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1 PROFESSIONAL ACTIVITIES

1.1 ON TECHNICAL JOURNALS, MAGAZINES AND MONOGRAPH BOOK SERIES

26. Honorary Editor of *The Visual Computer: An International Journal of Computer Graphics* (Springer-Verlag, Heidelberg) (January 2000 to present)
25. On the Editorial Board of *ACM Multimedia Systems Journal* (December 1996 to 2003)
24. Honorary Editor-in-Chief of *The Virtual Reality Society Journal* (The Virtual Reality Society, England) (1994 to 1996)
23. Editor-in-Chief of *International Journal of Shape Modeling* (World Scientific, Singapore) (1994 to July 1995)
22. On the Editorial Board of *Transputer Communications* (August 1993 to 1995)
21. On the Editorial Board of *The VLDB Journal (The International Journal on Very Large Data Bases)* (Springer-Verlag Berlin Heidelberg) (July 1992 to December 1996)
20. Advisory Member of *IEICE (the Institute of Electronics, Information and Communication Engineers) Transactions* (January 1991 to present)
19. Series Editor of *Transputer and Occam Engineering Series* (IOS Press, Amsterdam) (October 1990 to 1991)
18. Associate Editor-in-Chief of *The Journal of Visualization and Computer Animation* (John Wiley & Sons, Chichester) (September 1990 to present)
17. On the Editorial Board of *IEEE Transactions on Knowledge and Data Engineering* (IEEE, U.S.A.) (December 1988 to June 1991)
16. On the Editorial Board of *The Computer Bulletin* (The British Computer Society, U.K.) (August 1988 to December 1993)
15. On the Editorial Board of *Electronic Publishing* (John Wiley & Sons Limited, U.K.) (August 1987 to July 1989)
14. On the Editorial Board of *IMPACT* (SMI, Detroit, U.S.A.) (February 1987 to January 1989)
13. On the Editorial Board of *Distributed Computing* (Springer-Verlag, Heidelberg) (January 1986 to December 1994)
12. On the Editorial Advisory Board of *Abacus* (Springer-Verlag, New York) (1985 - 1988)

11. Editor-in-Chief of *The Visual Computer: An International Journal of Computer Graphics* (Springer-Verlag, Heidelberg) (September 1984 to December 1999)
10. On the Advisory Editorial Board of *The Workstation Alert* (Management Roundtable, Inc., Massachusetts, U.S.A.) (February 1984 to March 1993)
9. On the Editorial Board of *The S. Klein Newsletter on Computer Graphics* (Technology & Business Communications, Inc., Massachusetts, U.S.A.) (January 1984 to March 1993)
8. On the Editorial Board of *Journal of Management Information Systems* (Teaneck, New Jersey, U.S.A.) (January 1984 to present)
7. Series Editor of *Computer Science Workbench Monograph Series* (Springer-Verlag, Heidelberg) (1984 to present)
6. Associate Editor of the *Information Sciences: An International Journal* (North-Holland, Division of Elsevier Science, NY) (October 1983 to present)
5. Correspondent of *Abacus* (Springer-Verlag, New York) (1983-1985)
4. On the Editorial Board of *IEEE Computer Graphics and Applications* (IEEE Computer Society, New York, Washington D.C.) (May 1982 to January 2002)
3. Advisory Editor of *Fuzzy Sets and Systems: An International Journal* (North-Holland, Amsterdam) (1978-1986)
2. Advisory Editor of *ACM Transactions on Data Base Systems* (ACM, New York) (1976-1980)
1. Advisory Editor of *Information Systems* (Pergamon, Division of Elsevier Science BV, Amsterdam) (1976-to present)

1.2 ON PROFESSIONAL SOCIETIES AND ASSOCIATIONS

46. Member of the Advanced Information and Telecommunications Society Subcommittee, The Economic Council of the Economic Planning Agency, Government of Japan (1995 April- March 1996)
45. Member of the Consultative Committee to Foster Creative University Education in the Fields of Science and Engineering, Ministry of Education, Science and Culture, Government of Japan (March 1995 to March 1996)
44. Co-Chair of ACM SIG on Multimedia Asian region
43. Committee Member of East Asian Economic Caucus(EAEC) (May 1992 Japan)

42. Fellow of IEEE (January 1991 to present)
41. On the Board of Directors of Japan Society of Simulation and Gaming. (September 1990 to 1995)
40. On the Board of Directors of Japan Society of Sports Industry (1989 to 1999)
39. Chairman of Founding Committee of the University of Aizu, Fukushima Prefecture Government (April 1992 to March 1993)
38. Member of Founding Committee of University of Aizu, Fukushima Prefecture Government (July 1989 to March 1992)
37. Chairman of Curriculum Working Group of Founding Committee of University of Aizu (April 1990 to March 1993)
36. Member of the Committee on Information Processing Education at Universities and Colleges, Information Processing Society of Japan, sponsored by the Ministry of Education, Science and Culture, the Government of Japan (April 1989 to March 1991)
35. Head of Information System Working Group of the Committee on Information Processing Education at Universities and Colleges, Information Processing Society of Japan, sponsored by the Ministry of Education, Science and Culture, the Government of Japan (April 1989 to March 1993)
34. Chairman of Research Committee on CASE Tools and Advanced Applications of Workstations, JTTAS (April 1989 to October 1990)
33. Member of British Computer Society (December 1988 to March 1993)
32. Member of IFIP Working Group 5.10 on Computer Graphics (August 1988 to present)
31. Chairman of Association of Information and Computer Science Departments, Japan (July 1988 to June 1990)
30. Member of Information and Computer Science Education Committee sponsored by the Ministry of Education, Science and Culture, the Government of Japan (April 1988 to March 1989)
29. Member of the Board of Councillors of Japanese Society for Artificial Intelligence (April 1988 to March 1992)
28. On the Board of Directors, International Information Science Foundation (April 1987 to present)
27. Chairman of OUG (Occum User Group) Japan (January 1987 to March 1993)
26. Senior Member of IEEE Computer Society (1986 to 1989)
25. Former Senior Member of CASA/SME, RI/SME

