# Ike Nassi

Curriculum Vitae

09-Feb-2023

***Video Oral History* & *Transcript***


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|---|---|---|
| Computer Science Department | Work: | +1-831-459-1898 |
| University of California, Santa Cruz | Home: | +1-408-395-0376 |
| 1156 High Street | Mobile: | +1-408-390-8281 |
| Santa Cruz, CA 95064 | | |
| Former Founder, Chair, CTO, TidalScale | Now part of HPE | |
| https://www.soe.ucsc.edu/people/inassi | Email: | inassi@ucsc.edu |
| http://www.nassi.com | Email: | nassi@nassi.com |
| http://people.csail.mit.edu/nassi/ | Email: | inassi@mit.edu |


## Education

Stony Brook University:

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|---|---|---|
| 1970 | BS | Mathematics |
| 1972 | MS | Computer Science |
| 1974 | Ph.D. | Computer Science |

## Academic and Industry Positions

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|---|---|
| 2012-2022 | **TidalScale, Inc.** |
| 2012-2016 | Founder, CEO, Director |
| 2016-2022 | Founder, CTO, Chairman (sold to HPE) |
| 2011-present | **UC Santa Cruz,** Adjunct Professor, Computer Science & Engineering |
| 2005-2011 | **SAP AG (Executive VP and Chief Scientist)** |
| 2005-2007 | Senior Vice President, Head of Research, North America |
| 2005-2007 | co-Head, SAP Global Research |
| 2006-2009 | Head of Research, North America and China |
| 2007-2011 | Executive Vice President and Chief Scientist |
| 2008-2010 | Head of Global Business Incubator |
| 2006-2011 | Head of Sponsored Academic Research |
| 2010-2011 | Head of Technology Infrastructure Practice, SAP Research |
| 2001-2005 | **Firetide, Inc.**, Founder, Chairman (Sold to Unicom Global) |
| 2001-2002 | CEO, CTO, Head of Product Operations, Chairman of the Board |
| 2003-2004 | CTO, Executive Vice President Product Operations, Chairman |

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| 2004-2005 | CTO, Member of the Board |
| 2000-2001 | **Cisco Systems** (through acquisition of InfoGear)<br>Director of Engineering, Managed Appliances and Services Business Unit |
| 1997-2000 | **InfoGear Technology** – CTO & Executive Vice President, Product Operations |
| 1989-1996 | **Apple Computer, Inc.** |
| 1989-1993 | Advanced Technology Group, Director of Engineering<br>Founder, Advanced Technology Lab, Cambridge, MA |
| 1993-1994 | Vice President, Development Products, Cupertino, CA |
| 1994-1995 | Vice President, System Software |
| 1995-1996 | Senior Vice President, AppleSoft, Corporate Officer |
| 1984-1989 | **Encore Computer, Inc.** |
| 1984-1986 | Vice President, Languages and Tools |
| 1986-1989 | Vice President, Research |
| 1985-1989 | DARPA Principal Investigator |
| 1983-1984 | **Visual Technology, Inc.**, Vice President, Software |
| 1982-1983 | **Ontel Corporation**, Vice President, Engineering |
| 1976-1982 | **Digital Equipment Corporation** |
| 1976-1977 | Sr. Software Engineer and Manager, Languages and Tools |
| 1977-1982 | Consulting Engineer & Manger Corporate Research |
| 1974-1976 | **SofTech, Inc.**, Principal Software Engineer |

**Academics**

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|---|---|
| 2020-present | **UC Santa Cruz,** Center for Research in Storage Systems SSRC/CRSS |
| 2020-present | **UC Santa Cruz,** Languages, Systems, Distributed Systems Lab LSD |
| 2015-present | **UC Santa Cruz,** Center for Research in Open Systems Software CROSS |
| 2011-present | **UC Santa Cruz,** Adjunct Professor, Computer Science |
| 2010-present | **MIT Computer Science and Artificial Intelligence Lab,**<br>Research Affiliate, |
| 2008-1011 | **MIT Sloan School, Center for Digital Business**, Advisory Board |
| 2009-2010 | **MIT Computer Science and Artificial Intelligence Lab,**<br>Visiting Scientist |
| 1997-1997 | **University of California, Berkeley,** Visiting Scholar, EECS, |
| 1994-1996 | **Stanford University,** Visiting Scholar, Computer Science, |
| 1990-1993 | **MIT Laboratory for Computer Science,** Research Affiliate, |
| 1974-1979 | **Boston University**, Met. College, Computer Science, Instructor, |

