee, *National Conference on Artificial Intelligence (AAAI)*, 2010.

Member program committee, *International Conference on Development and Learning (ICDL)*, 2010.

Session chair, *International Conference on Robotics and Automation (ICRA)*, 2010.

**2011**
Member program committee, *International Conference on Development and Learning (ICDL)*, 2011.

**2012**
Member program committee, *National Conference on Artificial Intelligence (AAAI)*, 2012.

Member program committee, *Sixth International Conference on Algorithmic Differentiation (AD)*, 2012.

External reviewer, *Programming Language Design and Implementation (PLDI)*, 2012.

Member program committee, *First Annual Conference for Advance in Cognitive Systems (ACS)*, 2012.

**2013**
Member program committee, *National Conference on Artificial Intelligence (AAAI)*, 2013.

Member program committee, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2013.

Associate editor and member editorial board, *Artificial Intelligence (AIJ)*, 2013–2020.

Session chair, *Annual Meeting of the Association for Computation Linguistics (ACL)*, 2013.

**2014**
Member program committee, *Annual Meeting of the Association for Computation Linguistics (ACL)*, 2014.

**2016**
Program co-chair, senior member track, *Conference on Artificial Intelligence (AAAI)*, with Sarit Kraus, 2016.

**2019**
Co-chair and co-organizer, *The Fourth SIGPLAN Workshop on Languages for Inference (LAFI), The ACM SIGPLAN Symposium on Principles of Programming Languages (POPL)*, with Ohad Kammar, 2019.
Member of steering committee, *The Fifth SIGPLAN Workshop on Languages for Inference (LAFI), The ACM SIGPLAN Symposium on Principles of Programming Languages (POPL)*, 2020–present.

**2020**
Member program committee, *International Conference on Robotics and Automation (ICRA)*, 2020.
Member program committee, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.

## Professional Society Membership

Senior member IEEE, member Computer Society, member ACM, member AAAI, member ACL, member SIGNLL, member Cognitive Science Society, member AAUP, member SIAM, member AAAS.

## Coverage in the Popular Press

**Silicon Compilation**

**1982**
L. Lowe, 'VLSI design shrinks to mere man-weeks,' *Electronics*, pp. 48–50, 10 February 1982.
http://engineering.purdue.edu/~qobi/popular-press/20140722165742829.pdf

J. Werner, 'The Silicon Compiler: Panacea, Wishful Thinking, or Old Hat?,' *VLSI Design*, 3:46–52, September/October 1982.
http://engineering.purdue.edu/~qobi/popular-press/1200394.pdf

'ICE Status,' *Integrated Circuit Engineering Corporation*, p. 36, 1982.
http://engineering.purdue.edu/~qobi/popular-press/20140905090317556.pdf
http://smithsonianchips.si.edu/

**1983**
M.A. Harris, 'News Update,' *Electronics*, p. 32, 13 January 1983.
http://engineering.purdue.edu/~qobi/popular-press/1199075.pdf

J.A. Feldman and E.J. Beauchemin, 'A Custom IC for Automatic Gain Control in LPC Vocoders,' *ICASSP*, pp. 511–514, 1983.
http://engineering.purdue.edu/~qobi/popular-press/01172095.pdf

J.R. Fox, 'The MacPitts Silicon Compiler: A View from the Telecommunication Industry,' *VLSI Design*, 4(3):30–37, May/June 1983.
http://engineering.purdue.edu/~qobi/popular-press/1199076.pdf

J. Werner, 'Progress Toward the "Ideal" Silicon Compiler Part 1: the Front End,' *VLSI Design*, 4(5):38–41, September 1983.
http://engineering.purdue.edu/~qobi/popular-press/1199077.pdf

J. Werner, 'Progress Toward the "Ideal" Silicon Compiler Part 2: the Layout Problem,' *VLSI Design*, 4(6):78–81, October 1983.
http://engineering.purdue.edu/~qobi/popular-press/1199514.pdf

D.D. Gajski and R.H. Kuhn, 'Guest Editors' Introduction: New VLSI Tools,' *IEEE Computer*, 16(12):11–14, December 1983.
http://engineering.purdue.edu/~qobi/popular-press/01654264.pdf

J.R. Southard, 'MacPitts: An Approach to Silicon Compilation,' *IEEE Computer*, 16(12):74–82, December 1983.
http://engineering.purdue.edu/~qobi/popular-press/01654270.pdf

**1984**

R. Collett, 'Silicon compilation: a revolution in VLSI design,' *Digital Design*, pp. 88–95, August 1984.
http://engineering.purdue.edu/~qobi/popular-press/1199079.pdf

J.R. Southard, 'Silicon compiler demands no hardware expertise to fashion custom chips,' *Electronic Design*, 15 November 1984.
http://engineering.purdue.edu/~qobi/popular-press/1199081.pdf