24. Former Member of IFIP Working Group 2.2 on Program Language Description
23. Member of the Technical Committee on Oil Resource Exploration Engineering, the National Oil Corporation of Japan (1980-1981)
22. Committee Member of Metropolitan Global Information Network Development Promotion, Ministry of International Trade and Industry, the Government of Japan (October 1985 to December 1987)
21. Chairman of the Committee of Opt-Electronic Industry and Technology Database (Opt-Electronic Industry & Technology Development Association) (June 1985-1986)
20. Committee Member of Round-table Conference on New Media Countermeasure, Tokyo Bureau of International Trade and Industry, the Ministry of International Trade and Industry, the Government of Japan (1984-1985)
19. Member of Technology Advisory Committee, IPA (Information Promotion Agency of Japan) (1984-1987)
18. Chairman of Committee for Investigation and Research of Systems for Study and Training of Foreign Languages (Sound Technology Promotion Foundation) (September 1984 to August 1986)
17. Honorary Chairman of Video Culture Japan (1984 to 1985)
16. Former President and the Founder of Computer Graphics Society (CGS) (1983-1988)
15. Chairman of the Board of Hand-held Computer Society (1982-1987)
14. President and the Founder of Japan Computer Graphics Association (JCGA) (April 1981-1983)
13. Chairman of the Database Management System Working Group, JIPDEC (Japan Information Processing Development Center) (1981)
12. Chairman of the Decision Support System Working Group, JIPDEC (Japan Information Processing Development Center) (1980-1981)
11. Chairman of the Requirement Engineering Working Group, IPA (the Information-technology Promotion Agency of Japan) (1979 to 1980)
10. Member of the 5th Generation Computer Study Committee, JIPDEC (the Japan Information Processing Development Center) (1979-1980)
9. Chairman of the Basic Software Technology Study Committee, IPA (the Information-technology Promotion Agency of Japan) (1979-1984)
8. Organized and served as Chairman of Software Product Engineering Technical Committee, the Japan Institute of Industrial Engineering (1979-1980)

7. Information System Technical Committee member of National Museum of Ethnology (1978 to1997)
6. Organized and served as Chairman of Software Engineering Technical Committee and Research Group, Information Processing Society of Japan (1976-1981)
5. Member of IFIP Working Group 2.6 on Data Bases (1974 to 1992)
4. Member of the Working Group on Database System, Information Processing Society of Japan (1973-1986)
3. Organized and served as Vice-Chairman of Database Technical Committee and Research Group, Information Processing Society of Japan (1972-1973)
2. Member of IFIP Working Group 6.2 on International Information Network (1972-1980)
1. Member of IFIP Working Group 7.1 on Modeling and Simulation (1972 to 1982)

1.3 ON CONFERENCES

135. Convention Honorary Chair, International Convention SMI SM 2004 (Joint Conferences of Shape Modeling international 2004 and Solid Modeling 2004), June 7-9, 2004, Genoa, Italy.
134. Honorary Chair, The 12-th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2004 (WSCG 2004), February 2 - 6, 2004, University of West Bohemia, Campus-Bory, Plzen (close to Prague), Czech Republic.
133. General Co-Chair, International Conference on Cyberworlds 2003 (CW 2003), Singapore, 3 - 5 December 2003, Singapore.
132. Program Committee Member, Pacific Graphics 2003 (PG 2003), October 8-10, 2003, Canmore, Alberta, Canada
131. Honorary Chair, Computer Graphics International 2003 (CGI2003), July 9-11, 2003, Tokyo Institute of Technology, Tokyo, Japan.
130. Program Committee Member, Computer Graphics International 2003 (CGI2003), July 9-11, 2003, Tokyo Institute of Technology, Tokyo, Japan.
129. Honorary Chair, International Conference on Shape Modeling 2003 (SMI 2003), May 12-16, 2003, Seoul, Korea.
128. Program Committee Member, 16th International Conference on Computer Animation and Social Agents (CASAf2003), May 7-9, 2003, New-Brunswick, New Jersey, USA.

127. Program Committee Member, Spring Conference on Computer Graphics 2003 (SCCG2003), April 24-26, 2003, Budmerice, Slovakia..
126. Program Committee member, Second International Workshop on Articulated Motion and Deformable Objects 2002 (AMDO 2002), 21-23 November, 2002, Palma De Mallorca, Spain.
125. Conference Co-Chair, the First International Symposium on Cyber Worlds 2002 (CW2002), November 6-8 2002, Hosei University, Tokyo, Japan.
124. Program Committee Member, Computer Graphics International 2002 (CGI 2002), 1- 5 July 2002, University of Bradford and National Museum of Photography, Film Television, Bradford, UK.
123. Honorary Chair, Computer Graphics International 2001 (CGI2001), July 3-6, 2001, Hong Kong.
122. Conference Chairman, Spring Conference on Computer Graphics 2001 (SCCG2001), April 25-28, 2003, Budmerice, Slovakia..
121. Program Committee Member, Deform 2000, November 29-30, 2000, Geneva, Switzerland
120. Honorary Conference Chair and Program Committee Member of Computer Graphics International 2000 (CGI 2000) (Geneva, Switzerland, June 19-23, 2000)
119. Program Committee Member of the International Conference on Multimedia Modeling (MMM'99) (Ottawa, Canada, October 4-7, 1999)
118. Program Committee Member of Computer Animation '99 (Geneva, Switzerland, May 26-28, 1999)
117. Program Committee Member of Pacific Graphics '99 (PG99) (Korea, October 5-7, 1999)
116. Program Committee Member of Eurographics '99 (EG99) (Milan, Italy, September 7-11, 1999)
115. Program Committee Member of the 3rd International Cognitive Technology Conference (CT99) (San Francisco, August 11-14, 1999)
114. Honorary Conference Chair of Computer Graphics International 99 (CGI'99) (Canmore, Alberta, Canada, June 7-11, 1999)
113. Program Committee Member of the 3rd International Conference on Visual Information Systems (Amsterdam, the Netherlands, June 2-4, 1999)
112. Program Committee Member of the IFIP Workshop on Modelling and Motion Capture Techniques for Virtual Environment (CAPTECH98) (Geneva, Switzerland, November 26-27, 1998)
111. Conference General Co-Chair of Pacific Graphics 98 (PG'98) (Singapore, October 26-29, 1998)

