

## **Andries van Dam**

### **Curriculum Vitae**

**Thomas J. Watson, Jr. University Professor of Technology and Education and  
Professor of Computer Science**

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### **Education**

B.S. Engineering Sciences (with Honors), Swarthmore College, 1960

M.S. Electrical Engineering, Moore School of Electrical Engineering,  
University of Pennsylvania, 1963

Ph.D. Electrical Engineering, Moore School of Electrical Engineering,  
University of Pennsylvania, 1966

Dissertation topic: A Study of Digital Processing of Pictorial Data

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### **Research Interests**

My research has concerned computer graphics, hypermedia systems, post-WIMP user interfaces, including pen-centric computing, and educational software. I have been working for four decades on systems for creating and reading electronic books with interactive illustrations for use in teaching and research.

### **Professional Appointments**

**2002-2006** Vice President for Research, Brown University

**1995-** Thomas J. Watson, Jr. University Professor of Technology and Education Chair

**1995-1998** Director, National Science Foundation Science & Technology Center for  
Computer Graphics and Scientific Visualization

**1992-1995** L. Herbert Ballou University Professor Chair

- 1980-1986** Visiting Scientific Associate, CERN, Geneva, Switzerland
- 1979-** Professor of Computer Science, Brown University
- 1979-1985** Chairman, Department of Computer Science, Brown University
- 1978-1979** Sabbatical Leave, Visiting Professor, University of Geneva, and Scientific Associate, CERN, Geneva, Switzerland
- 1976-1979** Professor of Computer Science and Applied Mathematics, Brown University  
Chairman, Program in Computer Science, Brown University
- 1975-1977** Adjunct Visiting Professor, University of Rhode Island (to teach in-house courses on Computer Graphics at Naval Underwater Systems Center, New London and Newport, Rhode Island)
- 1972-1976** Professor of Applied Mathematics, Brown University
- 1971-1972** Sabbatical Leave, Visiting Professor, University of Nijmegen, Nijmegen, Netherlands
- 1968-1972** Associate Professor of Applied Mathematics, Brown University
- 1965-1968** Assistant Professor of Applied Mathematics, Brown University

## **Consultancies**

- 2011-** Quinn Emanuel, expert witness in patent litigation, Apple vs. Samsung
- 2008-2011** Director, Board of Directors, GyPSii
- 2007-** Consulting scientist, Microsoft Research
- 2007-2011** Member, Technical Advisory Board, GyPSii
- 2005** Vincent and Elkins, Kenyon and Kenyon, expert witness consulting for Tecmo
- 2000-2001** Chairman, Technical Advisory Board, E-Quill  
Member, Board of Directors, Synomics  
Chairman, Technical Advisory Board, ThinkShare
- 1999-2005** Member, Board of Directors, ContextMedia, Providence, RI
- 1998** Technical advising, Phoam
- 1997-1999** Chairman of the Board, Turbine Entertainment, Inc., Providence, RI
- 1996-1999** Chairman of the Board, Numinous Technologies Incorporated, Seattle, WA
- 1995** Technical Advisory Board, Peer Group Systems, Inc. (*PGSI*), Seattle, Washington.
- 1994** Brown and Baine, expert witness for Autodesk in a trade secret litigation
- 1993-2003** Member, Technical Advisory Board, Fraunhofer Center for Research in Computer Graphics, Inc., Providence, RI and Darmstadt, Germany
- 1992-1994** Member, Technical Advisory Board, Ithaca Software (Autodesk), Alameda, CA
- 1992-2007** Member, Technical Advisory Board, and consultant, Microsoft Corporation,

Redmond, WA

**1990-1993** Chairman, Technical Advisory Board, ShoGraphics, Mountain View, CA  
Member, College of Computing National Advisory Board, Georgia Institute of Technology, Atlanta, GA

**1990-1991** Chairman, Technical Advisory Board, Prime Computer, Inc., CAD Division, Bedford, MA

**1990-1992** Co-founder, Chief Scientist, and Chairman of Technical Advisory Board Electronic Book Technologies, Providence, RI

**1988-1992** Chief Scientist, BLOC Development, Coral Gables, FL

**1987-1988** Cravath, Swaine and Moore, expert witness for IBM in a patent litigation

**1986-1988** Member, Technical Advisory Board, Context Corp., Beaverton, OR

**1985-1988** Senior Scientist and Chairman of Technical Advisory Board, Stardent Computer, Newton, MA

**1985-1987** Consulting Scientist, CADRE Technology, Providence, RI

**1984-1986** Member, Scientific Advisory Board, Metagraphics, Woburn, MA

**1983-1985** IBM World Trade Americas/Far East Corporation, North Tarrytown, NY

**1982-1986** Member, Electronic Systems Board, Gould, Rolling Meadows, IL

**1981-1983** CIT ALCATEL, Paris, France

**1980-1988** President, van Dam, Inc.

**1980-1985** Exxon Research and Engineering Division, Florham Park, NJ

**1980-1981** Summagraphics, Bridgeport, CT

**1978-1979** Prime Computer, Inc., Framingham, MA  
Bobst Graphic, Lausanne, and Hermes Precisa, Yverdon, Switzerland

**1977-1978** Department of the Army

**1975-1979** Software Laboratory, Raytheon Submarine Signal Division, Portsmouth, RI

**1975-1977** Naval Research Laboratory, Washington, DC

**1971-1977** Information Systems and Automation Division, Phillips Corp., Eindhoven, Netherlands

**1970-1988** President, Text Systems, Inc., Barrington, RI

**1970-1975** General Motors Research Center, Warren, MI

**1970-1972** Government Intelligence Community, Washington, D

**1970** Director, NCSS Providence Research Center

**1965-1966** Leeds and Northrup, PA

**1961-1962** RCA, Cherry Hill, NJ

## Publications

### Books and NRC Reports

#### 2012

- **[Hughes et al. 2012]** John F. Hughes, Andries van Dam, Morgan McGuire, David Sklar, James Foley, Steven Feiner, and Kurt Akeley. Computer Graphics: Principles and Practice, Third Edition, Pearson Education, to be published in 2012.

#### 2005

- **[Sanders & van Dam 2005]** Kathryn E. Sanders and Andries van Dam. Object-Oriented Programming in Java: A Graphical Approach, Addison-Wesley, 2005.

#### 2001

- **[Earnshaw et al. 2001]** Rae Earnshaw, Richard Guedj, Andries van Dam, and John Vince (Eds.). Frontiers of Human-Centered Computing, OnLine Communities and Virtual Environments. Springer Verlag, London, 2001.

#### 1999

- **[Snyder et al. 1999]** Lawrence Snyder, Alfred V. Aho, Marcia C. Linn, Arnold H. Packer, Allen B. Tucker Jr., Jeffrey D. Ullman, and Andries van Dam. "Being Fluent with Information Technology", Report of the Committee on Information Technology Literacy, Computer Science and Telecommunication Board of the National Research Council, National Academy Press, 1999.

