

Brent Hailpern

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United States Citizen

EDUCATION

Stanford University. Stanford, California

Ph.D. (Computer Science), 1980

Dissertation: *Verifying Concurrent Processes Using Temporal Logic*

Stanford University. Stanford, California

M.S. (Computer Science), 1978

University of Denver. Denver, Colorado

B.S. (Mathematics), *summa cum laude*, 1976

EXPERIENCE

Scientific Director - Cognitive Horizons Network, Head of Computer Science - IBM Research, and Distinguished Research Staff Member

IBM Research | AI

2017-2019

Responsible for scientific excellence of multi-million dollar research program involving IBM and faculty/students at seven universities. Topics include AI, health informatics, and cognitive security. Responsible for world-wide research strategy, grand challenges, and academic relationships relating to Computer Science, Mathematics, Electrical Engineering and Operations Research. (Execs: Jeff Welser, Michael Karasick, Isabel Yang, Maria Ebling, Lisa Amini)

Head of Computer Science - IBM Research and Distinguished Research Staff Member

IBM Research

2013-2017

Responsible for world-wide research strategy, grand challenges, and academic relationships relating to Computer Science, Mathematics, Electrical Engineering and Operations Research. Primary responsibility for mentoring IBM's international research labs. Co-strategist for IBM Research's activities on platforms, software engineering, and tools for IBM Research's Cognitive Computing Strategy. Creation of user experience and collaboration tools for Cognitive Software Engineering Development Environment (VPs: Guru Banavar, Jeff Welser, Michael Karasick)

Director of Computer Science

IBM Research | Almaden, San Jose, California

2011-2014

IBM Research-Almaden line executive for data management, text analytics, machine learning, theory, human computer interaction, health informatics. Research Relationship Manager to Information Management Division and Software Group Middleware. (VPs: Michael Karasick, Jeff Welser)

Director, Programming Models and Tools

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

2006-2011

Responsible for world-wide research strategy and relationships relating to Software Lifecycle, Rational Software Development, Language Runtime Development, Programming Languages and Software Engineering. Line executive in Yorktown for programming technology, software engineering, and end-user tools. Research Relationship Manager to Rational and AIM divisions (VPs: Charles Lickel and David McQueeney)

Department Group Manager, Software Technology

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

2004-2006

Responsible for three departments relating to software tools: programming technology, software engineering, and end-user tools. Research Relationship Manager for Lotus, Rational, and Software Group standards organization. (VPs: Alfred Spector and Charles Lickel)

Associate Director, Computer Science

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

1999-2004

Responsible for quality-control in hiring and promotions with Systems and Software Department. Responsible for the relationships between Computer Science in IBM Research and the academic/professional world outside of IBM. This included University Relations, IBM Research Computer Science's discipline-based web site, funding of graduate fellowships and faculty awards, IBM Research's CS/EE/Math internal special interest groups on professional disciplines. Chair of internal special interest group on programming languages and software engineering. Chief strategist for worldwide cross-lab CS teams. Research Relationship Manager for Lotus. (VPs: Ambuj Goyal and Alfred Spector)

Senior Manager

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

1992-1998

Led research departments in Operating Systems Structures, Software Systems, and Internet Technology. Research projects included anti-virus software, information economics, intelligent agents, Internet solutions for education, scaleable web servers and proxies, workflow, electronic mail, middleware/applications for handheld devices, and multi-media servers. IBM relationships: AS/400, Personal Software Products, Internet Software, Lotus, and Pervasive Computing. Author of IBM's first Java Server Technical Strategy (Internet Division Award). Client manager for IBM Net-Vista education product (Outstanding Innovation Award). Department shipped IBM AntiVirus product, and provided key technology for IBM's 1996 Olympics Web Server. (Execs: Jeff Jaffe, Ambuj Goyal, Inder Gopal, Stuart Feldman)

Senior Technical Consultant, Computer Sciences Department

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

1991-1992

Staff to the head of Research's Systems and Software area. Responsible for coordinating the department's interactions with division technical management in the area of scientific accomplishments, technical strategy, and operating plan. Department's coordinator for workstation and I/S issues. Department's focal point for electronic library strategy. Technical advisor (software and applications) for the Research's Ten Year Outlook. (VP: Abe Peled)

**Programming Consultant, Technical Strategy Development Department
(Application Solutions and Services)**

IBM Corporate Headquarters, Armonk, New York

1990-1991

Responsible for developing technical assessments of long range business strategies, including application development, systems management, client/server computing, and application architectures (Directors: Louise Terry, John Shedletsky).

Senior Manager

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

1985-1990

Managed research departments: Experimental Languages and Concurrent Systems, Programming Languages and Foundations (founding manager), and Software Environments.