110. Program Committee Member of IEEE Visualization 98 (Research Triangle Park, North Carolina, USA, October 18-23, 1998)
109. Program Committee Member of the International Conference on Multimedia Modeling (MMM'98) (Lausanne, Switzerland, October 12-15, 1998)
108. Honorary Conference Chair of Computer Graphics International 98 (CGI'98) (Hannover, Germany, June 22-26, 1998)
107. Program Committee Member of Computer Animation 98 (Philadelphia, Pennsylvania, USA, June 8-10, 1998)
106. Member of Program Committee of GraphiCon'97 (a part of the Fifth Moscow International Festival of Computer Graphics and Animation AN-IGRAF'97) (May 21-24, 1997, Moscow, Russia)
105. Member of Technical Program Committee of Fourth International Conference on Multimedia Modeling (MMM '97) (November 10-14, 1997, Singapore)
104. Member of Program Committee of The Fifth International Conference on Computer- Aided Design and Computer Graphics (CAD/Graphics '97) (December 2-6, 1997, Shenzhen, China)
103. Member of Program Committee of IEEE Visualization '97 (October 19-24, 1997, Phoenix, USA)
102. Member of Program Committee of IEEE Nonrigid and Articulated Motion Workshop (June 15-16, 1997, Puerto Rico)
101. Member of Program Committee of Conference on Protocols for Multimedia Systems '97 (November 19-21, 1997, Santiago, Chile)
100. Member of Program Committee of the Pacific Graphics '97 (October 6-9, 1997, Seoul, Korea)
99. Honorary Conference President of the Second International Conference on Cognitive Technology (CT '97) (August 25-28, 1997, Aizu-Wakamatsu, Japan)
98. Honorary Conference Chair and Member of Program Committee of Computer Graphics International '97 (CGI'97) (June 24-28, Hasselt, Belgium)
97. Member of Program Committee of Computer Animation '97 (June 4-7, 1997, Geneve, Switzerland)
96. Member of International Scientific Committee of a Second International Conference on Manufacturing Automation (Rapid Product Development) (April 28-30, 1997, Hong Kong)
95. Member of International Program Committee of the 5th Singapore International Conference on Networks (SICON'97) (April 14-17, 1997, Singapore)

94. Member of Program Committee of the Workshop on Parallel Processing and Multimedia (April 1, 1997, Geneva, Switzerland)
93. General Chair of Second Aizu International Symposium on Parallel Algorithms/Architecture Systems(pAs'97) (March 17-21, 1997, Aizu-Wakamatsu, Japan)
92. General Chair of international Conference on Shape Modeling and applications (March 3-6, Aizu-Wakamatsu, Japan)
91. Member of International Program Committee of the 5th International Conference in Central Europe on Computer Graphics and Visualization '97 (WSCG'97) (February 10-14, 1997, Czech Republic)
90. Member of Program Committee of Compugraphics '96 (Fifth International Conference on Computation Graphics and Visualization Techniques) (December 15-19, 1996, Nogent, Paris, France)
89. Member of International Program Committee of Third International Conference on Multimedia Modeling (MMM '96) (November 12-15, 1996, Toulouse, France)
88. Member of Program Committee of IEEE Visualization '96 (October 27-November 1, 1996, San Francisco, USA)
87. Co-chair of the Pacific Graphics '96 (August 19-22, 1996, Taiwan)
86. Member of the Technical Program Committee for the Eurographics '96 (August 26-30, 1996, Poitiers, France)
85. Member of Program Committee of Computer Animation '96 (June 3-5, 1996, Geneva, Switzerland)
84. General Chair of Second International Symposium on Advanced Research in Asynchronous Circuits and Systems (Async '96) (March 18-21, 1996, Aizu-Wakamatsu, Japan)
83. Member of Program Committee of First International Conference on Visual Information Systems (VISUAL '96) (February 5-6, 1996, Melbourne, Australia)
82. Member of the International Program Committee for the Third International Computer Science Conference (ICSC'95): Image Analysis Applications and Computer Graphics (December 11-13, 1995, Hong Kong)
81. Member of International Program Committee of Second International Conference on Multimedia Modeling (MMM '95) (November 14-17, 1995, Singapore)
80. General Chair of International Workshop on Physics and Computer Modeling of Devices Based on Low-Dimensional Structures (November 7-9, 1995, Aizu-Wakamatsu, Japan)

79. Program committee member and Asian/Pacific Liaison of ACM Multimedia 95 (MM'95) (Nov 5-9, 1995, San Francisco, U.S.A.)
78. Program Committee member of IEEE Visualization '95 (Oct 30-Nov 3, 1995, Atlanta U.S.A.)
77. Scientific Committee member of Scientific Visualization Symposium (AICA95 Conference) (September 27-29, 1995, Cagliari, Italy)
76. General Chair of International Conference on Multimedia and Networking (MmNet '95) (September 26-29, 1995, Aizu, Japan)
75. Program Committee Co-chair of Pacific Graphics 95 (August 21-24, 1995, Seoul, Korea)
74. Program Committee member of First International Conference on Cognitive Technology (August 24-27, 1995, Hong Kong)
73. Program Committee member of 1995 Computer Software and Applications Conference (COMPSAC'95). (August 7-11, 1995, Dallas, Texas, USA)
72. International Committee member of 5th International Conference & Exhibition on Computer Graphics and Visualization in Russia (GraphiCon'95). (July 3-7, 1995, St. Petersburg, Russia)
71. Member of the International Programme Committee for the International Workshop on High Performance Computing (HPC) for Computer Graphics and Visualization (July 3-4, 1995, Swansea, United Kingdom)
70. Program Co-Chair and International Program Committee member of Computer Graphics International (CGI '95) (June 26-30 1995, Leeds, UK)
69. Organizing Committee member of Implicit Surfaces '95 (4/19-21, 1995, Grenoble, France)
68. Member of International Program Committee of Computer Animation '95 (April 19-21, 1995, Geneva, Switzerland)
67. Program Committee member of IFIP 2.6 Working Conference on Visual Database System -3 (March 29-31 1995, Lausanne)
66. General Chair of Aizu International Symposium on Parallel Algorithms/Architecture Systems(pAs'95) (March 15-17, 1995, Aizu-Wakamatsu, Japan)
65. Program Committee member of IFIP TC5 WG5.10 Workshop on Virtual Environments (Oct 24-25 1994, Coimbra Portugal)
64. Program Co-Chair of ACM Multimedia 94 (MM '94) (Oct 15-20 1994, San Francisco, U.S.A.)
63. Program Committee member of Virtual Reality Software & Technology (VRST '94) (August 23-26 1994, Singapore)