1972-1973 **SUNY Farmingdale**, Instructor, Data Processing**,**

**Boards of Directors, Advisory Boards & Committees**

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| 1995-present | **Computer History Museum, Founding Trustee**, serving in a variety of roles including Chairman Fellows Selection Committee, Executive Committee, Nominating and Governance Committee |
| 2019-present | **TTI/Vanguard** (Think Tank) Advisory Board |
| 2008-present | **IEEE Computer Society**, Industry Advisory Board |
| 2012-2015 | **SkyEra**, Advisory Board |
| 2012-2015 | **Watermark**, Advisory Board |
| 2008-2011 | **Northwestern University**, EE&CS Advisory Board |
| 2009-2011 | **Stony Brook University,** Advisory Board Center for Wireless and Information Technology (CEWIT) |
| 2008-2011 | **Peking University**, Advisory Board, School of Engineering |
| 2009-2015 | **Firetide, Inc.,** Senior Advisor |
| 2001-2016 | **Viewpoints Research Institute (Alan Kay)** Advisor |
| 2009-2011 | **Anita Borg Institute for Women and Technology**, Trustee |
| 2006-2007 | **University of Arizona**, Eller School of Management, Advisory Board |
| 1989-1995 | **DARPA Information Systems and Technology Board** |
| 1995-1996 | **Taligent, Inc.,** Board of Directors, - Joint Venture, IBM and Apple |
| 1990's | **Component Integration Laboratories,** Board of Trustees, |
| 1980's-1990's | **Computer Museum (Boston)**, Board of Overseers |
| 1990's | **U.S. Council on Competitiveness**, **Technical Advisory Committee, Federal Networking Council Advisory Committee** |

**Independent Consulting**

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| 2001-2002 | **Required Technology, Inc.** (columnar databases) |
| 2001-2002 | **Replicus Software, Inc.** (distributed mesh file systems) |
| 2001-2003 | **Allegis Capital, Inc.** Entrepreneur in Residence (venture capital) |
| 2001-2003 | **Vanguard Ventures** (venture capital) |
| 2002-2003 | **PalmSource, Inc.** (operating systems for handheld devices) |

**Patents:**

| | Company | Country | Inventor(s) | Patent # | Grant Date | Title |
|---|---|---|---|---|---|---|
| 1 | FireTide | PCT | Keith Stuart Klemba, Isaac Robert Nassi, David Neil Cornejo, Lawrence Alan Rosenthal | 100425 | 11/18/04 | Dynamic Adaptive Inter-Layer Control of Wireless Data Communication Networks |