#### 1995

- **[Connor et al. 1995]** D. Brookshire Connor, David Niguidula, and Andries van Dam. Object Oriented Programming in Pascal. Addison-Wesley, 1995.
- **[Durlach et al. 1995]** Nathaniel Durlach, Steve Bryson, Norman Hackerman, John N. Hollerbach, James R Lackner, J. Michael Moshell, Randy Pausch, Richard W. Pew, Warren Robinett, Joseph Rosen, Mandayam A. Srinivasan, James J. Thomas, Andries van Dam, Elizabeth Wenzel, Andrew Witkin, Eugene Wong, and Michael Zyda. Virtual Reality: Scientific and Technological Challenges. National Research Council Report, National Academy Press, 1995.
- **[Foley et al. 1995]** James D. Foley, Andries van Dam, Steven K. Feiner, and John F. Hughes. Computer Graphics: Principles and Practice, Second Edition in C. Addison-Wesley, 1995.

#### 1993

- **[Foley et al. 1993]** James D. Foley, Andries van Dam, Steven K. Feiner, John F. Hughes, and Richard L. Phillips. Introduction to Computer Graphics. Addison-Wesley, 1993.

#### 1992

- **[Hartmanis et al. 1992]** Juris Hartmanis, Ruzena Bajcsy, Ashok K. Chandra, Andries van Dam, Jeff Dozier, James Gray, David Gries, A. Nico Habermann, Robert R. Johnson, Leonard Kleinrock, M. Douglas McIlroy, David A. Patterson, Raj Reddy, Klaus Schulten, Charles Seitz, and Victor Vyssotsky. *Computing the Future: A Broader Agenda For Computer Science and Engineering*, Committee to Assess the Scope and Direction of Computer Science and Technology, National Research Council Report, National Academy Press, 1992.

## 1990

- **[Foley et al. 1990]** James D. Foley and Andries van Dam and Steven K. Feiner and John F. Hughes. *Computer Graphics: Principles and Practice*. Addison-Wesley, 1990.

## 1987

- **[Niguidula & van Dam 1987]** David A. Niguidula and Andries van Dam. *Pascal on the Macintosh: A Graphical Approach*. Addison-Wesley, 1987.

## 1984

- **[Foley & van Dam 1984]** James D. Foley and Andries van Dam. *Fundamentals of Interactive Computer Graphics*. Addison-Wesley (The Systems Programming Series), 1984.

## 1984

- **[van Dam et al. 1968]** Andries van Dam, D. Huffman, E. E. David, and J. Ullman. *The Man-Made World*. McGraw-Hill Book Company, 1968.

## Articles

### 2010

- **[van Dam et al. 2010]** Andy van Dam, Jim Foley, John Guttag, Pat Hanrahan, Chris Johnson, Randy Katz, Henry Kelly, Peter Lee, and David Shaw. *CRA-E White Paper: Creating Environments for Computational Researcher Education*, Computing Research Association, 2010.

### 2008

- **[Zelevnik et al. 2008]** Robert Zelevnik, Timothy Miller, Andries van Dam, Joseph J. LaViola, Jr., Chuanjun Li, Dana Tenneson, and Christopher Maloney. "Applications and Issues in Pen-Centric Computing" in *IEEE Multimedia* October-December 2008.
- **[LaViola et al. 2008]** Joseph LaViola, Prabhat, Andrew Forsberg, David H. Laidlaw, and Andries van Dam. "Virtual Reality-Based Interactive Scientific Visualization Environments" in *Interactive Visualization: A State-of-the-Art Survey*. Springer Verlag, 2008.

## 2005

- **[Head et al. 2005]** James W. Head, Andries van Dam, Samuel Fulcomer, Andrew Forsberg, Prabhat, George Rosser, and Sarah M. Milkovich. "ADVISER: Immersive Scientific Visualization Applied to Mars Research and Exploration" in *Photogrammetric Engineering and Remote Sensing*, 71(10), pp. 1219-1225, October 2005.
- **[van Dam 2005]** Andries van Dam. "Visualization Research Problems in Next-Generation Educational Software" in *IEEE Computer Graphics and Applications*, 25(5), pp. 88-92, September/October 2005.
- **[van Dam et al. 2005]** Andries van Dam, Sascha Becker, and Rosemary Michelle Simpson. "Next-Generation Educational Software: Why We Need It and a Research Agenda for Getting It" in *Educause Review*, March/April 2005, 40(2), pp. 26-43, 2005.
- **[Welch et al. 2005]** Greg Welch, Ruigang Yang, Sascha Becker, Adrian Ilie, Dan Russo, Jesse Funaro, Andrei State, Kok-Lim Low, Anselmo Lastra, Herman Towles, Bruce Cairns, M.D., Henry Fuchs, and Andries van Dam. "Immersive Electronic Books for Surgical Training." *IEEE Multimedia*, 12(3), pp. 22-35, July-September 2005.

## 2004

- **[Welch et al. 2004]** Greg Welch, Ruigang Yang, M. Bruce Cairns, Herman Towles, Andrei State, Adrian Ilie, Sascha Becker, Dan Russo, Jesse Funaro, Diane Sonnenwald, Ketan Mayer-Patel, B. Danette Allen, Hua Yang, Eugene Freid, Andries van Dam, and Henry Fuchs. "3D Telepresence for Off-Line Surgical Training and On-Line Remote Consultation" in *Proceedings of ICAT CREST Symposium on Telecommunication, Teleimmersion, and Telexistence*, Susumu Tachi, editor, The University of Tokyo, Tokyo, Japan, December 2004.

## 2003

- **[Spalter & van Dam, 2003]** Anne Morgan Spalter and Andries van Dam. "Problems with using components in educational software" in *Computers & Graphics* 27(3), pp. 329-337, 2003.
- **[van Dam 2003]** Andries van Dam. "Grand Challenge 3. Provide a Teacher for Every Learner" in *Grand Research Challenges in Information Systems*. Anita Jones and William Wulf, editors, pp. 17-22, Computing Research Association, 2003. URL: [www.cra.org/reports/gc.systems.pdf](http://www.cra.org/reports/gc.systems.pdf)

## 2002

- **[van Dam et al. 2002a]** Andries van Dam, David H. Laidlaw, and Rosemary Michelle Simpson. "Experiments in Immersive Virtual Reality for Scientific Visualization" in *Computers & Graphics* 26(4), pp. 535-555, 2002.
- **[van Dam et al. 2002b]** Andries van Dam, Henry Fuchs, Sascha Becker, Loring Holden, Adrian Ilie, Kok-Lim Low, Anne Morgan Spalter, Ruigang Yang, and Greg Welch. "Immersive Electronic Books for Teaching Surgical Procedures" in *Proceedings of Pre-ICAT CREST Symposium on Telecommunication, Teleimmersion, and Telexistence*, December 3, 2002. The University of Tokyo, Tokyo, Japan.

## 2001

- **[van Dam 2001a]** Andries van Dam. "User interfaces: disappearing, dissolving, and evolving" in *Communications of the ACM (CACM)*, 44(3), pp. 50-52, 2001.
- **[van Dam 2001b]** Andries van Dam. "Reflections on Next-Generation Educational Software", in *Enseigner L'Informatique: Melanges en Hommage a Bernard Levrat*, Christian Pellegrini and Alain Jacquesson editors, Georg Editeur, pp. 153-166, 2001.