62. Program Committee member of Computer Graphics International '94 (CGI'94) (June 27 - July 1 1994, Melbourne, Australia)
61. Program Committee member of Advanced Visual Interfaces (AVI '94) an International Workshop (June 1-4 1994, Bari, Italy)
60. Program Committee member of the International Eurographics Workshop on Rendering (June 1994, Darmstadt, Germany)
59. Program Co-chairperson of the Workshop on Topological Modeling for Visualization (January 1994, Aizu-Wakamatsu, Japan)
58. Program Co-Chairperson of The First International Conference on Multi-Media Modeling (MMM '93) (November 9-12 1993, Singapore)
57. Program Committee member of the IEEE Visualization '93 Conference (October 25-29, 1993, San Jose, U.S.A.)
56. Program Co-Chair and a member of Conference Committee of The First Pacific Conference on Computer Graphics and Application (Pacific Graphics '93) (August 30 - September 2, 1993, Seoul, Korea)
55. Program Co-chair of IFIP TC 5/WG 5.10 II Working Conference on Modeling in Computer Graphics (June 28 - July 2 1993, Genoa Italy)
54. Program Committee member of Computer Graphics International'93 (CGI'93) (June 21-25, 1993, Lausanne, Switzerland)
53. Program Committee member of the Sixth International Conference on Computer Animation (June 16-19, 1993, Geneva, Switzerland)
52. Program Committee Member of The 3rd International Symposium on Large Spatial Databases (June 21-25, 1993, Singapore)
51. Program Co-Chairperson of the Workshop on Topological Modeling for Visualization (February 8-21, 1993, Tokyo)
50. Chairman of DS-5 Working Conference in Lorne(IFIP DS-5 SEMANTICS OF INTEROPERABLE DATABASE SYSTEMS) (Lorne, Victoria, Australia, November 16-20 1992)
49. Program Committee Member of VL '92 (Visual Languages 92) (September 15 - 18, 1992 , Seattle, Washington)
48. Program Committee Member of the Third International Conference on Data and Knowledge Systems for Manufacturing and Engineering (Lyon, March 17-20, 1992)
47. Program Chairperson of International Workshop on Modern Geometric Computing for Visualization (June 29-30, 1992, Tokyo)
46. Program Co-Chairperson of CG International '92 (June 22-26, 1992, Tokyo)

45. Program Committee Member of Visualization '91 (San Diego, October 1991)
44. International Scientific Committee Member of International Conference on Manufacturing Automation (Hong Kong, August 10-12, 1992)
43. Program Committee Member of Computer Graphics and Education '91 sponsored by IFIP WG5.10 in cooperation with ACM SIGGRAPH and EUROGRAPHICS (Barcelona, Spain, April 4-6, 1991)
42. Program Co-Chairperson of IFIP TC-2 Second Working Conference on Visual Database Systems organized by Working Group WG2.6, sponsored by IFIP TC-2 (Budapest, Hungary, 1991)
41. Program Chairman of IFIP TC-5 Working Conference on Modeling in Computer Graphics by Working Group WG5.10, sponsored by IFIP TC-5, and co-sponsored by Information Processing Society of Japan and the Institute of Electronics, Information and Communication Engineers, Faculty of Science, the University of Tokyo (Tokyo, Japan, April 8-12, 1990)
40. Organizing Committee Member of of the IEEE Computer Society's Fifteenth International Computer Software & Applications Conference (COMPSAC 91) organized by IEEE Computer Society, Information Processing Society of Japan (Tokyo, Japan, September 8-13, 1991)
39. Program Co-Chairman of Computer Graphics International '90 (CGI'90) organized by Institute of Systems Science, National University of Singapore and Computer Graphics Society, and sponsored by Institute of Systems Science, National University of Singapore (Singapore, June 26-30, 1990)
38. Program Committee Member of the Computational Intelligence 89 (Milan, Italy, September 25-29, 1989)
37. Program Committee Member of the Fourth IFAC/IFIP/IFORS/IEA Conference on Analysis, Design, and Evaluation of Man-Machine Systems (MMS '89) (Xian, China, September 12-14, 1989)
36. Conference Organizing Committee Member of the International Conference on Artificial Intelligence and Communicating Process Architecture (London, U.K., July 17-18, 1989)
35. Program Committee Member of VISUDA 89 Organized by E. S. International Communications sponsored by Association Nationale de la Recherche Technique and World Computer Graphics Association (Paris, France, June 13-16, 1989)
34. Program Chairman and Organizing Committee Chairman of IFIP TC-2 Working Conference on Visual Database Systems organized by Working Group WG2.6, sponsored by IFIP TC-2, and co-sponsored by Information Processing Society of Japan and Department of Information Science, Faculty of Science, the University of Tokyo (Tokyo, Japan, April 3-7, 1989)