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|---|---|---|---|---|---|---|
| 2 | FireTide | US | Keith Stuart Klemba, Isaac Robert Nassi, David Neil Cornejo, Lawrence Alan Rosenthal | 7305459 | 12/4/07 | Wireless Service Point Networks |
| 3 | FireTide | US | Keith Stuart Klemba, Isaac Robert Nassi, David Neil Cornejo, Lawrence Alan Rosenthal | 7522731 | 4/21/09 | Wireless Service Points Having Unique Identifiers for Secure Communications |
| 4 | SAP | US | Asuman Suenbuel, Ike Nassi | 8108234 | 1/31/12 | System and Method for Deriving Business Processes |
| 5 | SAP | US | Yuecel Karabulut, Isaac Nassi | 8843415 | 9/23/14 | Secure Software Service Systems and Methods |
| 6 | TidalScale | USA | Isaac R. Nassi | 9191435 | 11/17/15 | Selective Data Migration Or Remapping Of Virtual Processors To Provide Required Data Accessibility To Processor Cores |
| 7 | TidalScale | USA | Isaac R. Nassi | 9609048 | 3/28/17 | Resource Request And Transfer In A Multi-Node Distributed System |
| 8 | TidalScale | USA | Isaac R. Nassi | 10187452 | 1/22/19 | Hierarchical Dynamic Scheduling |
| 9 | TidalScale | USA | Isaac R. Nassi | 10205772 | 2/12/19 | Selective Resource Migration |
| 10 | TidalScale | USA | Isaac R. Nassi, Kleoni Ioannidou, David P. Reed, I-Chun Fang, Michael Berman, Mark Hill, Brian D. Moffet | 10353736 | 7/16/19 | Associating Working Sets And Threads |
| 11 | TidalScale | S. Korea | Isaac R. Nassi, David P. Reed | 10-2051282 | 11/27/19 | Network Attached Memory Using Selective Resource Migration |

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| 12 | TidalScale | Japan | Isaac R. Nassi, David P. Reed | 6652646 | 1/27/20 | Network Attached Memory Using Selective Resource Migration |
| 13 | TidalScale | USA | Isaac R. Nassi, Mark Hill, I-Chun Fang, Kleoni Ioannidou | 10579421 | 3/3/20 | Dynamic Scheduling Of Virtual Processors In A Distributed System |
| 14 | TidalScale | USA | Isaac R. Nassi, Kleoni Ioannidou, Michael Berman, Mark Hill, Brian D. Moffet, Jeffrey Paul Radick, David P. Reed, Keith Reynolds | 10579274 | 3/3/20 | Hierarchical Stalling Strategies For Handling Stalling Events In A Virtualized Environment |
| 15 | TidalScale | USA | Isaac R. Nassi | 10623479 | 4/14/20 | Selective Migration Of Resources Or Remapping Of Virtual Processors To Provide Access To Resources |
| 16 | TidalScale | USA | Isaac R. Nassi, Kleoni Ioannidou, Brian D. Moffet, Michael Berman, David P. Reed | 10620992 | 4/14/20 | Resource Migration Negotiation |
| 17 | TidalScale | USA | Isaac R. Nassi | 10645150 | 5/5/20 | Hierarchical Dynamic Scheduling |
| 18 | TidalScale | Germany | Isaac R. Nassi, David P. Reed | 602016037237.1 | 5/27/20 | Network Attached Memory Using Selective Resource Migration |
| 19 | TidalScale | European | Isaac R. Nassi, David P. Reed | 3356936 | 5/27/20 | Network Attached Memory Using Selective Resource Migration |
| 20 | TidalScale | France | Isaac R. Nassi, David P. Reed | 3356936 | 5/27/20 | Network Attached Memory Using Selective Resource Migration |
| 21 | TidalScale | UK | Isaac R. Nassi, David P. Reed | 3356936 | 5/27/20 | Network Attached Memory Using Selective Resource Migration |
| 22 | TidalScale | USA | Isaac R. Nassi, Kleoni Ioannidou, David P. Reed, I- | 10783000 | 9/22/20 | Associating Working Sets And Threads |