Manager, Experimental Languages

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

1984-1985

Research Staff Member

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

1980-1984

Research Assistant, Teaching Assistant, Teaching Fellow

Computer Science Department, Stanford University, Stanford, California

1976-1980

AWARDS

- **Member, IBM Academy of Technology** - 2013-2019
- IBM Invention Achievement Award (filing/issue)
1995, 1996, 1997, 1999, 2000, 2001, 2003, 2005, 2006, 2007, 2008, 2009, 2010, 2011
- **IBM Invention Achievement Award** (plateau)
1984, 1987, 1995, 1997, 2000, 2005, 2007
- ACM Recognition of Service Award - 1991, 1993, 1995, 1997, 1999, 2003
- IBM Business Methods Patent Team Award - 2001
- IBM Research Division Technical Group Award - 2000
- **IBM Supplemental Patent Issue Award** - 2000, 2001
- IBM Pervasive Computing Patent Team Award - 1999
- IBM Internet/Network Computing Patent Team Award - 1997
- IBM Services, Applications, and Solutions Patent Team Award - 1997
- **ACM SIGPLAN Distinguished Service Award** - 1997
- IBM Internet Division Award (IBM's Java Server Technical Strategy) - 1996
- **IBM Outstanding Innovation Award** (IBM NetVista product) - 1996
- IBM Research Division External Honors Recognition
1987, 1988, 1989, 1990, 1992, 1994, 1995, 1996
- IEEE Computer Society Certificate of Appreciation - 1993
- **Best Paper Award** (Architecture Track)
Twentieth Hawaii International Conference on System Sciences - 1987
- IBM Research Division Award - 1983, 1984
- IBM First Patent Application Award - 1983
- **Best Paper Award**, Symposium on Trends and Applications - 1980
- **Fannie and John Hertz Foundation Fellow** (Stanford University)
- **National Science Foundation Graduate Fellow** (Stanford University)
- Gates Foundation Scholar and University of Denver Honors Program (University of Denver)

TECHNOLOGY TRANSFERS (2010-2014)

- 2014 - IBM: InfoSphere BigInsights SystemML, InfoSphere BigInsights BigSQL, DB2 BLU OLTP
- 2014 - Open Source/Apache: libSkylark
- 2013 - IBM: DB2 BLU, InfoSphere BigInsights SystemT, InfoSphere BigInsights Social Data Accelerator, IBM Integration Bus v.9, WebSphere Healthcare Connectivity Pack v.8, WebSphere Message Broker V8.0.0.2, InfoSphere Master Data Management v.11
- 2013 - Standards/NIST: Model-Driven Health Tools hosted by Open Health Tools
- 2012 - IBM: InfoSphere BigInsights V1.3, DB2 10.1 Adaptive Compression, Lotus Connections 4.0 Community Metrics, IBM Content and Predictive Analytics, ClearScript to Rational RFT 8.2.2 and Rational RQM 4.0
- 2011 - IBM: zJava, Rational Team Concert, Rational Focal Point, Rational AppScan Source Edition, Digital Media Workflow Accelerator, WebSphere Transaction Cluster Facility, WebSphere Real Time
- 2011 - Open Source/x10.org: X10 programming language and runtime
- 2010 - IBM: eXtreme Scale Caching Appliance, Rational Focal Point, Test Planning and Optimization Workbench (TPOW), Rational Team Concert, Rational AppScan Standard Edition

PUBLICATIONS

Realizing The Potential Of Data Science

Berman, F., Rutenbar, R., **Hailpern, B.**, Christensen, H., Davidson, S., Estrin, D., Franklin, M., Martonosi, M., Raghavan, P., Stodden, V., Szalay, A.

Communications of the ACM, **61**(4):67-72, April 2018

Video introduction to article available at <https://vimeo.com/258103391>

Model-Driven Development: The Good, The Bad, And The Ugly

Hailpern, B., Tarr, P.

IBM Systems Journal, **45**(3), July/September 2006

Web Services: Promises And Compromises

Arsanjani, A., **Hailpern, B.**, Martin, J., Tarr, P.

ACM Queue, **1**(1):48-58, March 2003

Software Debugging, Testing, And Verification

Hailpern, B., Santhanam, P.

IBM Systems Journal, **41**(1):4-12, 2002

Netvista: Growing An Internet Solution For Schools

Kellogg, W.A., Richards, J.T., Swart, C., Malkin, P., Laff, M., Hanson, V., **Hailpern B.**

IBM Systems Journal, **37**(1):19-41, 1998

SIGPLAN scope and tutorial needs

Cytron, R.K., **Hailpern, B.**

ACM Computing Surveys, **27**(2):290-291, June 1995

An Object-Based Programming Model For Shared Data

Kaiser, G.E., **Hailpern, B.**

ACM Transactions on Programming Languages and Systems, **14**(2):201-264, April 1992

Extending Objects To Provide Multiple Interfaces And Access Control

Hailpern, B., Ossher, H.