33. Program Committee Member of the Fifth International Data Engineering Conference sponsored by the IEEE Computer Society (Los Angeles, U.S.A., February 6-10, 1989)
32. Program Chairman of Tutorial of the Second ISR Workshop in Supercomputing: Visualization in Supercomputing (Tokyo, Japan, August 22-25, 1988)
31. Honorary Committee Chairman of Computer Graphics International '88 (CGI'88) organized by Computer Graphics Society in cooperation with Displays Group of British Computer Society, l'Association Suisse pour l'Automatique, Swiss Computer Graphics Association, the University of Montreal, l'Ecole des Hautes Etudes Commerciales de Montreal, the University of Geneva, the Institute of Technology in Lausanne, Eurographics and IEEE Computer Society (Geneva, Switzerland, May 24-27, 1988)
30. Program Chairman of Japanese Program Committee of the Third International Conference on Supercomputing organized by International Supercomputing Institute, Inc. (Boston, U.S.A., May 15-20, 1988)
29. Program Committee Member of the Fourth International Conference on Data Engineering sponsored by the IEEE Computer Society (Los Angeles, U.S.A., February 2-4, 1988)
28. Program Co-Chairman of of the IEEE Computer Society's Sixth International Computer Software & Applications Conference (COMPSAC 87) organized by IEEE Computer Society, Information Processing Society of Japan, and the Institute of Electrical and Electronics Engineers, Inc. (Tokyo, Japan, October 7-9, 1987)
27. Program Committee Member of the Thirteenth Very Large Data Bases (Brighton, U.K., September 1-4, 1987)
26. Program Chairman and Organizing Committee Chairman of Computer Graphics International '87 (CGI'87) hosted by International Information Science Foundation and organized by Computer Graphics Society in cooperation with ACM, IEEE Computer Society, Eurographics, and Information Processing Society of Japan (Karuizawa, Japan, May 25-28, 1987)
25. Program Committee Member of the Second International Conference on Supercomputing (Santa Clara, U.S.A., May 3-8, 1987)
24. International Board on National and International Initiatives in Supercomputing Systems of the Second International Conference on Supercomputing (Santa Clara, U.S.A., May 3-8, 1987)
23. Committee Member of the Third International Conference on Data Engineering sponsored by IEEE Computer Society (Los Angeles, U.S.A., February 2-6, 1987)
22. Organizing Committee Member of the International Conference on Computer-Aided Drafting, Design, and Manufacturing Technology (CADDM) (Beijing, China, November 11-15, 1986)

21. Advisor of the Twelfth International Conference on Very Large Data Bases (Kyoto, Japan, August 25-28, 1986)
20. Program Chairman and Organizing Committee Chairman of Computer Graphics Tokyo '86 (CG Tokyo'86) sponsored by Japan Management Association and organized by Computer Graphics Society in cooperation with ACM SIGGRAPH, IEEE Computer Society, Eurographics, and Japan Computer Graphics Association (Tokyo, Japan, April 22-25, 1986)
19. Program Committee Member of Graphic Interface '85 in association with the Canadian Man-Computer Communications Society, the Computer Graphics Society, the Montreal Chapter of IEEE Computer Society, and the Montreal Chapter of the Canadian Information Processing Society (Montreal, Canada, May 27-31, 1985)
18. Program Chairman and Organizing Committee Chairman of Computer Graphics Tokyo '85 (CG Tokyo'85) sponsored by Japan Management Association in cooperation with ACM SIGGRAPH and IEEE Computer Society (Tokyo, Japan, April 23-26, 1985)
17. Program Chairman and Organizing Committee Chairman of Computer Graphics Tokyo '84 (CG Tokyo'84) organized by Japan Management Association in cooperation of the IEEE Computer Society, ACM SIGGRAPH, Computer Graphics Society, the Institute of Electronics and Communications Engineers of Japan, Information Processing Society of Japan, and Japan Computer Graphics Association (Tokyo, Japan, April 24-27, 1984)
16. Program Committee Member of COMPSAC sponsored by IEEE Computer Society (Los Angeles, U.S.A., April 24-27, 1984)
15. Program Committee Member of 1984 International Joint Alpine Symposium sponsored by IEEE Computer Society (Innsbruck, Austria, February 11-12, 1984)
14. Program Committee Member of the First International Conference on Computers and Applications (Beijing, China, June 22-24, 1983)
13. Program Chairman of InterGraphics '83 sponsored by World Computer Graphics Association and organized by the Japan Management Association in cooperation with ACM SIGGRAPH and Japan Computer Graphics Association (Tokyo, Japan, April 11-15, 1983)
12. Program Committee Member of the IEEE Computer Society's Sixth International Computer Software & Applications Conference (COMPSAC 82) (Chicago, U.S.A., November 8-12, 1982)
11. Program Committee Member of the Sixth International Conference on Software Engineering sponsored by Information Processing Society of Japan, ACM SIGSOFT, IEEE Computer Society, and National Bureau of Standards (Tokyo, Japan, September 13-16, 1982)

10. Program Committee Member of the IEEE Computer Society's Fifth International Computer Software & Application Conference (COMPSAC 81) (Chicago, U.S.A., November 16-20, 1981)
9. Program Committee Member of 1981 IEEE Computer Society Workshop on Computer Architecture for Pattern Analysis and Image Database Management (Hot Spring, U.S.A., November 11-13, 1981)
8. Program Committee Member of the IEEE Computer Society's Fourth International Computer Software & Applications Conference (COMPSAC 80) (Chicago, U.S.A., October 29-31, 1980)
7. Program Committee Member of the Second IEEE Workshop on Picture Data Description and Management (Asilomar, U.S.A., August 27-28, 1980)
6. Program Committee Member of the 1980 ACM SIGMOD Conference (Los Angeles, U.S.A., May 14-16, 1980)
5. Program Committee Member of the IEEE Computer Society's Third International Computer Software & Applications Conference (COMPSAC 79) (Chicago, U.S.A., November 6-8, 1979)
4. Program Committee Member of 1978 ACM SIGMOD International Conference on Management of Data (Austin, U.S.A., May 31-June 2, 1978)
3. Organized and served as General Conference Chairman of the Third International Conference on Very Large Data Bases (VLDB 77) sponsored by ACM, IEEE Computer Society, IFIP, Information Processing Society of Japan, and Society for Management Information Systems (Tokyo, Japan, October 1977)
2. Organizing Committee Chairman and Program Committee Chairman of IFIP Working Conference on Modeling of Environmental Systems --Computer and System Scientific Approach- (Tokyo, Japan, April 1976)
1. Organized and served as Conference Vice Chairman of the Conference on Computer Graphics, Pattern Recognition, and Data Structure sponsored by ACM SIGGRAPH, IEEE Computer Society and UCLA Extension (Beverly Hills, U.S.A., May 1975)