## 2000

- **[Forsberg et al. 2000]** Andrew S. Forsberg, David H. Laidlaw, Andries van Dam, Robert M. Kirby, George E. Karniadakis, and Jonathan L. Elion. "Immersive virtual reality for visualizing flow through an artery" in *Proceedings of IEEE Visualization 2000*, pp. 457-460, 2000.
- **[van Dam 2000]** Andries van Dam. "Beyond WIMP" in *IEEE Computer Graphics and Applications*, 20(1), pp. 50-51, 2000.
- **[van Dam et al. 2000]** Andries van Dam, Andrew S. Forsberg, David H. Laidlaw, Joseph J. LaViola Jr., and Rosemary Michelle Simpson. "Immersive VR for Scientific Visualization: A Progress Report" in *IEEE Computer Graphics and Applications*, 20(6), Nov/Dec, pp. 26-52, 2000.

## 1999

- **[Brown et al. 1999]** Judith R. Brown, Andy van Dam, Rae Earnshaw, Jose Encarnacao, Richard Guedj, Jennifer Preece, Ben Shneiderman, and John Vince. "Human-Centered Computing, Online Communities, and Virtual Environments" in *IEEE Computer Graphics and Applications*, 19(6), pp. 70-74, November 1999.
- **[DeRose & van Dam 1999]** Steven J. DeRose and Andries van Dam. "Document Structure and Markup in the FRESS Hypertext System" in *Markup Languages 1(1)*, pp. 7-32, 1999.
- **[Gould et al. 1999]** Daniel L. Gould, Rosemary M. Simpson, and Andries van Dam. "Granularity in the Design of Interactive Illustrations" in *Proceedings of ACM SigCSE '99*, pp. 306-310, 1999.
- **[Simpson et al. 1999]** Rosemary M. Simpson, Anne M. Spalter, and Andries van Dam. "Exploratories: An Educational Strategy for the 21st Century" in *Proceedings of ACM SIGGRAPH '99, Conference Abstracts and Applications*, pp. 43-45, 1999.
- **[van Dam 1999]** Andries van Dam. "Education: the unfinished revolution" in *ACM Computing Surveys*, 31(4es), p. 36, 1999.

## 1998

- **[van Dam 1998a]** Andries van Dam. "Interview" in *IEEE Annals of the History of Computing* 20(2), pp. 81-84, 1998.
- **[van Dam 1998b]** Andries van Dam. "The Shape of Things to Come" in *ACM SIGGRAPH Computer Graphics Newsletter*, 32(1), 1998.

## 1997

- [**Bazik et al. 1997**] John Bazik, Roberto Tamassia, Stephen P. Reiss, and Andries van Dam. "Software Visualization in Teaching at Brown University" Chapter 25 in Software Visualization: Programming as a Multi-Media Experience, MIT Press, pp. 383-398, 1998.
- [**van Dam 1997a**] Andries van Dam. "Some Personal Recollections on Graphics Standards" in ACM SIGGRAPH Computer Graphics Newsletter Standards Pipeline Column, February 1997.
- [**van Dam 1997b**] Andries van Dam. "Post-Wimp User Interfaces: the Human Connection" in Communications of the ACM (CACM) 40(2), pp. 63-67, 1997.

## 1996

- [**Simpson et al. 1996**] Rosemary M. Simpson, Allen Renear, Elli Mylonas, and Andries van Dam. "50 Years After 'As We May Think': The Brown/MIT Vannevar Bush Symposium" in ACM Interactions 3(2), pp. 47-67, 1996.

## 1995

- [**Arnold et al. 1995**] David Arnold, Jack Bresenham, Ken Brodlie, George S. Carson, Jan Hardenbergh, Paul van Binst, and Andries van Dam. "Standardisation - opportunity or constraint?" in Proceedings of ACM SIGGRAPH '95, pp. 499-501, 1995.

## 1994

- [**Bryson et al. 1994**] Steve Bryson, Steven Feiner, Frederick P. Brooks Jr., Philip M. Hubbard, Randy Pausch, and Andries van Dam. "Research frontiers in virtual reality" in Proceedings of ACM SIGGRAPH '94, pp. 473-474, 1994.
- [**Conner et al. 1994**] D. Brookshire Conner, David Niguidula, and Andries van Dam. "Object Oriented Programming: Getting it Right at the Start" in OOPSLA Educators' Symposium, Portland, OR , October 1994.
- [**Gomez et al. 1994**] Julian E. Gomez, Rick Carey, Tony Fields, Andries van Dam, and Dan Venolia. "Why is 3-D interaction so hard and what can we really do about it?" in Proceedings of ACM SIGGRAPH '94, pp. 492-493, 1994.
- [**Herndon et al. 1994**] Kenneth P. Herndon, Andries van Dam, and Michael Gleicher. "The Challenges of 3D Interactions" in Proceedings of ACM SIGCHI '94, pp. 36-43, 1994.
- [**van Dam 1994**] Andries van Dam. "Interactive Visualization via 3D User Interfaces" in Proceedings of IEEE Visualization '94, 1994.

## 1993

- [**van Dam 1993**] Andries van Dam. "VR as a Forcing Function: Software Implications of a New Paradigm" in Proceedings of IEEE Symposium on Research Frontiers in Virtual Reality, SPIE pp. 570-576, October 1993.

## 1992

- [**Adrion et al. 1992**] W. Richards Adrion, Edward D. Lazowska, and Andries van Dam. "From Discipline in Crisis to Mature Science: Evolving Needs for Computing Research Infrastructure" in IEEE Computer, 25(12), pp. 18-24, December 1992.
- [**Conner et al. 1992**] D. Brookshire Conner, Scott S. Snibbe, Kenneth P. Herndon, Daniel C. Robbins, Robert C. Zeleznik, and Andries van Dam. "Three-dimensional Widgets" in Proceedings of the ACM SIGGRAPH 1992 Symposium on Interactive 3D Graphics, pp. 183-188, 1992.
- [**Conner & van Dam 1992**] D. Brookshire Conner and Andries van Dam. "Sharing Between Graphical Objects Using Delegation" in Proceedings of Third Eurographics Workshop on Object-Oriented Graphics, Champéry, Switzerland, pp. 173-190, October 1992.
- [**Herndon et al. 1992**] Kenneth P. Herndon, Robert C. Zeleznik, Daniel C. Robbins, D. Brookshire Conner, Scott S. Snibbe, and Andries van Dam. "Interactive Shadows" in Proceedings of ACM Symposium on User Interface Software and Technology '92, pp. 1-6, 1992.
- [**Snibbe et al. 1992**] Scott S. Snibbe, Kenneth P. Herndon, Daniel C. Robbins, D. Brookshire Conner, and Andries van Dam. "Using Deformations to Explore 3D Widget Design" in Proceedings of ACM SIGGRAPH '92, pp. 351-352, 1992.
- [**van Dam 1992**] Andries van Dam. "Escaping Flatland in User Interface Design" in Proceedings of the ACM SIGGRAPH 1992 Symposium on Interactive 3D Graphics, SI3D '92, pp. 9, 1992.