IEEE Transactions on Software Engineering, **16**(11):1247-1257, November 1990

Comparing Two Functional Programming Systems

Hailpern, B., Huynh, T., Revesz, G.

IEEE Transactions on Software Engineering, **15**(5):532-542, May 1989

Detailed benchmark programs in IBM Research Report RC 12598, March 1987 (revised March 1988)

An Execution Architecture For FP

Huynh, T., **Hailpern, B.**, Hoevel, L.W.

IBM Journal of Research and Development, **30**(6):609-616, November 1986

Script: A Communication Abstraction Mechanism And Its Verification

Francez, N., **Hailpern, B.**, Taubenfeld, G.

Science of Computer Programming, **6**:35-88, January 1986

Multiparadigm Languages And Environments

Hailpern, B.

IEEE Software, **3**(1), January 1986.

Guest editor of special issue. Guest editor's introduction, pages 6-9. Multiparadigm research: A survey of nine projects, page 70. SW2: A multiparadigm shell for CMS, page 74

ALAN - A (circuit switched) local area network

Hailpern, B., Heller, A., Hoevel, L.W., and Thefaine, Y.J.

IEEE Journal on Selected Areas in Communications, **SAC-3** (3):427-430, May 1985

Invited paper for special issue on Communications for Personal Computers

A simple protocol whose proof isn't

Hailpern, B.

IEEE Transactions on Communications, **COM-33** (4):330-337, April 1985

Modular Verification Of Computer Communication Protocols

Hailpern, B.T., Owicki, S.S.

IEEE Transactions on Communications, **COM-31** (1):56-68, January 1983

Continuous Non-Differentiable Functions

Hailpern, B.

Pi Mu Epsilon Journal, **6**(5):249-260, Fall 1976

First place winner - 1976/77 Pi Mu Epsilon Journal Manuscript Competition

BOOKS

A Model For Object-Based Inheritance

Hailpern, B., Nguyen, V.

In Bruce Shriver and Peter Wegner, editors

Research Directions in Object-Oriented Programming, pages 147-164

Computer Systems Series

MIT Press, 1987

Tools For Verifying Network Protocols

Hailpern, B.

In K. R. Apt, editor, *Logics and Models of Concurrent Systems*, pages 57-76

NATO ASI Series, volume **F13**

Springer Verlag, 1985

Script: A Communication Abstraction Mechanism And Its Verification

Francez, N., **Hailpern, B.**, Taubenfeld, G.

In K. R. Apt, editor, *Logics and Models of Concurrent Systems*, pages 169-212

NATO ASI Series, volume **F13**

Springer Verlag, 1985

Concurrent Processing

Hailpern, B.

In Sybil Parker, editor, *McGraw-Hill Encyclopedia of Electronics and Computers*, pages 163-164

McGraw-Hill, 1984

Also in Sybil Parker, editor, *McGraw-Hill Concise Encyclopedia of Science and Technology*, pages 422-423

McGraw-Hill, 1984

Also in *McGraw-Hill Encyclopedia of Science and Technology*, Sixth Edition, pages 304-305

McGraw-Hill, 1987

Keeping A Foot On The Ground**Hailpern, B.**In Dexter Kozen, editor, *Logics of Programs*, pages 122-123*Lecture Notes in Computer Science*, volume **131**

Springer Verlag, 1982

Specifying And Verifying Protocols Represented As Abstract Programs**Hailpern, B.T.**In Paul Green, editor, *Computer Network Architectures and Protocols*, pages 607-623

Plenum, 1982

Verifying Concurrent Processes Using Temporal Logic**Hailpern, B.T.**

Ph.D. Thesis, Stanford University, 1980

Also in *Lecture Notes in Computer Science*, volume **129**

Springer Verlag, 1982

Verifying Network Protocols Using Temporal Logic**Hailpern, B.T.**, Owicki, S.S.In Carl Sunshine, editor, *Communication Protocol Modeling*, pages 189-199. Artech House, 1981.Reprinted from *Proceedings of the Symposium on Trends and Applications 1980: Computer Network Protocols* (Gaithersburg), pages 18-28.

IEEE Computer Society, May 1980.