2 AWARDS

14. He was elected Fellow of the Information Processing Society of Japan (IPSJ) for "International Contributions to Pioneering in and Establishing the Discipline of Visual Computing", March 14, 2000.
13. Received the 1998 Taylor L. Booth Education Award of IEEE Computer Society "for initiating and promoting computer and information science education in Japan and for seminal contributions towards the integration of computer-based education in all academic disciplines", November 13, 1999.
12. Listed in Marquis Who's Who in the World
11. Listed in Marquis Who's Who in Science and Engineering
10. Named as a Charter Member of the Elite Group "The 50th Anniversary Class of Golden Core Members of the IEEE Computer Society" (approximately only 450 persons in the world), June 19, 1996.
9. Elected Fellow of the Institute of Electrical and Electronics Engineers (IEEE) For Contributions to Visual Computer and Visual Computation, January 1, 1991.
8. Awarded Certificate of Meritorious Service for Contributions to the Program of COMPSAC from IEEE Computer Society, October 1987.
7. Awarded Honorary Citizenship of the City of Austin, Texas, December 1987.
6. Awarded Certificate of Appreciation for Contribution to COMPSAC from IEEE Computer Society, April 1984.
5. Awarded Certificate of Appreciation in Recognition of Understanding Effort and Dedication to the Success of the SIGGRAPH'84 Conference and Exhibition from ACM, April 1984.
4. Awarded the Niwa Prize of JICST (The Japan Information Center of Science and Technology) for "The Study on Chemical Information Processing System," April 1977.

3. Granted the Research Fellowship of the Electronic Research Laboratory, University of California, Berkeley to visit:
Department of Electrical Engineering and Computer Science
University of California, Berkeley
Berkeley, California, October 1975-November 1975.

2. Granted the IBM Research Fellowship to visit:
Data Base Management Group, Computer Science Department, IBM Research Laboratory, San Jose, California, September 1974-September 1975.

1. Awarded the Senior Overseas Research Fellowship of the Government of Japan to visit:
Artificial Intelligence Center, Stanford Research Institute, Menlo Park, California, October 1973-August 1974 December.

3 REFEREED PAPERS (in Computer Science)

- 207.** Galina Pasko, Alexander Pasko, Makoto Ikeda and Toshiyasu L. Kunii, "2D Shape Transformation Using 3D Blending", Proceedings of the 9th International Conference on Multi-Media Modeling (MMM 2003), pp. 390-401, January 7-10, 2003, Tamkang University, Tamsui, Taipei, Taiwan (ISBN 957-9078-57-2).

Abstract - Computer animation is one of the key components of a multimedia document or presentation. Shape transformation between objects of different topology and positions is an open modeling problem in computer animation. We propose a new approach to solving this problem for two given 2D shapes. The key steps of the proposed algorithm are: dimension increase by converting input 2D shapes into half-cylinders in 3D space, bounded blending with added material between the half-cylinders, and making cross-sections for getting frames of the animation. We use the bounded blending set operations defined using R-functions and displacement functions with the localized area of influence applied to the functionally defined 3D half-cylinders. The proposed approach is general enough to handle input shapes with arbitrary topology defined as polygons with holes and disjoint components, set-theoretic objects, or analytical implicit curves. The obtained unusual amoeba-like behavior of the 2D shape combines metamorphosis with the non-linear movement on the plane.

- 206.** Valery Adzhiev, Elena Kartasheva, Toshiyasu L. Kunii, Alexander Pasko and Benjamin Schmitt, "Hybrid Cellular-functional Modeling of Heterogeneous Objects", Journal of Computing and Information Science in Engineering, pp. 312-322, December, Vol.2,2002, Computers and Information in Engineering Division of ASME (American Society of Mechanical Engineers) and ACM, ASME Technical Publishing, Three Park Avenue, New York, NY 10016, USA.

Abstract - An approach to modeling heterogeneous objects as multidimensional point sets with multiple attributes (hypervolumes) is presented. Attributes given at each point represent object properties of arbitrary nature (material, physical, etc.). A proposed theoretical framework is based on a hybrid model of geometry and attributes combining a cellular representation and a functionally based constructive representation of dimensionally non-homogeneous entities. Hypervolume model components such as objects, operations and relations are introduced and outlined. We present examples of modeling a multi-layer geological structure with cavities and wells, time-dependent adaptive mesh generation, and conversion of a 3D implicit complex to the cellular representation.

Keywords - Multidimensional point sets, attributes, heterogeneous models, function representation, cellular representation, volume modeling

- 205.** Galina Pasko, Alexander Pasko, Makoto Ikeda and Toshiyasu L. Kunii, "Localized Blending for Exact Control of Shapes", International Journal of Shape Modeling, Volume 8, No. 2, pp.159-172, December 2002, World Scientific, Singapore.

Abstract - Blending of two shapes generates a smooth transition between them by adding or removing material. In this work, new analytical formulations of localized blending for functionally defined set-theoretic operations are proposed. The blending set operations are defined using R-functions and displacement functions with the localized area influence. An additional blending solid defines the shape and the location of the blend. The proposed bound blending can be applied to a single selected feature of a shape (corner, edge, and others). We introduce new types of blend such as a multiple blend with disconnected bounding solid and a partial edge blend. It is shown to have versatile applications in interactive design. We also describe the applications of the bound blending to the 2D shape transformation problem we encounter in animation.