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|---|---|---|---|---|---|---|
| | | | Chun Fang, Michael Berman, Mark Hill, Brian D. Moffet | | | |
| 23 | TidalScale | USA | Isaac R. Nassi, David P. Reed, Mark Hill | 10817347 | 10/27/20 | Entanglement Of Pages And Guest Threads |
| 24 | TidalScale | USA | Isaac R. Nassi, Kleoni Ioannidou, Michael Berman, I-Chun Fang, Mark Hill, Brian D. Moffet, Jeffrey Paul Radick, David P. Reed, Keith Reynolds | 11023135 | 6/1/21 | Handling Frequently Accessed Pages |
| 25 | TidalScale | USA | David P. Reed, Isaac R. Nassi, Gary Smerdon | 11050620 | 6/29/21 | Dynamic Reconfiguration Of Resilient Logical Modules In A Software Defined Server |
| 26 | TidalScale | Japan | Isaac R. Nassi, Kleoni Ioannidou, David P. Reed, I-Chun Fang, Michael Berman, Mark Hill, Brian D. Moffet | 6924820 | 8/4/21 | Associating Working Sets And Threads |
| 27 | TidalScale | USA | Isaac R. Nassi | 11159605 | 10/26/21 | Hierarchical Dynamic Scheduling |
| 28 | TidalScale | China | Isaac R. Nassi, David P. Reed | ZL201680069485.7 | 11/16/2021 | Network Attached Memory Using Selective Resource Migration |
| 29 | TidalScale | USA | David P. Reed, Isaac R. Nassi, Pete Jarvis | 11175927 | 11/16/2021 | Fast Boot |
| 30 | TidalScale | USA | Isaac R. Nassi, David P. Reed | 11240334 | 2/1/22 | Network Attached Memory Using Selective Resource Migration |
| 33 | TidalScale | USA | Leon Dang, Keith Reynolds, Ike Nassi | 11275600 | 3/15/22 | Virtualized I/O |
| 32 | TidalScale | USA | Isaac Nassi, Ioannidou, | 11403135 | 8/2/22 | Resource Migration Negotiation |

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| | | | Moffet, Berman, Reed | | | |
| 33 | TidalScale | USA | David Reed, Isaac Nassi | 11487451 B2 | 11/01/22 | Fast Restart Of Large Memory Systems |
| 34 | TidalScale | USA | Isaac Nassi, Hill, Fang, Ioannidou | 11513836 | 9/14/22 | Scheduling Resuming Of Ready to Run Virtual Processors in a Distributed System |
| 35 | TidalScale | USA | Isaac R. Nassi et al | 11449233 | 9/20/22 | Hierarchical Stalling Strategies For Handling Stalling Events In A Virtualized Environment |

**Sponsoring and Participating in New Sponsored SSRC/CRSS UCSC Project:**

Linux Optimizations for Distributed Virtual Machines – joint with CSE Prof. Andrew Quinn

**Awards & Honors**

2022 **Fellow of the IEEE and Senior Life Member**
2021 **ACM Life Member**
2005 **Distinguished Graduate Alumni**, Computer Science Department, Stony Brook University
1995 **Certificate of Appreciation**, DARPA Information Science and Technology Study Group
1991 **US House of Representatives**, Testimony, Emerging Technologies Act of 1991
1983 **Certificate for Distinguished Service,** US Department of Defense

**Student Ph.D. Committees:**

Austin Barker **UCSC**– Advisor Prof. Darrell Long
Title: "Artemis: A Stenographic File System"

Mevlut Demers **UT San Antonio** – Advisor: Prof. Jeff Prevost
A Complete, Automated and Scalable Framework for Science And Engineering

Michael Sevilla **UCSC –** Advisor: Prof. and Vice Chancellor Research, Scott Brandt
*"Scalable Global Name Spaces with Programmable Storage"*

Dimitris Skourtis **UCSC** – Advisor: Prov. and Vice Chancellor Research, Scott Brandt
*"Providing Predictable Performance in Flash and Black-box Storage"*

David L. Black **CMU** – Advisor: Rick Rashid.
"*Scheduling Support for Concurrency and Parallelism in the Mach Operating System"*

**Recent Course Participation:**

**2021 Winter and Spring CSE 13S Systems Programming and C** (Prof. Darrell Long)
**2021 Winter and Spring CSE 138 Distributed Systems** (Prof. Lindsay Kuper)

**Research Funding:**

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| 2021-present | **TidalScale** – Membership IAB for CRSS, **$15,000** |
| 2011-present | **SAP** – Performance Analysis for Big Data, **$200,000** |
| 1986-1989 | **DARPA** – Hierarchically Structured Multiprocessors, **$23,500,000** |

**Publications (Isaac Nassi | I. Nassi | Ike Nassi | IR Nassi):**

(See all papers at https://nassi.com/speaking-engagements.html)