**1985**

'Automated Chip Design: Reshaping the semiconductor industry,' *High Technology*, cover photo, June 1985.
http://engineering.purdue.edu/~qobi/popular-press/20140722165408379.pdf

J.N. Bairstow, 'Chip Design Made Easy,' *High Technology*, pp. 18–25, June 1985.
http://engineering.purdue.edu/~qobi/popular-press/20140722165614382.pdf

**Action Recognition in Video**

**1998**

C. Levin, 'Flysight: Research in computer vision may help computers of the future to see,' *PC Magazine*, p. 28, 15 December 1998.
http://engineering.purdue.edu/~qobi/popular-press/20140722164138103.pdf

**1999**

'Computer See, Computer Do,' Technology Watch, *Popular Mechanics*, p. 18, March 1999.
http://engineering.purdue.edu/~qobi/popular-press/20140722163959487.pdf

**2013**

B. Stevenson, 'Worth a thousand words,' *Digital Battlespace*, 5(4):33–37, July/August 2013.
http://engineering.purdue.edu/~qobi/popular-press/DB.pdf

**Natural Language Command of Mobile Robot Navigation**

**2017**

S. Augenstein, 'Robots Learn Language, Adjust Route Accordingly,' *Laboratory Equipment*, 28 February 2017.
http://engineering.purdue.edu/~qobi/popular-press/RobotsLearnLanguage,AdjustRouteAccording
html

'US engineers develop language-learning robot,' *The Engineer*, 1 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/USengineersdevelopla nguage-learningrobot_TheEngineer.html

Daily Planet, *Discovery Channel Canada*, Season 22, Episode 120, 2 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/Language_Learning_Robot.mp4

'Создан робот, способный изучить, понять и использовать язык человека,' *freshnews.org*, 5 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/russian.html

'미 퍼듀대, 사람 말을 이해하는 바퀴 로봇 개발,' *로봇신문사*, 8 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/korean.html

'Language Learning Robot Could Advance Autonomous Vehicles, Help Emergency Responders in the Future,' *Communications of the ACM (CACM)*, 8 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/LanguageLearningRobotCouldAdvanceAutonomo HelpEmergencyRespondersintheFuture_News_CommunicationsoftheACM.html

'Language-learning wheeled robot,' *Machinery Market News*, 19 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/Language-learningwheeledrobot-MachineryM html

'Purdue pioneering robot tech,' *Indy Star*, p. 5A, 20 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/20170326130952759.pdf

'Purdue team pioneers in robot technology,' *Lafayette Journal & Courier*, front page, 20 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/Purdueteampioneersinrobottechnology.html

'Using Language to Control a Robot,' *Robot Magazine*, 27 March 2017.
http://engineering.purdue.edu/~qobi/popular-press/UsingLanguagetoControlaRobot-RobotMagazi html

## Graduate Student Research Supervision

**1993**
Richard Mann, graduate research, 1993–1996, University of Toronto. Postdoc, January 1998–July 1999, NEC Research Institute.

**1999**
Amit Roy Chowdhury, University of Maryland, graduate summer intern, 1999, NEC Research Institute.

**2000**
Song Wang, UIUC, graduate summer intern, 2000, 2001, NEC Research Institute.

**2002**
Min Lu, graduate research, Spring–Fall 2002, Purdue University.

**2003**
Shawn Alan Brownfield, graduate research, Fall 2003–Spring 2007, Purdue University.

**2007**
Rezwanuzzaman Chowdhury, graduate research, Fall 2007–Spring 2008, Purdue University.

**2008**
Alejandrina Cristià, LING59000, Spring 2008, Purdue University.

Padmini Jaikumar, graduate research, Fall 2008, Purdue University.

**2010**
Jeff Johnson, Indiana University, graduate research, December 2010, Purdue University.

Dhaval Salvi, University of South Carolina, graduate research, December 2010–January 2011, Purdue University.

Jarrell Waggoner, University of South Carolina, graduate research, December 2010–January 2011, Purdue University.

**2011**
Aaron Michaux, graduate research, May 2011–March 2013, Purdue University.

Ryan Buffington, graduate research, August 2011–May 2012, Purdue University.

Tommy Y. Chang, graduate research, August 2011–January 2013, Purdue University.

**2012**
David Schvartzman Cohenca, graduate research, January–June 2012, Purdue University.

**2013**
Tsz Kwan Lam, LING69000, Spring 2013, Purdue University.

Anantha P. Raghuraman, graduate research, Fall 2013, Purdue University.

Xiran Wang, graduate research, August 2013–June 2014, Purdue University.