Keywords: blending, function representation, R-functions, metamorphosis

- 204.** Masayuki Hisada, Alexander G. Belyaev, Toshiyasu L. Kunii, "A Skeleton-based Approach for Detection of Perceptually Salient Features on Polygonal Surfaces", *Computer Graphics Forum*, Vol. 21, No. 4, pp. 1-12, 2002. Abstract - The paper presents a skeleton-based approach for robust detection of perceptually salient shape features. Given a shape approximated by a polygonal surface, its skeleton is extracted using a three-dimensional Voronoi diagram technique proposed recently by Amenta et al. Shape creases, ridges and ravines, are detected as curves corresponding to skeletal edges. Salient shape regions are extracted via skeleton decomposition into patches. The approach explores the singularity theory for ridge and ravine detection, combines several filtering methods for skeleton denoising and for selecting perceptually important ridges and ravines, and uses a topological analysis of the skeleton for detection of salient shape regions.
- 203.** Kazuteru Matsumoto and Toshiyasu L. Kunii, "A Cellular Design System for Soft- and Varied Sized- Objects", *Proceedings of the First International Symposium on Cyber Worlds (CW2002)*, November 6-8 2002 Tokyo, Japan, pp. 386-393, IEEE Computer Society Press, Los Alamitos, California, November 2002. Abstract - After we sketch the design of a product on the Web, we can obtain each part of the product applying cell decomposition to the sketched design based on the cellular model operations and then applying the homotopy theory to it. When we perform cell decomposition, we can specify the manufacturing procedures of a product as homotopy invariants based on the homotopy theory. Using the parts and the manufacturing procedures of a product, and cell attaching functions accumulated in the cellular design database while these procedures are applied, we show first that we can perform the real design of soft objects, the shapes of which are constantly changing. We then show that the cellular model also can uniformly specify varied sizes. Thus, the cellular model is far more powerful than existing geometric models. The design of bags is taken as an example of soft object and varied sized object design. Key words and phrases: 3D morphing, topological evolutions, Reeb graphs.
- 202.** Pizzanu Kanonchoiyos, Tomoyuki Nishita, Yoshihisa Shinagawa, and Toshiyasu L. Kunii, "Topological Morphing Using Reeb Graphs", *Proceed-*

ings of the First International Symposium on Cyber Worlds (CW2002), November 6-8 2002 Tokyo, Japan, pp. 465-471, IEEE Computer Society Press, Los Alamitos, California, November 2002.

Abstract - Metamorphosis between 3D objects is often the transformation between a pair of shapes that have the same topology. This paper presents a new model using Reeb graphs and their contours to create morphing between 3D objects having different topology. The proposed method specifies the correspondence between of the input objects by using the graph isomorphic theory. Then the super Reeb graph, which has the equivalent topological information to the Reeb graphs of the two input objects, is constructed and used to conduct the sequence of the morphing. The evolutions of the topology that occur during the morph can be specified by the transformation of the Reeb graphs and their contours of the input objects. Reeb graph-based modeling allows the users precisely and intuitively control the morph because the topological information of the objects, represented by the structures of the Reeb graphs, is explicit and easy to understand. Moreover, the contours of the Reeb graphs also represent the geometrical information of the objects. The examples of morphing between different topological shapes are demonstrated.

Key words and phrases: 3D morphing, topological evolutions, Reeb graphs.

- 201.** Valery Adzhiev, Elena Katasheva, Toshiyasu L. Kunii, Alexander Pasko and Benjamin Schmitt, "Cellular-Functional Modeling of Heterogeneous Objects", Proceedings of 7th ACM Symposium on Solid Modeling and Applications, June 17-21, 2002, pp. 192-203, ACM Press, 1515 Broadway, New York, NY, 10036, USA.

Abstract - The paper presents an approach to modeling heterogeneous objects as multidimensional point sets with multiple attributes (hypervolumes). A theoretical framework is based on a hybrid model of hypervolumes combining a cellular representation and a constructive representation using real-valued functions. This model allows for independent but unifying representation of geometry and attributes, and makes it possible to represent dimensionally non-homogeneous entities and their cellular decompositions. Hypervolume model components such as objects, operations and relations are introduced and outlined. The framework's inherent multidimensionality allowing, in particular, to deal naturally with time dependence promises to model complex dynamic objects composed of different. Attributes given at each point can represent properties of arbitrary nature (material, photometric, physical, statistical, etc.). To demonstrate a particular application of the proposed framework, we present an example of multimaterial modeling of the multilayer geological structure with cavities and wells. Another example illustrating the treatment of attributes other than material distributions is concerned with time-dependent adaptive mesh generation where the function representation is used to describe object geometry and density of elements in the cellular model of the mesh. The examples have been implemented with using a specialized modeling language and software tools being developed by the authors.

Key words and phrases: Multidimensional point sets, attributes, heterogeneous models, function representation, cellular representation, volume

modeling.

- 200.** Noriko Kitani and Toshiyasu L. Kunii, "Web-based Design Databases", Proceedings of NICOGRAPH International 2002, May 30, 2002, Tokyo, Japan, pp.103-114, The Society for Art and Science, May 2002.

Abstract - A new flexible and well-defined method was developed to turn objects in the real world, designed to satisfy users' taste, into reusable design resources on the Web by virtually decomposing the original design into parts. We show that we can repeat design processes efficiently by storing the information on part cell attachment as design information as well as by making the cell design processes of the parts homotopically equivalent. We then show the possibility of a new architecture of Web-based design databases management systems to support flexible design and redesign. To demonstrate the power of the new method, bag design is selected as an example.

Key words and phrases: Web-based design databases, cell model, cell attachment, cell decomposition, homotopy equivalence, redesign.

- 199.** Yoshihisa Shinagawa, Ryoji Kawamichi, Toshiyasu L. Kunii and Shegeru Ohwada, "Developing Surfaces", Proceedings of the International Conference on Shape Modeling and Applications, May 17-22, 2002, Banff, Canada, pp.253-260, IEEE Computer Society Press, Los Alamitos, California, May 2002.

Abstract - To transform a three-dimensional object or to map texture to its surface, it is necessary to introduce a coordinate system. If the surface can be cut and developed, it is easy to identify each point on the surface with the coordinate values. According to a theory in topology, any closed polygonalized two-dimensional surface can be represented by a canonical development. However, no efficient algorithm to actually develop a given surface has been presented, and theory sounds abstract. This paper proposes a method to develop an arbitrary polygonal closed surface and to establish the correspondence between each point on the surface and a point on a regular polygon. Educational software is developed using the algorithm that visualizes the coordinate system by texture mapping or by allowing a user to paint on the surface.

Key words and phrases: development, algebraic topology, groups, homology, texture mapping, transformation.