★ Selected as outstanding paper of the symposium

CONFERENCES

Learning Electronic Health Records Through Hyperbolic Embedding Of Medical OntologiesLu, Q., de Silva, N., Kafle, S., Cao, J., Dou, D., Nguyen, T. H., Sen, P., **Hailpern, B.**, Reinwald, B., Li, Y.
10th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics - ACM-BCB '19
(Niagara Falls, NY), September 2019**The Coming Revolution In Neuromorphic Computing: Hardware And Software****Hailpern, B.**

Invited keynotes, Japan Science Council 8-th Symposium on Informatics, and JST-NII Joint Workshop on Emerging Technologies for "Super-Cyber Society" and its Key Challenges in SSH/ELS (Tokyo, Japan), March 2015

Open Collaborative Research**Hailpern, B.**Invited lecture, *CASCON 2008* (Toronto, Canada), October 2008**Technology And Social Trends In Software Development****Hailpern, B.**Invited lecture, *CASCON 2008* (Toronto, Canada), October 2008**Toward Governance Of Emergent Processes And Adaptive Organizations**Tarr, P., Williams, C., **Hailpern, B.***International Conference on Software Engineering Proceedings of the First International Workshop on Software Development Governance* (Leipzig, Germany), 2008**Association Between Ed Crowding And Inpatient Length Of Stay**Bernstein, S.L., Yadav, K., Wall, S., Hailpern, S., **Hailpern, B.**, Bijur, P.E., Gallagher, E.J.

2008 Annual Meeting of the Society for Academic Emergency Medicine, (Washington, DC), May 2008

Lack Of Association Between Ed Crowding And Bounceback Admissions

Bernstein, S.L., Yadav, K., Wall, S., Hailpern, S., **Hailpern, B.**, Bijur, P.E., Gallagher, E.J.
2008 Annual Meeting of the Society for Academic Emergency Medicine (Washington, DC), May 2008

Software Engineering For Web Services: A Focus On Separation Of Concerns

Hailpern, B., Tarr, P.L.

OOPSLA 2001 Workshop on Object-Oriented Web Services (Tampa, FL), October 2001
Available as IBM RC 22184, September 2001

Dynamic Reconfiguration In An Object-Based Programming Language With Shared Data

Hailpern, B., Kaiser, G.E.

IEEE Eleventh International Conference on Distributed Computing Systems (Arlington, TX)
IEEE Computer Society, pages 73-80, May 1991
Expanded version is available as IBM RC 16232, October 1990

An Object Model For Shared Data

Kaiser, G.E., **Hailpern, B.**

IEEE International Conference on Computer Languages 90 (New Orleans), pages 136-144
IEEE Computer Society, March 1990
Expanded version is available as IBM RC 14996, October 1989

Modal And Temporal Logic In Computer Science

Hailpern, B.

Invited lecture, *1989 International Conference on Computing and Information* (Toronto), May 1989

The Design Of A Multiparadigm Language

Hailpern, B.

Proceedings of the Twentieth Hawaii International Conference on System Sciences (Kona, Hawaii),
volume 2, pages 239-246
Western Publications, January 1987

FPL: A Functional Parallel Language

Nguyen, V., Demers, A., **Hailpern, B.**

Proceedings of the Twentieth Hawaii International Conference on System Sciences (Kona, Hawaii),
volume 2, pages 191-207
Western Publications, January 1987

An Improved Del-Style Execution Architecture For FP

Huynh, T., **Hailpern, B.**

Proceedings of the Twentieth Hawaii International Conference on System Sciences (Kona, Hawaii)
volume 1, pages 369-377
Western Publications, January 1987

★ Selected as best paper of Architecture Track

A Generalized Object Model

Nguyen, V., **Hailpern, B.**

Proceedings of the Object-Oriented Programming Workshop (Yorktown Heights), pages 78-87
IBM and Brown University, June 1986
Available as SIGPLAN Notices, 21 (10):78-87, ACM, October 1986

SW2: An Object-Based Programming Environment

Laff, M.R., **Hailpern, B.**

Proceedings of ACM SIGPLAN '85 - Language Issues in Programming Environments (Seattle), pages 1-11
ACM, June 1985

An Experimental Distributed Database System**Hailpern, B.T.**, Korth, H.K.*Proceedings of Databases for Business and Office Applications* (San Jose), pages 2-7
ACM, May 1983**Script: A Communication Abstraction Mechanism**Francez, N., **Hailpern, B.***Proceedings of the Second ACM Symposium on Principles of Distributed Computing* (Montreal), pages 213-227
ACM, August 1983
Reprinted in *Operating Systems Review*, 19 (2):53-67, ACM, April 1985**Modular Verification Of Concurrent Programs****Hailpern, B.**, Owicki, S.*Proceedings of the Ninth ACM Symposium on Principles of Programming Languages* (Albuquerque), pages 322-336
ACM, January 1982