## 1991

- [**Marcus & van Dam 1991**] Aaron Marcus and Andries van Dam. "User Interface Design" in IEEE Computer, 24(9), pp. 49-57, 1991.
- [**Zeleznik et al. 1991**] Robert C. Zeleznik, D. Brookshire Conner, Matthias M. Wloka, Daniel G. Aliaga, Nathan T. Huang, Philip M. Hubbard, Brian Knep, Henry Kaufman, John F. Hughes, and Andries van Dam. "An Object-Oriented Framework for the Integration of Interactive Animation Techniques" in Proceedings of ACM SIGGRAPH '91, pp. 105-112, 1991.

## 1990

- [**Phillips et al. 1990**] Dick Phillips, Michael Lesk, Michael Hawley, Andries van Dam, and Richard J. Beach. "Digital publication: status, opportunities and problems" in Proceedings of ACM SIGGRAPH '90, pp. 1601-1622, 1990.

## 1989

- [**Upton et al. 1989**] Craig Upton, Thomas Faulhaber, David Kamins, David Laidlaw, David Schlegel, Jeffrey Vroom, Robert Gurwitz and Andries van Dam. "The Application Visualization System: A Computational Environment for Scientific Visualization" in IEEE Computer Graphics and Applications, 9(7), pp. 30-42, July 1989.
- [**van Dam 1989**] Andries van Dam. "Trends in Computer Graphics" in Proceedings of

SIAM Conference on Parallel Processing for Scientific Computing (PPSC '89), pp. 454, 1989.

## 1988

- [van Dam 1988] Andries van Dam. "Hypertext '87 Keynote Address" in Communications of the ACM (CACM) 31(7), pp. 887-895, July, 1988.
- [van Dam 1988] Andries van Dam. "PHIGS+ Functional Description" in ACM SIGGRAPH Computer Graphics, 22(3), pp. 125-220, July, 1988.

## 1987

- [van Dam 1987] Andries van Dam. "Solids Modeling and Rendering on Workstations -- A Pictorial Overview" in Computer Physics Communications #45, North-Holland Publishing Company, 1987.

## 1986

- [van Dam 1986] Andries van Dam. "Computing in 1984" in Electrical Engineering: The Second Century Begins, ed. Harlow Freitag, IEEE Press, 1986.

## 1985

- [Yankelovich et al. 1985] Nicole Yankelovich, Norman K. Meyrowitz, and Andries van Dam. "Reading and Writing the Electronic Book" in IEEE Computer Magazine 18(10), pp. 15-30, October 1985.

## 1984

- [van Dam 1984] Andries van Dam. "An Interview with Andries van Dam" in Communications of the ACM (CACM) 27(7), pp. 638-648, July 1984
- [van Dam 1984] Andries van Dam. "Computer Software for Graphics" in Scientific American 251(3), pp. 102-113, September 1984.
- [van Dam 1984] Andries van Dam. "The Electronic Classroom: Workstations for Teaching" in Proceedings of ACM SIGCSE '84, pp. 59-60, 1984.
- [van Dam 1984] Andries van Dam. "The Electronic Classroom: Workstations for Teaching" in International Journal of Man-Machine Studies, 21(4), pp. 353-363, October 1984.

## 1983

- [Brown et al. 1983] Marc Brown, Norman Meyrowitz, and Andries van Dam. "Personal Computer Networks and Graphical Animation: Rationale and Practice for Education" in Proceedings of ACM SIGCSE '83, pp. 296-307, 1983.
- [Shipp et al. 1983] William S. Shipp, Norman Meyrowitz, and Andries van Dam. "Networks of Scholar's Workstations in a University Community" in Proceedings of IEEE COMPCON, 1983.

- [Yau et al. 1983] Stephen S. Yau, Robert W. Ritchie, Warren Semon, J. F. Traub, Andries van Dam, Stanley Winkler. "Meeting the Crisis in Computer Science" in Communications of the ACM (CACM), 26(12). pp. 1046-1050 December 1983.
- [Yau et al. 1983] Stephen S. Yau, Robert W. Ritchie, Warren Semon, J. F. Traub, Andries van Dam, and Stanley Winkler. "Meeting the Crisis in Computer Science" in IEEE Computer 16(12), pp. 83-87, December 1983.

## 1982

- [Feiner et al. 1982] Steven Feiner, Sandor Nagy, and Andries van Dam. "An Experimental System for Creating and Presenting Interactive Graphical Documents" in ACM Transactions on Graphics, 1(1), pp. 59-77, 1982.
- [Meyrowitz & van Dam 1982] Norman K. Meyrowitz and Andries van Dam. "Interactive Editing Systems: Part I and Part II" in ACM Computing Surveys 14(3), pp. 321-415, 1982.
- [Meyrowitz & van Dam 1982] Norman K. Meyrowitz and Andries van Dam. "Interactive Editing Systems" in Document Preparation Systems, J. Nievergelt, G. Coray, J. D. Nicoud, and A. C. Shaw, eds., North-Holland Publishing Company, 1982.

## 1981

- [Feiner et al. 1981] Steven Feiner, Sandor Nagy, and Andries van Dam. "An Integrated System for Creating and Presenting Complex Computer-Based Documents" in Proceedings of ACM SIGGRAPH '81, pp. 181-189, 1981.
- [Gurwitz et al. 1981] Robert F. Gurwitz, R. Fleming, and Andries van Dam. "MIDAS: A Microprocessor Instructional Display and Animation System" in IEEE Transactions on Education 31(1), pp. 306-310, 1981.
- [Heller & van Dam 1981]. A. Heller and Andries van Dam. "Vertical and Outboard Migration: A Progress Report" in Proceedings of AFIPS Conference, 50, pp. 69-74, 1981.
- [van Dam et al. 1981] Andries van Dam, Mario Barbacci, Constantine Halatsis, J. Joosten, and M. Letheren. "Simulation of a Horizontal Bit-Sliced Processor Using the ISPS Architecture Simulation Facility" in IEEE Transactions on Computers, 30(7), pp. 513-519, 1981.

## 1980

- [Gurwitz et al. 1980] Robert F. Gurwitz, Richard W. Thorne, Andries van Dam, and Ingrid B. Carlbom. "BUMPS: A program for animating projections" in Proceedings of ACM SIGGRAPH '80, pp.231-237, 1980.
- [Halatsis et al. 1980] Constantine Halatsis, Andries van Dam, J. Joosten, and M. Letheren. "Architectural Considerations for a Microprogrammable Emulating Engine Using bit-slices" in Proceedings 7th International Symposium on Computer Architecture, pp. 278-291, 1980.

## 1979

- [Stankovic & van Dam 1979] John Stankovic and Andries van Dam. "Research

Directions in (Cooperative) Distributed Processing" chapter in Research Directions in Software Technology, Peter Wegner (ed), pp. 611-638, MIT Press, 1979.