**2014**
Sarvesh Vijay Pradhan, graduate research, Fall 2014–Spring 2015, Purdue University.

**2015**
Abdullah Bader Alshaibani, graduate research, Spring 2015–Spring 2016, Purdue University.

**2016**
Charles Roger Bradley, LING69900, Summer 2016, Purdue University.

Chengxi Li, graduate research, August 2016–December 2018, Purdue University.

Ren Li, graduate research, August 2016–May 2019, Purdue University.

Hamad Ahmed, graduate research, August 2016–October 2021, Purdue University.

**2017**
Vikas Dhiman, University of Michigan, graduate summer intern, 2017, Purdue University.

**2019**
Trevor Donald Meyer, graduate research, Fall 2019–Spring 2021, Purdue University.

**2020**
Justin Jeffrey Unterreiner, research intern, Fall 2020, Purdue University.
Xingguang Zhang, graduate research, Fall 2020–Summer2021, Purdue University.

**2021**
Amith Kashyap, graduate research, Fall 2021, Purdue University.

## Undergraduate Student Research Supervision

**1993**
Paul Glenn, undergraduate thesis, University of Toronto.

James Rootham, undergraduate research, University of Toronto.

Patrick Tierney, undergraduate research, University of Toronto.

Quaid Morris, undergraduate research, University of Toronto.

Alexander Budanitsky, undergraduate research, University of Toronto.

**1998**
John Hale, Brown University, undergraduate summer intern, 1998, NEC Research Institute.

**2001**
Curran Nachbar, Brown University, undergraduate summer intern, 2001, NEC Research Institute.

**2002**
Abhilasha Bhargav, undergraduate summer intern, 2002, ECE49600, Fall 2002, Purdue University.

Blake Matheny, undergraduate summer intern, 2002, 2003, undergraduate research, Fall 2002–Spring 2003, Purdue University.

James J. Sherman, Jr., undergraduate summer intern, 2002, undergraduate research, Fall 2002–Spring 2003, SURF, 2003, Purdue University.

Vamsi Vytla, undergraduate summer intern, 2002, undergraduate research, Fall 2002–Spring 2003, SURF, 2003, Purdue University.

Keith Henderson, ECE49600, Fall 2002, Purdue University.

**2003**
Bingrui Foo, undergraduate summer intern, 2003, undergraduate research, Fall 2003, Purdue University.

Pranay Gupta, undergraduate summer intern, 2003, Purdue University.

**2005**
Jeremy Tryba, undergraduate research, Fall 2005–Spring 2006, Purdue University.

**2006**
Rajat Agarwal, undergraduate research, January–November 2006, Purdue University.

Andrei Barbu, University of Waterloo, SURF, 2006, Purdue University.

Sarah Fortune, Trinity College Dublin, SURF, 2006, Purdue University.

Shammi Didla, SURF, 2006, Purdue University.

**2007**
Iheukwumere Onwuka, University College London, undergraduate research, Fall 2007–Spring 2008, ECE49600, Fall 2007, Purdue University.

Ross Beranek, ECE49600, Fall 2007, Purdue University.

**2008**
Anchal Dube, SURF, 2008, undergraduate research, Fall 2008–Spring 2009, Purdue University.

**2009**
Brian Jay Thomas, SURF, 2009, undergraduate research, Fall 2009–Spring 2010, Purdue University.

Isaac P. Jones, SURF, 2009, Purdue University.

**2010**
Seongwoon Ko, ECE49600, Fall 2010, Purdue University.

Alexander Bridge, undergraduate research, December 2010–January 2011, Purdue University.

Dan Coroian, undergraduate research, December 2010–January 2011, Purdue University.

Sam Mussman, undergraduate research, December 2010–January 2011, Purdue University.

Lara Schmidt, undergraduate research, December 2010–January 2011, Purdue University.

Jiangnan Shangguan, undergraduate research, December 2010–January 2011, Purdue University.

Jinliang Wei, undergraduate research, December 2010–January 2011, Purdue University.

Yifan Yin, undergraduate research, December 2010–January 2011, Purdue University.

**2011**
Zachary J. Burchill, University of Pennsylvania, undergraduate summer intern, 2011, 2012, 2013, 2014, Purdue University.

**2013**
Jordan R. Glassley, ECE47300, Spring 2013, honors contract, Purdue University.

**2014**
Colin Graber, ECE47300, Spring 2014, honors contract, ECE49600, Spring 2015, Purdue University.

**2015**
Evgeny Grunin, CS49000, Fall 2015, Purdue University.

Seth J. Benjamin, Columbia University, undergraduate summer intern, 2015, Purdue University.

Stephen Michael James Bulley, undergraduate research, 2015, Purdue University.

Jun He, undergraduate research, 2015, Purdue University.

**2019**
Steven Jeffrey Spencer, SURF, Summer 2019, Purdue University.

**2023**
Fahad Aloufi, ECE49595CV, Fall 2023, honors contract, Purdue University.