TECHNICAL REPORTS AND WHITE PAPERS

Collaborative Research As The Key To Advancing AI**Hailpern, B.**Computing Research News, CRA, Vol. 29/No.7, August 2017
<http://cra.org/crn/2017/08/collaborative-research-key-advancing-ai/>**Research Highlight: CRA Board Member Brent Hailpern**Computing Research News, CRA, Vol. 29/No.1, January 2017
<http://cra.org/crn/2017/01/research-highlight-cra-board-member-brent-hailpern/>**Realizing The Potential Of Data Science: Final Report From The National Science Foundation Computer And Information Science And Engineering Advisory Committee Data Science Working Group**

Berman, F. (co-chair), Rutenbar, R. (co-chair), Christensen, H., Davidson, S., Estrin, D., Franklin, M.,

Hailpern, B., Martonosi, M., Raghavan, P., Stodden, V., Szalay, A.National Science Foundation CISE Advisory Committee Report, December 2016
<https://www.nsf.gov/cise/ac-data-science-report/>
<https://www.nsf.gov/cise/ac-data-science-report/CISEACDataScienceReport1.19.17.pdf>**The Future Of Computing Research: Industry-Academic Collaborations**Boules, N., Douglas, K., Feldman, S., Fix, L. (Organizer), Hager, G. (Organizer), **Hailpern, B.** (Organizer),

Hebert, M., Lopresti, D., Mynatt, B., Rossbach, C., Wright, H.

Computing Community Consortium Catalyst Report, May 2016
<http://cra.org/ccc/wp-content/uploads/sites/2/2015/01/CCC-Industry-White-Paper-V1.pdf>
<https://arxiv.org/abs/1606.09236>**The Future Of Research**Gabriel, R.P., Haas, L., **Hailpern, B.**, Rosenfield, M., Stern, E., Martino, J., Uceda-Sosa, R.

IBM Research Report RC 24921, December 2009

A shorter version of this paper was published as "The Future of Industrial R&D" by Mark Dean

Posted online: R&D Magazine, Tuesday, February 16, 2010

<http://www.rdmag.com/articles/2010/02/future-industrial-r-d>

An Architecture For Dynamic Reconfiguration In A Distributed Object-Based Programming Language

Hailpern, B., Kaiser, G.E.
IBM Research Report RC 18269, September 1992

PC Protocol Card: An Interface To The Alan Network Switch (User Guide)

Thefaine, Y., **Hailpern, B.**, Hoevel, L., Liles, S., Perry, K.
IBM Research Report RC 11189, May 1985

An Integrated Office System

Cesar, C.L., Chu, K.-C., Flurry, G.A., **Hailpern, B.T.**, et al.
IBM Research Report RC 9659, October 1982

An introduction to Pascal/VS input/output under CMS

Hailpern, B.
IBM Research Report RC 9354, April 1982

S-1 Architecture Manual (SMA-3)

Hailpern, B.T., Hitson, B.L.
Computer Systems Laboratory Technical Report 161, Stanford University, January 1979

PATENTS

Method of providing element dossiers that include elements from nonadjacent lifecycle phases

Hailpern, B.T., Malkin, P.K., Tarr, P.L.
United States Patent 8,312,058, November 13, 2012

System and method for usage-based misinformation detection and response

Malkin, P.K., Erickson, T.D., **Hailpern, B.T.**, Kellogg, W.A.
United States Patent 8,214,897, July 3, 2012

Method for providing dynamic process step annotations,

Malkin, P.K., Erickson, T.D., Kellogg, W.A., **Hailpern, B.T.**, Bergman, L.D., Castelli, V., Oblinger, D.A.
United States Patent 7,962,847, June 14, 2011

Method and system for maintaining originality-related information about elements in an editable object

Hailpern, B.T., Hao, D.M., Luo, L., Malkin, P.K., Ossher, H., Rich, L.S., Thomson, D., Tian, Z., Wiegand, J., Ye, H.J.
United States Patent 7,769,787, August 3, 2010

System and method for providing service for searching web site addresses

Hailpern, B.T., Yu, P.S.
United States Patent 7,383,299, June 3, 2009

System and method for creating a unified printable collection of hyperlinked documents

Hailpern, B.T., Maarek, Y., Yu, P.S.
United States Patent 6,948,116, September 20, 2005

Dynamic method and apparatus for target promotion

Hailpern, B.T., Yu, P.S.
United States Patent 6,922,672, July 26, 2005

System and method for similarity searching in high-dimensional data space

Aggarwal, C.C., **Hailpern, B.T.**, Wolf, J.L., Yu, P.S.