- [van Dam 1979] Andries van Dam. "Graphics Standards and Standard Packages," in Proceedings of SEAS Spring Technical Meeting, 1979.
- [van Dam 1979] Andries van Dam. "Vector Graphics Today" in Proceedings of SEAS Spring Technical Meeting, 1979.

## 1978

- [Eckhouse et al. 1978] Richard Eckhouse, John Stankovic, and Andries van Dam. "Issues in Distributed Processing" in IEEE Computer, 11(1), pp. 22-26, January 1978.
- [Michener & van Dam 1978] James C. Michener and Andries van Dam. "A Functional Overview of the Core System with Glossary" in ACM Computing Surveys 10(4), pp. 381-387, 1978.
- [Newman & van Dam 1978] William M. Newman and Andries van Dam. "Recent Efforts Towards Graphics Standardization" in ACM Computing Surveys, 10(4), pp. 365-380, 1978.
- [Stockenberg & van Dam 1978] John E. Stockenberg and Andries van Dam. "Vertical migration for performance enhancement in layered hardware/firmware/software systems" in IEEE Computer, 11(5), pp. 35-50, May 1978.
- [van Dam & Stankovic 1978] Andries van Dam and John Stankovic. "Guest Editor's Introduction, Special Issue on Distributed Processing" in IEEE Computer, 11(1), p. 14, January 1978.

## 1977

- [Bergeron et al. 1977] R. Daniel Bergeron, James D. Foley, Peter R. Bono, Ingrid Carlbom, Timothy A. Dreisbach, James C. Michener, Elaine Sonderegger, and Andries van Dam. "Status Report of the Graphics Standards Planning Committee of ACM SIGGRAPH, Part II: General Methodology and Proposed Standard" in Proceedings of ACM SIGGRAPH '77, pp. II.1-117, July 1977.
- [Caruthers et al. 1977] L. C. Caruthers, D. Groot, E. Hermans, Andries van Dam, and Jan van den Bos. "GPGS - General Purpose Graphic System" in Proceedings of the Fifth International Computing Symposium, pp. 411-416, 1977.
- [Caruthers et al. 1977] L. C. Caruthers, Jan van den Bos, and Andries van Dam. "GPGS: A Device-Independent General-Purpose Graphics System for Stand-Alone and Satellite Graphics" in Proceedings of ACM SIGGRAPH '77, pp. 112-119, July 1977.
- [Ramseyer & van Dam 1977] Richard R. Ramseyer and Andries van Dam. "A Multi-Microprocessor Implementation of a General Purpose Pipelined CPU" in Proceedings of the 4th Annual Symposium on Computer Architecture (ACM and IEEE), March 1977.
- [Stankovic et al. 1977] John Stankovic, Andries van Dam, and Lynn DeNoia. "Trends in Distributed Data Processing in North America" in Proceedings of SEAS Spring Technical Meeting, April 1977.
- [van Dam et al. 1977] Andries van Dam, Richard Ramseyer, and Sal D. Morgera. "Solving Signal Processing Algorithms with a Multi-Microprocessor Network" in Proceedings of Oceans '77 International Conference, Marine Technical Society and IEEE, 1977.

- **[van Dam & Michel 1977]** Andries van Dam and Janet Michel. "Evaluation of Performance Improvement in a Host-Satellite Distributed Processing System" in Proceedings of Second Distributed Processing Workshop, Brown University, August 1977.

## 1976

- **[Michel & van Dam 1976]** Janet Michel and Andries van Dam. "Experience with Distributed Processing on a Host/Satellite Graphics System" in Proceedings of ACM SIGGRAPH '76, pp. 190-195, 1976.
- **[van Dam et al. 1976]** Andries van Dam, Jens M. Dill, Douglas F. Dixon, and David S. Notkin. "Structured Programming in Assembly Language" in ACM SIGCSE Bulletin, pp. 53-67, December 1976.
- **[van Dam & McGowan 1976]** Andries van Dam and Clement McGowan. "Software Engineering Education" in Needs and Objectives: Proceedings of an Interface Workshop, ed. A. Wasserman and P. Freeman, Springer-Verlag, New York, 1976.

## 1975

- **[Stockenberg & van Dam 1975]** John E. Stockenberg and Andries van Dam. "STRUCT Programming Analysis System" in IEEE Transactions on Software Engineering 1(4), pp. 381-389, 1975.

## 1974

- **[Lloyd & van Dam 1974]** Gregg R. Lloyd and Andries van Dam. "Design Considerations for Microprogramming Languages" in Proceedings 1974 National Computer Conference and Exposition, May 1974.
- **[van Dam et al. 1974a]** Andries van Dam, Charles M. Strauss, Clement McGowan, and Jean Morse. "A Survey of Introductory and Advanced Programming Courses" in Proceedings of the ACM SIGCSE '74, pp. 174-183, February 1974.
- **[van Dam et al. 1974b]** Andries van Dam, George M. Stabler, and Richard J. Harrington. "Intelligent satellites for interactive graphics" in Proceedings of the IEEE, 62(4), pp. 483-492, 1974.
- **[van Dam et al. 1974c]** Andries van Dam, Kenneth Magel, and Marty Michel. "Towards the Development of Machine-Independent Systems Programming Languages" in Proceedings 1974 National Computer Conference and Exposition, May 1974.

## 1973

- **[Anagnostopoulos et al. 1973]** Paul C. Anagnostopoulos, Marty J. Michel, G. H. Sockut, George M. Stabler, and Andries van Dam. "Computer Architecture and Instruction Set Design" in Proceedings 1973 National Computer Conference and Exposition, pp. 519-527, 1973.
- **[Stockenberg et al. 1973]** John E. Stockenberg, Paul C. Anagnostopoulos, Ralph E. Johnson, Robert G. Munck, and Stabler, G. M., and Andries van Dam. "Operating system design considerations for microprogrammed mini-computer satellite systems" in

Proceedings of 1973 National Computer Conference and Exposition, pp. 555-562, 1973.

- **[van Dam & Stabler 1973]** Andries van Dam and George M. Stabler. "Intelligent Satellites for Interactive Graphics" in Proceedings 1973 National Computer Conference and Exposition, pp. 227-238, 1973.
- **[van Dam & Stabler 1973]** Andries van Dam and George Stabler. "Some Aspects of Satellite Graphics" in Proceedings of IEEE NEREM Conference, November 1973.

## 1972

- **[Bergeron et al. 1972]** R. Daniel Bergeron, John D. Gannon, Diane P. Shecter, Frank Wm. Tompa, and Andries van Dam. "Systems Programming Languages" in Advances in Computers 12, pp. 175-284, Academic Press, 1972.
- **[van Dam 1972]** Andries van Dam. "Some Implementation Issues Relating to Data Structures for Interactive Graphics" in International Journal of Computer and Information Sciences, Plenum Press, August 1972.
- **[van Dam & Tompa 1972]** Andries van Dam and Frank Wm. Tompa. "Software Data Paging and Segmentation for Complex Systems" in Information Processing Letters 1(3), pp. 80-86, North-Holland Publishing Company, 1972.