## Technical Publications

- Motivations behind TidalScale
- Scalable Computing Systems for Future Smart Cities
- Cache is indeed king TidalScale Blog Post
- Revisiting Scalable Coherent Shared Memory, Bell and Nassi, IEEE Computer, Special Issue: Outlook 2018, January 2018
- Scaling the Computer to the Problem: Application Programming with Unlimited Memory, IEEE Computer, August 2017
- SupMR: Circumventing Disk and Memory Bandwidth Bottlenecks for Scale-up MapReduce, Sevilla, Michael; Nassi, Ike, Ioannidou, Kleoni; Brandt, Scott; Maltzahn, Carlos, 2014 IEEE International Parallel & Distributed Processing Symposium Workshops, May 2014
- Mantle: A Programmable Metadata Load Balancer for the Ceph File System, Supercomputer 15, Michael Sevilla, Carlos Maltzahn, Ike Nassi, Scott Brandt, Sage Weil, Greg Farnum, Sam Fineberg
- A Framework for an In-depth Comparison of Scale-up and Scale-out, Mike Sevilla, Ike Nassi, Kleoni Ioannidou, Scott Brandt, Carlos Maltzahn, DISCS-2013: Proceedings of the 2013 International Workshop on Data-Intensive Scalable Computing Systems
- Transactional Intent, Shel Finkelstein, Thomas Heinzel, Rainer Brendle, Ike Nassi, and Heinz Roggenkemper, 5th Biennial Conference on Innovative Data Systems Research (CIDR '11), January 2011
- Y. Karabulut and I. Nassi: Secure Enterprise Service Consumption for SaaS Technology Platforms, 1st IEEE Workshop on Information and Software as Services, Shangai, China, March 2009,
- The Challenges of Application Service Hosting, Ike Nassi, Joydip Das, and Ming-Chien Shan, Lecture Notes in Computer Science, Springer Verlag 4607/2007, Web Engineering, Pages 545-549.
- Secure Scripting Based Composite Application Development: Framework, Architecture, and Implementation by Dinkelaker, Johnstone, Karabulut, and Nassi. In Proceedings of the 3rd International Conference on Collaborative Computing: Networking, Applications, and Worksharing, sponsored by the IEEE Computer Society, et al. New York, Nov. 12-15, 2007.
- Government Agency Interoperation in Security Applications by N. Adams et al, Chapter 14, Handbooks in Information Systems Volume 2, National Security. Elsevier 2007. Edited by H. Chen et al.

- Semantics-based Threat Structure Mining, Adam et al, Proceedings of the 2006 international conference on Digital Government Research
- Preface to the book "Dylan, An Object Oriented Dynamic Language". Apple Computer Inc. (1992).
- Symmetric Parallel Processing, w/ Ilya Gertner, in the book "Aerospace Software Engineering", Chris Anderson, ed. Volume 136 Progress in Astronautics and Aeronautics (1991)
- A Preliminary Report on the UltraMax, DARPA Conference on Mathematical and Scientific Computing, 1987, (Syracuse University)
- An Analysis of Continuous Time Simulation on a Shared Memory Multiprocessor, with S. Mainwaring, Encore Technical Report 87-001
- The Encore Multimax: A Multiprocessor Computing Environment, with Moore, O'Neil, Siewiorek, in 32-Bit Microprocessors, Nikkei Datapro Books II (1986)
- The Encore Continuum: A Complete Distributed Workstation-Multiprocessor Computing Environment, with G. Bell, H. Burkhardt, S. Emmerich, A. Anzelmo, R. Moore, D. Schanin, and C. Rupp, Proceedings of the National Computer Conference, AFIPS Vol. 54, pp. 147-155, 1985
- Liberty Net, An Architectural Overview, IEEE Compcon, 1982
- What is Ada?, with R. Brender, June 1981 IEEE Computer
- A Critical Look at the Process of Tool Development: An Industrial Perspective, in Software Development Tools, Riddle and Fairley (eds.), Springer Verlag, 1980
- Efficient Implementation of Ada Tasks, with A. N. Habermann, DEC Technical Report, 1980 (Tech. Rept. CMU-CS-81-147, Carnegie Mellon University, Pittsburgh, PA, June, 1981)
- VAX-11 Software Engineering Manual, January 1977
- Operational Equivalence and a Hierarchy of Control Languages, Eighth Annual Princeton Systems Conference on Information Sciences and Systems, 1974
- Nassi, I.R. and Akkoyunlu, E.A. "Verification Techniques for a hierarchy of Control Structures", Technical Report #26, Dept. of Computer Science, SUNY Stony Brook, January 1974, 48 pp
- Structured Flowcharts, with B. Shneiderman, SIGPLAN Notices, 1973