United States Patents 6,289,354, September 11, 2001

Collaborative Server Processing of Content and Meta-Information with Application to Virus Checking in a Server Network

Hailpern, B.T., Malkin, P.K., Schloss, R.J., White, S.R., Yu, P.S., Palmer, C.C.

United States Patent 6,275,937, August 14, 2001

Apparatus and method for dynamic meta-tagging of compound documents

Hailpern, B.T., Malkin, P.K., Schloss, R.J., Yu, P.S.

United States Patent 6,094,657, July 25, 2000

Dynamic push filtering based on information exchanged among nodes in a proxy hierarchy

Hailpern, B.T., Malkin, P.K., Schloss, R.J., Yu, P.S.

United States Patent 6,065,058, May 16, 2000

Japan Patent 2893019, February 26, 1999

Mechanism for Heterogeneous, Peer-to-Peer, and Disconnected Workflow Operation

Chaar, J., **Hailpern, B.T.**, Park, E.S., Paul, S.

United States Patent 5,960,404, September 28, 1999

Dynamic Push Filtering with Staging/Buffering in a Proxy Hierarchy

Hailpern, B.T., Malkin, P.K., Schloss, R.J., Yu, P.S.

Japan Patent 02893019, February 26, 1999 Multicast Data Transmission Control

Dan, A., **Hailpern, B.T.**, Sitaram, D.

European Patent 762767A3, November 25, 1998

Method for Controlling Transmission of Data Stream and Memory Therefore

Dan, A., **Hailpern, B.T.**, Sitaram, D.

Japan Patent 9130779A2, May 16, 1997

Pace Control for Multicasting in a Video Server Environment,

Dan, A., **Hailpern, B.T.**, Sitaram, D.

United States Patent 5,561,637, October 1, 1996

Korea Patent 0194251, February 8, 1999

System and method for connecting a plurality of intelligent terminals to each other

Blount, M.L., **Hailpern, B.T.**, Heller, R.A., Hoevel, L.W., Trivett, G.W.

European Patent 147702B1, November 22, 1990

Shared memory access for data processing system

Cocke, J., **Hailpern, B.T.**, Hoevel, L.W., Shapiro, E., Blount, M.L.

European Patent 166268B1, May 16, 1990

In-band Connection Establishment for a Multiple Multi-drop Network,

Perry, K.J., Thefaine, Y.J., **Hailpern, B.T.**, Hoevel, L.W., Shea, D.G.

United States Patent 4,885,578, December 5, 1989

Japan Patent 63157259-A

European Patent 270882B1, February 14, 1996

Multi-Microprocessor for Controlling Shared Memory,

Hailpern, B.T., Hoevel, L.W., Shapiro, E.

United States Patent 4,881,164, November 14, 1989

Japan Patent 1913156, March 9, 1995

European Patent 147656B1, January 17, 1990

Device for Establishing Communication Path
Perry, K.J., Thefaine, Y.J., **Hailpern, B.T.**, Hoevel, L.W., Huynh, T.
Japan Patent 1072642A2, July 18, 1988

A Linear-Space Signaling Scheme for a Circuit-Switched Network
Hailpern, B.T., Hoevel, L.W., Thefaine, Y.J.
United States Patent 4,740,956, April 26, 1988
Japan Patent 62160845-A
European Patent 230549B1, January 27, 1993

Interface Between a Computer Bus and a Serial Packet Link
Friedman, L.G., **Hailpern, B.T.**
United States Patent 4,730,308, March 8, 1988
Canada Patent No. 1271562-A, July 10, 1990

Transmit-Secure Non-Blocking Circuit-Switched Local Area Network
Friedman, L.G., **Hailpern, B.T.**, Hoevel, L.W., Thefaine, Y.J.
United States Patent 4,710,769, December 1, 1987
Japan Patent 62160842-A
Canada Patent 1264863-A
European Patent 229270B1, April 14, 1993

Interconnect Scheme for Shared Memory Local Networks
J. Cocke, **Hailpern, B.T.**
United States Patent 4,710,868, December 1, 1987
Europe Patent 166268
Canada Patent 1229422-A, November 17, 1987

Local Area Network Interconnect Switching System,
Blount, M.L., **Hailpern, B.T.**, Heller, R.A., Hoevel, L.W., Trivett, G.E.
United States Patent 4,633,245, December 30, 1986
UK Patent 147702-A, November 22, 1990
Japan Patent 60154749-A

TECHNICAL DISCLOSURES

File Interface for Migrating Applications to Enhanced Persistent Storage Platforms
Christensen, J., **Hailpern, B.**, Harrison, B.
IBM Technical Disclosure Bulletin **35** (1A), June 1992