## 1971

- **[Bergeron et al. 1971]** R. Daniel Bergeron, John D. Gannon, and Andries van Dam. "Language for Systems Development" in Proceedings of ACM SIGPLAN Symposium on Languages for Systems Implementation, pp. 50-72, October 1971.
- **[Elliott et al. 1971]** W. David Elliott, Warren A. Potas, and Andries van Dam. "Computer assisted tracing of text evolution" in Proceedings of the AFIPS Fall Joint Computer Conference, pp. 533-540, 1971.
- **[Rice & van Dam 1971]** David E. Rice and Andries van Dam. "An Introduction to Information Structures and Paging Considerations for On-line Text Editing Systems" in Advances in Information Systems Science 4, Plenum Press, 1971.
- **[Schiller et al. 1971]** William L. Schiller, Robert L. Abraham, Richard M. Fox, and Andries van Dam. "A microprogrammed intelligent graphics terminal" in IEEE Transactions on Computers, C-20(7), pp. 975-982, July 1971.
- **[van Dam 1971]** Andries van Dam. "Microprogramming for Computer Graphics" in ACM SIGGRAPH 7(3), Winter 1971.
- **[van Dam 1971]** Andries van Dam. "Satellite Computer Graphics" in Proceedings of 1971 SEAS Conference, September 1971.
- **[van Dam & Rice 1971]** Andries van Dam and David E. Rice. "On-line Text Editing: A Survey" in ACM Computing Surveys 3(3), pp. 93-114, September 1971.

## 1970

- **[van Dam 1970]** Andries van Dam. "An Introduction to Interactive Computer Graphics," in Proceedings of Delft Symposium on Interactive Computer Graphics (October 1970).
- **[van Dam 1970]** Andries van Dam. "Human Factors of Computer Input and Output Devices" in Proceedings of SID Symposium, 1970.
- **[van Dam 1970]** Andries van Dam. "Introduction to Picture Modeling (Data Structures),"

in Proceedings of SPSE-NMA-SID Seminar on Computer Handling of Graphical Information, 1970.

- **[van Dam & Bergeron 1970]** Andries van Dam and R. Daniel Bergeron. "Software Capabilities of the Adage Graphics Terminal" in Proceedings of Computer Graphics '70, Brunel University, England, 1970.
- **[van Dam & Michener 1970]** Andries van Dam and James C. Michener. "Storage Tube Graphics: A Comparison of Terminals" in Proceedings of Computer Graphics '70, Brunel University, England, 1970.
- **[van dam & Rice 1970]** Andries van Dam and David E. Rice. "Computers and Publishing: Writing, Editing and Printing" in Advances in Computers 10, pp. 145-174, Academic Press, 1970.

## 1969

- **[Carmody et al. 1969]** Steven Carmody, Walter Gross, Theodor H. Nelson, David Rice, and Andries van Dam. "A Hypertext Editing System for the /360" in Faiman and Nievergelt (eds.) Pertinent Concepts in Computer Graphics: Proceedings of the Second University of Illinois Conference on Computer Graphics, pp. 291-330, University of Illinois Press, 1969.
- **[van Dam & Sullivan 1969]** Andries van Dam and P. Sullivan. "Computers" in Encyclopedia Puritanical Yearbook of Science and Technology (1969).

## 1968

- **[van Dam & Evans 1968]** Andries van Dam and David Evans. "Data Structure Programming System" in Proceedings IFIP Congress, Edinburgh, pp. 557-564, 1968.

## 1967

- **[van Dam & Evans 1967]** Andries van Dam and David Evans. "A Compact Data Structure for Storing, Retrieving and Manipulating Line Drawings" in Proceedings of AFIPS 1967 Spring Joint Computer Conference, pp. 601-610, 1967.
- **[van Dam & Michener 1967]** Andries van Dam and James C. Michener. "Hardware Developments and Product Announcements" in Second Annual Review of Information Science and Technology, John Wiley & Sons, 1967.
- **[Wile et al. 1967]** David S. Wile, Robert G. Munck, and Andries van Dam. "The Brown University Student Operating System" in Proceedings of 1967 National ACM Conference, pp. 427-439, 1967.

## 1966

- **[van Dam 1966]** Andries van Dam. "Computer Driven Displays and Their Use in Man/Machine Interaction" in Advances in Computers 6, pp. 239-290, Academic Press, 1966.

## 1965

- **[van Dam 1965]** Andries van Dam. "Teacher Training for the Age of Automation" in Automation Yearbook, 1965.

## 1964

- **[Ashler et al. 1964]** Daniel Ashler, Andries van Dam, and Daniel Prener. "Computer and Information Sciences Program for High School Students" in Proceedings ACM 19th Annual Conference, pp. K1.3-1--K1.3-5, 1964.
- **[van Dam & Evans 1964]** Andries van Dam and David Evans. "SHIRTDIF -A System for the Storage Handling and Retrieval of Technical Data in Image Format" in Proceedings of American Documentation Institute (later ASIS), 1964.

## Invited Lectures since 2000

### 2011

Invited Speaker, "User Interfaces: Evolution and Revolution", Wells Fargo (April)

Invited Speaker, " User Interfaces: Evolution and Revolution - Part One", Microsoft Research Asia (April)

Invited Speaker, " User Interfaces: Evolution and Revolution - Part Two", Microsoft Research Asia (April)

Invited Speaker, "NUI - Natural User Interfaces - A New Frontier for the Digital Humanities", University of Siena, Italy (October)

Invited Speaker, "Pen and Touch Computing in Context", Sharp Laboratories, America (November)

### 2009

Invited Speaker, "The Promise of Pen and Touch Computing", TUD, Germany (December)

Invited Speaker, "The Promise of Pen and Touch Computing", Fraunhofer, Germany (December)

### 2008

Invited Speaker, "A Conversation with Joel Orr with Andries van Dam and Alan Kay", Program for the Future, Collective Intelligence (December)

Invited Speaker, "Panel of 1968 [Mother of All] Demo Participants", Engelbart & the Dawn of Interactive Computing, SRI (December)

Invited Speaker, "When is the Pen Mightier Than the Keyboard", ETH Zurich (November)

Distinguished Lecturer, "When is the Pen Mightier Than the Keyboard", Datalogisk Institut, Aarhus Universitet (May)

Invited Speaker, "As We May Work", Enterprise 2.0 (April)

Distinguished Lecturer, "When is the Pen Mightier Than the Keyboard", SCI University of Utah (March)

Invited Speaker, "When is the Pen Mightier Than the Keyboard", Sun Microsystems (January)

Invited Speaker, "When is the Pen Mightier Than the Keyboard", Google (January)

## **2007**

Keynote, "When is the Pen Mightier Than the Keyboard", Georgia Tech GVU 15th Anniversary, 2007 (October)

Distinguished Lecturer, "When is the Pen Mightier Than the Keyboard", Wheaton College, 2007 (September)

Distinguished Lecturer, "When is the Pen Mightier Than the Keyboard", Purdue University, 2007 (August)