## Invited **Conference Presentations and Panel Discussions:**

- The Practical Advantages of Distributed Virtual Machines and How They Work (UCSC LSD Seminar) 2023-02-03
- Using a Scaled-up Software-Defined Server as an Alternative to Scaling Out (IEEE Computer Society Industry Spotlight)
- TTI/VScale Up or Scale Out? (TTI/Vanguard) 2021-09-21
- Insights and Motivations for TidalScale (video)
- The Importance of In-Memory Computing (video)
- Invited Presentation: In- and Near-Memory Computing Paradigms, Software Defined Servers, 2019 Design Automation Conference, Las Vegas Convention Center; 2019-June
- Seminar on Software-Defined Servers, ETRI, Daejeon, South Korea; 2019-May (with pictures)
- Invited Keynote Presentation: Software Defined Servers, Multicore and Multiprocessor SOCs Forum 2018
- Blog: Achieving Painless Reliability: An Alternate Approach 2018-05
- Blog: Predicting Yesterday's Weather (2017-05)

- How to Build a Software-Defined Server, and How Best to Use it, invited presentation, Supercomputing Frontiers Conference 2017, Singapore
- Comparing a Virtual Supercomputer with a Cluster for Spark in-memory Computations, Machine Learning Converence 2016 New York, April 2016
- Advances in Virtualization In Support of In-Memory Big Data Applications, Faculty Colloquium, Computer Science Department, SUNY Stony Brook
- Advances in Virtualization In Support of In-Memory Big Data Applications, HTPS September 2015
- Software-Scaled Computing: Resizing the Computer to Fit the Application, TTI-Vanguard "Reprogramming Programming", 2014-09-30, Washington DC,
    - (video of pesentation@YouTube)
- The Emergence of Data Science, Why Now?, Baskin School of Engineering, UC Santa Cruz,, October, 2013
- A Framework for an In-depth Comparison of Scale-up and Scale-out, Michael Sevilla, Ike Nassi, Kleoni Ioannidou, Scott Brandt and Carlos Maltzahn, The 2013 International Workshop on Data-Intensive Scalable Computing Systems (DISCS-2013) November 18, 2013
- MITRE Corporation, "Enterprise Supercomputers", McLean VA & Bedford MA (telecast), October 13, 2011
- TTI/Vanguard, "Real" Real Time Conference, Enterprise Supercomputers, Paris, July 12, 2011
- SAP Closing keynote, SAP Research Day, July 5, 2011, Catching the Wave: Tackling the Inflection Point in Enterprise Computing
- Microsoft Research on Enterprise Supercomputers, June 17, 2011
- MIT/CSAIL on Enterprise Supercomputers, June 1, 2011
- MIT/Sloan on Enterprise Supercomputers, June 1, 2011
- Invited Keynote Presentation -Third Symposium of the HyperTransport™ Center of Excellence Mannheim, February 8-9th, 2011
- Transactional Intent with Shel Finkelstein, Thomas Heinzel, Rainer Brendle, Ike Nassi and Heinz Roggenkemper. 5th Biennial Conference on Innovative Data Systems Research (CIDR '11) January 9-12, 2011, Asilomar, California, USA.
- Invited presentation - It's Groundhog Day all over again! JHTC, July 13, 2010
- End-to-End Confidentiality for a Message Warehousing Service Using Identity-Based Encryption Yuecel Karabulut, Harald Weppner, Ike Nassi, Anusha Nagarajan, Yash Shroff, Nishant Dubey, Shields, ICDE Workshops 2010
- Invited Keynote Presentation - Web Services: Meeting the Software Challenge of Future HW and Global Business Trends (July 11 2007) 2007 IEEE Congress on Services (Joint Conference: IEEE International conference on Web Services (ICWS 2007) and IEEE International Conference on Services Computing (SCC 2007))
- Panel Discussion - Innovating with Partners in China: Negotiation, Collaboration, and IP Strategies for New Product Development (March 28-29, 2007) The Management Roundtable (http://www.ManagementRoundtable.com)