Distributed Process Bulletin Board
Hailpern, B.T.
IBM Technical Disclosure Bulletin **33** (10A), March 1991

Mapping Box
Hailpern, B.T., Hoevel, L. W., Shapiro, E.
IBM Technical Disclosure Bulletin **32** (5A):37-39, October 1989

User Identification Technique for Computer System
Hailpern, B., Perry, K.J.
IBM Technical Disclosure Bulletin, Order Code 89A 63037, January 1989

Low-cost Remote Diagnostics of Computing Devices
Hailpern, B.T., Perry, K.J.
IBM Technical Disclosure Bulletin **31** (1):407-410, June 1988

Concurrent Programming in a Sequential System

Perry, K.J., **Hailpern, B.T.**

IBM Technical Disclosure Bulletin **30** (8):232-234, January 1988

Non-blocking Circuit-switched Local Area Network

Hailpern, B.T., Hoevel, L.W., Thefaine, Y.J.

IBM Technical Disclosure Bulletin **28** (12):5254-5258, May 1986

Mechanism for Secure Off-site Computer Access

Christy, G., Hack, M., **Hailpern, B.**, Hoevel L.

IBM Technical Disclosure Bulletin **27** (11):6754-6756, April 1985

Multiprocessor System to Improve Context Switching

Hailpern, B.T., Nair R.

IBM Technical Disclosure Bulletin **27** (5):2905-2907, October 1984

MEMBERSHIP IN PROFESSIONAL SOCIETIES

ACM Special Interest Group on Programming Languages (SIGPLAN)

- Past Chair, OOPSLA Steering Committee, 2002-2003
- Member, Best of PLDI Selection Committee, June 2001
- **Chair, OOPSLA Steering Committee**, 1999-2002
- Member, OOPSLA Steering Committee, 1997-2003
- Chair, Distinguished Service Award Committee, 1996
- Past Chair - July 1995 - June 1997
- **Chair** - July 1993 - June 1995
- Vice-Chair for Conferences - July 1991 - June 1993
- Treasurer - March 1990 - June 1991
- Secretary/Treasurer- July 1989 - February 1990

ACM - Association for Computing Machinery

- **Fellow**: 2004 - present; Member: 1977-2003
- **Chair, ACM Distinguished Member Selection Committee, 2015-2016**
- Chair, ACM SIG Structure Task Force, 2014
- Member, ACM SIG Retiree Task Force, 2014
- Member, ACM Distinguished Member Selection Committee, 2013-2017
- **Member, ACM Council**, 2012-2014
- Member, ACM SIG Governing Board, 2012-2014
- Member, ACM History Committee (and SIGBoard Liaison), 2008-2012
- **Associate Editor, TOPLAS, ACM Transactions on Programming Languages and Systems**, 2001-2007
- Nominating Committee Chair, ACM SIG Governing Board, 1998
- **Secretary of ACM**, July 1997 - June 1998
- Member, ACM SIGBoard Workgroup on SIG Issues, 1997
- Area Director, ACM SIGboard, June 1995 - January 1997
- Member, ACM Presidential Commission on SIG Issues, 1992
- Member, ACM SIG Discretionary Fund Review Panel, January 1991 - April 1992

CRA - Computer Research Association

- Member, Board of Directors, 2011 - 2020

IEEE - Institute of Electrical and Electronic Engineers (and IEEE Computer Society)

- **Life Fellow:** 2020 - present; Fellow: 1995 - 2020; Senior Member: 1984 - 1994; Member: 1980 - 1984
- Evaluator, Computer Society International Design Competition, 2000
- **Member of Editorial Board, Computer, IEEE Computer Society,** March 1989 - December 1992

International Federation for Information Processing Working Group 2.2 (IFIP WG 2.2):

Member, Working Group on Formal Descriptions of Programming Concepts, 1989-1995.

Phi Beta Kappa

Member (as Undergraduate, University of Denver)

Pi Mu Epsilon

Member (as Undergraduate, University of Denver)

PROFESSIONAL POSITIONS

Member, Program Committee, HOPL-IV: Conference on the History of Programming Languages (London), ACM, June 2020. (<https://hopl4.sigplan.org/committee/hopl-2020-papers-program-committee>)

Panelist, CRA Career Mentoring Workshop, CRA, February 2018

Panel Chair, "Approaches to Artificial Intelligence", Intelligent Cognitive Assistants Workshop, SRC, November 2017 (<https://www.src.org/calendar/e006378/>)

Colloquium Co-chair, 6th IBM Research Cognitive Colloquium: "Strengthening the Cognitive Partnership", IBM, September 2017