Invited Speaker, "When is the Pen Mightier Than the Keyboard", MS Faculty Summit, 2007 (July)

Distinguished Lecturer, "When is the Pen Mightier Than the Keyboard", MSR China, 2007 (May)

Distinguished Lecturer, "When is the Pen Mightier Than the Keyboard", Amsterdam CWI, 2007 (April)

Invited Speaker, "A Radical Approach to Teaching Object-Oriented Programming", CCSCNE, 2007 (April)

Distinguished Lecturer, "When is the Pen Mightier Than the Keyboard", UCLA, 2007 (March)

## **2006**

Invited Speaker, "When is the Pen Mightier Than the Keyboard ", TTI Vanguard, The Advanced Technology Forum for Senior Executives, 2006 (December)

Distinguished Lecturer, "When is the Pen Mightier Than the Keyboard", Adobe, 2006 (December)

Invited Speaker, "The Microsoft Center for Research on Pen-Centric Computing", Microsoft Faculty Summit, 2006 (July)

Distinguished Lecturer, "Immersive Virtual Reality in Scientific Visualization", Waterloo University, 2006 (April)

Distinguished Lecturer, "Immersive Virtual Reality in Scientific Visualization", Simon Fraser University, 2006 (March)

## **2005**

Distinguished Lecturer, "Immersive Virtual Reality in Scientific Visualization", The College of William and Mary, 2005 (December)

Distinguished Lecturer, "Immersive Virtual Reality in Scientific Visualization", University of Texas, Dallas, 2005 (November)

Invited Speaker, "Scientific Visualization Research at Brown University", PNNL Fellow Lecture Series, 2005 (July)

Invited Speaker, "Next Generation Educational Software: Why We Need It and a Research Agenda for Getting It", Sun Microsystems, 2005 (May)

Invited Speaker, "Visualization at Brown: Scientific and Education Research", CIO, 2005 (April)

Invited Speaker, "Immersive Virtual Reality for Scientific Visualization", NYU, 2005 (February)

## **2004**

Invited Speaker, "Immersive Virtual Reality for Scientific Visualization", Department of Energy, 2004 (December)

Invited Speaker, "Next Generation Educational Software: Why We Need It & A Research Agenda for Getting It", Foundation for the Future of Higher Education Aspen Symposium, 2004 (September)

Invited Speaker, "Interaction as Human-centered Computing: Problems, Progress, and Prospects", Digication 2004 (May)

Keynote Speaker, "Distributed Computing for Graphics: Then and Now", ICDCS 2004 (March)

## **2003**

Distinguished Lecturer, "Visualization: New Dimensions, New Domains, Old Questions", Brown University, TCASCV (Technology Center for Advanced Scientific Computing and Visualization) (November)

Keynote Speaker, with Anne Morgan Spalter, "Modeling and Visualization: The Role of Computer Graphics", IVLA (International Visual Literacy Association), (October)

Distinguished Lecturer, "User Interfaces: Disappearing, Dissolving, and Evolving", UCSB (June)

Plenary Speaker, "Beyond Today's Web-based Educational Content", HICSS-36 2003 (January)

## **2002**

Invited Speaker, "Immersive Electronic Books for Teaching Surgical Procedures", CREST Symposium on Telecommunication, Teleimmersion, and Telexistence 2002 (December)

Distinguished Lecturer, "Immersive Virtual Reality for Scientific Visualization", University of Maryland, (November)

Keynote Speaker, "Next Generation Educational Software", EdMedia 2002 (June)

Distinguished Lecturer, "Immersive VR for Scientific Visualization: A Progress Report", ETH Zurich, Switzerland (February)

Invited Speaker, "Immersive VR for Scientific Visualization: A Progress Report", University of Michigan, (January)

## **2001**

Keynote Speaker, " User Interfaces: Disappearing, Dissolving, and Evolving", Celebration of Professor Jose Encarnacao's 60th Birthday, Darmstadt, Germany (May)

Invited Speaker, "Immersive VR for Scientific Visualization: A Progress Report", MIT Media Lab, Cambridge, MA (March)

## **2000**

Keynote Speaker, "Immersive Virtual Reality for Scientific Visualization: A Progress Report", VR2000, New Brunswick, NJ (March)

Keynote Speaker, " Exploratories: Web-based Interactive Environments for Teaching and Learning", SigCSE2000, Austin, Texas (March)

## **Service to the Profession**

- 2009** Panelist, NSF Science and Technology Center, Pre-Proposal Panel (January)
- 2008-2010** Chair, Computing Research Association Education (CRA-E) committee
- 2008-** Member, Advisory Board, Marian Koshland Science Museum
- 2008-** Member, Board of Advisors, WGBH/ACM New Image of Computing (NIC) initiative
- 2007** Chair, ACM Karl V. Karlstrom Outstanding Educator Award committee
- 2007** Chair, Brandeis University External Review Committee
- 2007** Member, Editorial Board of Computers and Graphics, Pergamon Press
- 2007-** Member, National Research Council CSTB Healthcare Informatics committee
- 2005-** Member, ACM Karl V. Karlstrom Outstanding Educator Award committee
- 2002-2005** IEEE James H. Mulligan, Jr. Education Medal committee
- 1998-2002** Member, NSF CISE advisory committee
- 1998** Member, DOE ASCII Data and Visualization Corridors initiative advisory committee
- Member, National Research Council CSTB Information Technology literacy committee
- 1997** ACM97 Chairman, 1997 Symposium on Interactive 3D Graphics, Providence, RI (April)
- 1994-1998** Member, Editorial Board, IEEE Transactions on Visualization and Computer Graphics (TVCG), (August)
- 1994** Member, Editorial Board, SIGGRAPH Books Series with ACM Press Books, and Addison-Wesley Publishing Company (January)
- Co-founder, NSF Science and Technology Center for Computer Graphics and Scientific Visualization, Summer Workshop on Geometric Modeling and Computer Graphics, Brown University, Providence, RI (June/July)
- Course Panelist, Developing Advanced Virtual Reality Applications, SIGGRAPH '94, Orlando, FL (July)
- Course Panelist, Research Frontiers in Virtual Reality, SIGGRAPH '94, Orlando, FL (July)
- Course Panelist, Why is 3D Interaction So Hard, and What Can we Really Do About it?, SIGGRAPH '94, Orlando, FL (July)
- Program Committee Member, 1995 Symposium on Interactive 3D Graphics, Monterey, CA (November)
- 1993** Member, National Research Council, Committee on Virtual Reality Research and Development
- Program Committee, Senior Reviewer SIGGRAPH '93, Anaheim, California

(August)

Course Panelist, Implementing Virtual Reality, SIGGRAPH '93, Anaheim, California (August)

Co-founder, A New Seminar for Secondary Mathematics Teachers The Mathematics of Computer Graphics, Brown University, Providence, RI (April/May)

Co-founder, NSF Science and Technology Center for Computer Graphics and Scientific Visualization, Summer Workshop on Geometric Modeling and Computer Graphics, Brown University, Providence, RI (June/July)