- Induction of Alan Kay into the Computer Resellers News Hall of Fame (November 2006)
- Issues in Wireless Mesh Networking, Distinguished Alumni Lecture, 35th Anniversay of the Founding of Stony Book University's Computer Science Department (May 2005)
- The Advantage of Invisibility and Cooperation in Wireless Mesh Networks, IEEE 802.11 TGs, Atlanta (March 2005)
- "Wireless Mesh Networks", Red Herring 100 conference, Monterey (December 2004)
- Panel: Wireless Mesh Networks, WiFi Planet conference, San Jose (November 2004)
- Panel: Wireless Mesh Networks, Next Generation Networks (November 2004)
- Webinar (Unstrung): Introduction to Wireless Mesh Networks (July 2004)
- Webinar: (Unstrung): Wireless Mesh Networks (June 2004)
- Panel: "Putting HotSpots to Work", CeBIT America (May 2004)
- Panel on Mesh Networking, Eye for Wireless Conference, San Francisco (April 2004)
- Emergence of Wireless Mesh Networking, O'Reilly Emerging Technology Conference, San Diego (February 2004)
- Panel on Wireless Mesh Networking, WiFi Planet, December 2003
- The Emergence of Wireless Local Area Mesh Networks, TTI Vanguard Conference on Resiliency, Brussels (July, 2002)
- Embedded Process Forum, panel on Internet Appliances (June, 2000)
- Spring Internet World (1998)
- Fortune Magazine Information Technology Conference, panel on Internet Appliances(1998)
- PC-Expo (1998)
- Apple Technology Forum, Beijing (1994)
- Apple WorldWide Developers Conference (1994, 1995, 1996)
- IBM T.J. Watson Research Center (March 1993)
- Rochester Apple Developer's Association (January 1993)
- Bay Area MADA (May, 1992)
- Invited Presentation on Advanced Technology at Apple (1992), Harvard Business School
- U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance. Testimony on HR 531, "Emerging Telecommunications Act of 1991" (March 12, 1991)
- Boston Computer Society Mac MegaMeeting (1990)
- C-3 Technology Assessment Conference, Defense Communications Agency and the National Security Industrial Association (1989)
- SDIO Parallel Processing Users Group (1987, 1988)
- San Diego SIGAda (1988)
- Bay Area SIGAda (1988)
- Colloquium, Iowa State University (1989)
- Boston SICPLAN (1987)
- National Computer Conference (1987)
- Issues in Wireless Mesh Networking, Distinguished Alumni Lecture, 35th Anniversay of the Founding of Stony Book University's Computer Science Department (May 2005)