Chair, Blue Ribbon Panel, NSF Expeditions in Computing, finalist selection panel

Workshop Co-chair, Computing Community Consortium Industry Roundtable, CCC, July 2015

Conference Co-chair, CRA Snowbird 2014 Conference, CRA, July 2014

Panelist, CRA Snowbird 2014 Conference, "Refining the Computer Science Postdoc Experience", CRA, July 2014

Panelist, CI Fellows Workshop, "Navigating People and Politics the Workplace", CCC, May 2014

Workshop Chair, NorCal 2014 Database Day, April 2014

Panelist, CRA Career Mentoring Workshop, CRA, February 2014

Co-lead, NSF CISE Advisory Committee on PostDocs in Computer Science, 2013

Member, NSF Directorate for Computer and Information Science and Engineering (CISE) Advisory Committee, 2012 - 2019

Member, ACM Student Research Competition Grand Finals Selection Committee, 2009 - 2019

Member, Steering Committee, CASCON conference, February 2008-2011

Conference Co-chair, ACM SIGPLAN History of Programming Languages Conference III (San Diego), ACM, June 2007

Co-Guest Editor, IBM Systems Journal Special Issue on Model Driven Software Development, Volume 45, Number 3, July/September 2006

Member, Program Committee, ICSOC '03: First International Conference on Service Oriented Computing, UNITN, December 2003

Member, Program Committee, OOPSLA 2002 Workshop on Objects and Web Services (Seattle), ACM, November 2002

Member, Selection Committee, OOPSLA Student Research Competition (Seattle, Anaheim), ACM, November 2002 and October 2003

Track Chair, OOPSLA 2002: Web Services (Seattle), ACM, November 2002

Co-Guest Editor, IBM Systems Journal Special Issue on Software Testing and Verification, Volume 41, Number 1, February 2002

Mentor, OOPSLA 2001 Doctoral Symposium (Tampa), ACM, October 2001

Workshop Chair, OOPSLA 2001: Workshop on Object Oriented Web Services (Tampa), ACM, October 2001

Member, IBM Research Computer Science Best Paper Selection Committee, 1999-2003

Member, Program Committee, AAAI99 Symposium on Modal and Temporal Logic based Planning for Open Networked Multimedia Systems (Cape Cod), November 1999

Conference Chair, OOPSLA 99: ACM Conference on Object-Oriented Programming Systems, Languages, and Applications (Denver), ACM, November 1999

Program Chair, IBM Academy of Technology Topical Conference on Pervasive Computing (Yorktown Heights, NY), IBM, June 1998

Publicity Chair, OOPSLA 97: ACM Conference on Object-Oriented Programming Systems, Languages, and Applications (Atlanta), ACM, October 1997

Exhibits Chair, ACM Multimedia '95 (San Francisco), ACM, November 1995

Member, Program Committee, IEEE International Conference on Distributed Computing (Pittsburgh), May 1993

Member, Program Committee, HOPL-II: Conference on the History of Programming Languages (Boston), ACM, April 1993. Chair, Program Review Committee for Early Histories of Languages

Member, Program Committee, SIGPLAN 92: Conference on Programming Language Design and Implementation (San Francisco), ACM, June 1992

Conference Chair, SIGPLAN 91: Conference on Programming Language Design and Implementation (Toronto), ACM, June 1991

Member, Columbia University Center for Advanced Technology (CAT) Science Advisory Board.
1991-1992

Local Arrangements Chair, SIGPLAN 90: Conference on Programming Language Design and Implementation (White Plains), ACM, June 1990

Member, Review Panel, NSF/DARPA Joint Initiative on Formal Methods in Software Engineering, May 1990

IBM Programming Languages Technology ITL Steering Committee (member: 1988-1993, chair: 1989-1992)

Session Coordinator, Object-Oriented Programming, with Peter Wegner. Twenty-first Hawaii International Conference on System Sciences (Kona, Hawaii). IEEE Computer Society, January 1988. Coordinator's introduction, volume 2, pages 365-366

Program Chair, Twenty-sixth Annual Lake Arrowhead Workshop: How Will We Specify Concurrent Systems in the Year 2000? Western Committee of the IEEE, Lake Arrowhead, California, September 1987

Session Coordinator, Languages and Language Technology. Twentieth Hawaii International Conference on System Sciences (Kona, Hawaii). Coordinator's introduction, volume 2, pages 225-226. Western Publications, January 1987

Session Coordinator, Multiparadigm Languages and Environments. Nineteenth Hawaii International Conference on System Sciences (Honolulu). Western Publications, January 1986. Coordinator's introduction, volume 2, pages 175-178