Panelist, The Role of New Information Technology in a Modern Curriculum, University of California at Irvine, Irvine, CA (July)

- 1992** Program Committee, Senior Reviewer SIGGRAPH '92, Chicago, IL (July)  
Program Committee, Third Eurographics Workshop on Object-Oriented Graphics, Champéry, Switzerland (October)
- 1991** National Science Foundation, Chairman, Workshop on Research Infrastructure (July)
- 1990-1992** Member of Study Committee to Assess the Scope and Direction for Computer Science and Technology, Computer Science and Telecommunications Board, National Research Council Commission on Physical Sciences, Mathematics, and Applications
- 1990** Chairman, Ad Hoc working group on Graphics Application Frameworks
- 1989-1991** Member, Nominating Committee, ACM
- 1989** Advisory Editor, Journal of Visual Languages and Computing, Academic Press
- 1987-1988** Member, Advisory Board, SIGGRAPH
- 1987** Program Committee, 1988 CERN Summer School
- 1985-1986** Chairman, Software Systems Award Committee, ACM
- 1986-1988** Member, Computer Science and Technology Board, National Research Council, National Academy of Sciences
- 1986** Invited Lecturer, Asia Regional College on Microprocessors, Hefei, PRC
- 1985-1987** Chairman, Computing Research Board, (renamed Computing Research Association)  
Chairman, PHIGS+ Computer Graphics Working Group
- 1985** Chairman, Visiting Committee to evaluate computer science concentration and computing services, Swarthmore College, Swarthmore, PA (April)
- 1983-1984** Member, CSNet Executive Board
- 1983-1985** Member of review board for Foxboro's Bristol Fellowship program
- 1983-1991** Member, Computer Science Board (renamed Computing Research Association)
- 1983** Co-director and lecturer, School on Microprocessors, Institute for Theoretical

- Physics, Trieste (April)  
 Organizer of research symposium to mark the retirement of Marvin Denicoff of ONR (December)  
 Member, Editorial Board of Computers and Graphics, Pergamon Press
- 1982** Invited lecturer, CERN Summer School in Computing, Zinal, Switzerland (August)
- 1981-1986** Associate Editor, ACM Transactions on Graphics
- 1981** Co-director and lecturer, School on Microprocessors, Institute for Theoretical Physics, Trieste (September)
- 1980-1986** Visiting Scientific Associate, CERN, Geneva, Switzerland
- 1980** Invited lecturer, CERN Summer School in Computing, Athens, Greece (September)
- 1979** Program Organizer and Chairman of SEAS Spring Technical Meeting on Graphic Man-Machine Interaction Methodology (May)  
 Invited participant in IFIP WG5.2 Seillac Workshop on Interaction Methodology (May)
- 1978** Guest editor of IEEE Computer, Special Issue on Distributed Processing (January)  
 Guest editor of ACM Computing Surveys, Special Issue on Computer Graphics Standards (December)
- 1977** Panel Chairman, "Computer Graphics," IFIP Congress 77, Toronto
- 1976, 1977** Organizer and chairperson, Distributed Processing Workshops I and II, Brown University
- 1976-1978** Member of ACM SIGGRAPH Graphics Standard Planning Committee and co-designer of the proposed "Core" Graphics Standard
- 1976** Invited participant to IFIP WG5.2 Seillac Workshop on Graphics Standards  
 Session Chairman, ACM SIGGRAPH 3rd Annual Conference on Computer Graphics, Interactive Techniques and Image Processing
- 1974** Session Chairman, ACM SIGGRAPH NBS Workshop on Machine-Independent Graphics  
 Member of Editorial Board and Contributor, The Encyclopedia of Computer Science  
 Session Chairman, ACM SIGGRAPH Conference on Computer Graphics and Interactive Techniques
- 1973-1977** Member of Editorial Advisory Board, Computers and Graphics
- 1972** Conference organizer, IFIP Working Conference on Graphic Languages, Vancouver, B.C.
- 1971-1981** Editor, Computer Graphics and Image Processing

- 1971** Session Chairman, "Computer-Aided Design," IFIP Congress 71, Ljubljana, Yugoslavia
- 1969-1970** Consulting editor for Auerbach Corporation's Graphics Data Processing Reports
- 1968-1970** Co-founder, board member and lecturer, ACM SIGGRAPH, Special Interest Group on Computer Graphics
- 1968** Session Chairman, "Data Structures for Computer Graphics," FJCC, San Francisco
- 1967-1978** Consulting editor in Computer Science, Holt, Rinehart and Winston
- 1967-1970** Co-founder, Board member and lecturer, ACM Professional Development Seminar Series
- 1967-1969** Contributor, Engineering Concepts Curriculum Project of the ACM Commission on Engineering Education (principal author of five chapters in The Man-Made World)
- 1967** Co-founder of ACM SIGGRAPH

### **Academic Honors, Fellowships, Honorary Society Honors**

- 2008** Honorary Ph.D. from the Department of Computer Science at ETH Zurich
- 2007** Honorary Ph.D. from the Faculty of Mathematics, University of Waterloo.
- 2005** Co-Chairman of the Rhode Island Governor's Science and Technology Advisory Council (STAC)
- 2004** American Association for the Advancement of Science Fellow Award
- 2003** Honorary General Chair of IEEE ICDCS 2003  
Chairman of the Rhode Island Governor's Science and Technology Council  
Board Member of the Mayor's Providence Economic Development Partnership Council
- 2002** CRA (Computing Research Association) Distinguished Service Award  
Brown University Sheridan Award for Teaching
- 2000** ACM SIGCSE Award for Outstanding Contribution to Computer Science Education  
American Academy of Arts & Sciences Fellow Award
- 1999** IEEE James H. Mulligan, Jr. Education Medal
- 1998-2004** Trustee of RISD (Rhode Island School of Design)
- 1996** Elected to the National Academy of Engineering  
Honorary Ph.D. from Swarthmore College
- 1995** Named to the Thomas J. Watson, Jr. University Professor of Technology and Education Chair  
Honorary Ph.D. from Darmstadt Technical University in Germany
- 1994** IEEE Fellow Award

- ACM Fellow Award
- 1993** ACM Karl V. Karlstrom Outstanding Educator Award
- 1992-1995** Named to the L. Herbert Ballou University Professor Chair
- 1991** SIGGRAPH Steven A. Coons Award for Outstanding Creative Contributions to Computer Graphics
- 1990** 1990 NCGA Academic Award
- 1988** State of Rhode Island Governor's Science and Technology Award
- 1984** IEEE Centennial Medal
- 1974** Society for Information Display's "Special Recognition Award"
- 1971-1972** Fulbright Fellowship
- 1966** Ph.D. Degree, Electrical Engineering, Moore School of Electrical Engineering, University of Pennsylvania.
- 1963** M.S. Degree, Electrical Engineering, Moore School of Electrical Engineering, University of Pennsylvania.
- 1960** IEEE (IRE) Delaware Valley Section "Student of the Year" Award; Sigma Tau, Sigma Xi
- B.S. Degree with Honors, Swarthmore College

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