- The Advantage of Invisibility and Cooperation in Wireless Mesh Networks, IEEE 802.11 TGs, Atlanta (March 2005)
- "Wireless Mesh Networks", Red Herring 100 conference, Monterey (December 2004)
- Panel: Wireless Mesh Networks, WiFi Planet conference, San Jose (November 2004)
- Panel: Wireless Mesh Networks, Next Generation Networks (November 2004)
- Webinar (Unstrung): Introduction to Wireless Mesh Networks (July 2004)
- Webinar: (Unstrung): Wireless Mesh Networks (June 2004)
- Panel: "Putting HotSpots to Work", CeBIT America (May 2004)
- Panel on Mesh Networking, Eye for Wireless Conference, San Francisco (April 2004)
- Emergence of Wireless Mesh Networking, O'Reilly Emerging Technology Conference, San Diego (February 2004)
- Panel on Wireless Mesh Networking, WiFi Planet, December 2003
- The Emergence of Wireless Local Area Mesh Networks, TTI Vanguard Conference on Resiliency, Brussels (July, 2002)
- Embedded Process Forum, panel on Internet Appliances (June, 2000)
- Spring Internet World (1998)
- Fortune Magazine Information Technology Conference, panel on Internet Appliances(1998)
- PC-Expo (1998)
- Apple Technology Forum, Beijing (1994)
- Apple WorldWide Developers Conference (1994, 1995, 1996)
- IBM T.J. Watson Research Center (March 1993)
- Rochester Apple Developer's Association (January 1993)
- Bay Area MADA (May, 1992)
- Invited Presentation on Advanced Technology at Apple (1992), Harvard Business School
- U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance. Testimony on HR 531, "Emerging Telecommunications Act of 1991" (March 12, 1991)
- Boston Computer Society Mac MegaMeeting (1990)
- C-3 Technology Assessment Conference, Defense Communications Agency and the National Security Industrial Association (1989)
- SDIO Parallel Processing Users Group (1987, 1988)
- San Diego SIGAda (1988)
- Bay Area SIGAda (1988)
- Colloquium, Iowa State University (1989)
- Boston SICPLAN (1987)
- National Computer Conference (1987)

## Recent Interviews

- Interview on Phoenix TV (China)
- Q&A: The Digital World Is the Real World
- When RFID Is Everywhere, How Will You Cope

**Products:**

1. BCPL compiler for PDP-15
2. Jovial/J3B compiler for IBM 4Pi/AP 101 (special project)
3. Jovial/J3B avionics compiler for Litton 4516D (used in the B-1 bomber)
4. Jovial/J3b avionics compiler for Delco Magic 362F (used in the F-16 fighter)
5. Vax-11 Software Engineering Manual w/ Transportability Guidelines
6. Vax-11 Bliss Compiler
7. Bliss for PDP-10/20
8. Bliss for PDP-11
9. Vax-11 Debug
10. Vax-11 Runoff
11. Bliss Pretty-Print
12. Vax-11 Autodial
13. Vax-11 Ada Compiler
14. Vax-11 Ada multithreaded run-time system
15. Vax-11 String instruction definitions
16. Vax-11 Run Time Library
17. Ontel Terminal Emulator
18. Ontel Amigo Personal Computer, CPM-80
19. Visual Technology CPM-80 Personal Computer
20. Visual Technology PC-DOS Portable Computer
21. Visual Technology Multi-user Xenix System
22. Encore Resolution R-100 Graphics Terminal
23. Encore Fortran compiler
24. Encore Pascal compiler
25. Encore C compiler
26. Encore Multimax Shared Memory Multiprocessor
27. Encore Ada
28. Encore Parallel Debugger (Parasight)
29. Encore Parallel Ada
30. Encore Ultramax Hierarchical Shared Memory Multiprocessor
31. Rely-Drive High Capacity Disk Subsystem for Mac Plus
32. Macintosh Common Lisp
33. Macintosh Dylan

34. Macintosh MPW (developer tools suite)
35. Macintosh Apple InterConnection Kit (AICK – pronounced “Ike”)
36. Mac-Mach (Mach on PowerPC Macintosh)
37. Mac OS Releases (various releases on Motorola 68K and PowerPC 7.5/7.6/7.8, etc.)
38. InfoGear iPhone
39. InfoGear iPhone-2
40. InfoGear/Cisco Voyager (unreleased wireless webpad)
41. Firetide indoor wireless mesh router (various versions)
42. Firetide outdoor wireless mesh router (various versions)
43. SAP Enterprise Supercomputer (shared memory multiprocessor)
44. SAP Enterprise Supercomputer (tightly coupled multiprocessor)
45. TidalScale Hyperkernel (various versions)