- 198.** Galina Pasko, Alexander Pasko, Makoto Ikeda and Toshiyasu L. Kunii, "Bound Blending Operations", Proceedings of the International Conference on Shape Modeling and Applications, May 17-22, 2002, Banff, Canada, pp.95-103, IEEE Computer Society Press, Los Alamitos, California, May 2002.

Abstract - New analytical formulations of bounded blending for functionally defined set-theoretic operations are proposed. The blending set operations are defined using R-functions and displacement functions with localized area of influence. The shape and location of the blend is defined by control points on the surfaces of two solids or by an additional bounding solid. The proposed blending using a bounding solid can be applied to a single selected edge or vertex. We introduce new types of blends such as

a multiple blend with the disconnected bounding solid and a partial edge blend.

- 197.** Masayuki Hisada, Alexander G. Belyaev, and Toshiyasu L. Kunii, "Towards A Singularity-Based Shape Language: Ridges, Ravines, and Skeletons for Polygonal Surfaces", *Soft Computing*, Vol. 7, No. 1, 2002, pp. 45-52, Springer-Verlag, Heidelberg, Germany.
Abstract - High demands on digital contents have posing strong needs on visual languages on three-dimensional (3D) shapes for improved human communication. For a visual language to effectively communicate essential 3D shape information, shape features defined in terms of singularity signs have been recognized as key shape descriptors. In this paper, we study salient shape features defined via distance function singularities: ridges, ravines, and a skeleton. We propose a method for robust extraction of the 3D skeleton of a polygonal surface and detection of salient surface features, ridges and ravines, corresponding to the skeletal edges. The method adapts the three-dimensional Voronoi diagram technique for skeleton extraction, explores singularity theory for ridge and ravine detection, and combines several filtering methods for skeleton denoising and for selecting perceptually salient ridges and ravines. We demonstrate that the ridges and ravines convey important shape information and, in particular, can be used for face recognition purposes.
Key words and phrases: Polygonal surface, 3D Voronoi diagram, Skeleton, Ridges and ravines.
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4 INVITED PAPERS IN REFEREED PUBLICATIONS (in Computer Science)

- 74.** Toshiyasu L. Kunii, B"What's Wrong with Wrapper Approaches in Modeling Information System Integration and Interoperability?" , *Proceedings of the 3rd International Workshop on Databases in Networked Information Systems: User Interactions and Web Based Services, (DNIS 2003)* , September 22-24, 2003, The University of Aizu, Japan, Lecture Notes in Computer Science, Nadia Bianchi-Berthouze, Ed., in press, Springer-Verlag, September, 2003.
Abstract - Among the largest impact research themes at the time of worldwide recession, the key subject is how to cope with mega company formations and e-government (digital government) projects that depend on the successes of information system integration. The current information system integration approaches such as wrapper approaches basically create combinatorial interfacing and/or combinatorial data conversion making the integration practically impossible because of interfacing explosion and/or computational explosion. A linear approach to overcome the combinatorial explosion is presented and discussed.
- 73.** Toshiyasu L. Kunii, Masumi Ibusuki, Galina I. Pasko, Alexander A. Pasko, Daisuke Terasaki, and Hiroshi Hanaizumi,"Modeling of Conceptual Multiresolution Analysis by an Incrementally Modular Abstraction Hierarchy" , *IEICE Transactions on Information and Systems* , Vol. E86-D, No.7, pp. 1181-1190, July 2003.
Summary - Recent advances of Web information systems such as e-commerce and e-learning have created very large but hidden demands on conceptual multiresolution analysis for more generalized information analysis, cognition and modeling. To meet the demands in a general way, its modeling is formulated based on modern algebraic topology. To be specific, the modeling formulation is worked out in an incrementally modular abstraction hierarchy with emphasis on the two levels of the hierarchy appropriate for conceptual modeling: the adjunction space level and the cellular structured space level. Examples are shown to demonstrate the usefulness of the presented model as well as an implementation of a flower structure case.
Key words: conceptual multiresolution analysis, adjunction spaces, cellular structured spaces, incrementally modular abstraction hierarchy, Web information systems
- 72.** Rynson W. H. Lau, Frederick Li, Toshiyasu L. Kunii, Baining Guo, Bo Zhang, Nadia Magnenat-Thalmann, Sumedha Kshirsager, Daniel Thalmann, and Mario Gutierrez, B"Emerging Web Graphics Standards and Technologies" , *IEEE Computer Graphics and Applications* , pp. 66-75, January/February, 2003, IEEE Computer Society Press, Los Alamitos, California, U.S.A.
Abstract - Migrating computer graphics to the Web poses several prob-

lems, but with new standards and technology advances, graphics applications can balance latency and bandwidth constraints with image quality.

71. Toshiyasu L. Kunii, "Web Information Modeling: The Adjunction Space Model", *Proceedings of the 2nd International Workshop on Databases in Networked Information Systems (DNIS 2002)*, pp. 58-63, The University of Aizu, Japan, December 16-18, 2002, Lecture Notes in Computer Science, Subhash Bhalla, Ed., Springer-Verlag, December, 2002.

Abstract - The nature of Web information is clarified and modeled as the adjunction space model. Practical Web information management requires Web information to be modeled in such a way that the model captures the dynamic changes, present the dynamism visually, and validate the results formally. As the mathematical ground of the model, we have adopted algebraic topology, cellular spatial structures in the homotopic framework and adjunction spaces in particular. The results have been applied successfully to typical Web information systems such e-finance and e-manufacturing to validate the advantages of our Web information modeling over the popular relational model, the entity relationship model, UML, and XML.

70. Toshiyasu L. Kunii, "Cyber Graphics", *Proceedings of the First International Symposium on Cyber Worlds (CW2002), November 6-8 2002 Tokyo, Japan*, pp. 3-7, IEEE Computer Society Press, Los Alamitos, California, November 2002.

Abstract - Cyber graphics as an emerging technology has been playing key roles as human interfaces of cyber worlds. With the ever increasing roles of cyber worlds in the real world, as seen in e-financial trading that deals GDP-equivalent in a day, understanding of cyber graphics is becoming essential. To this end, scientific research has been conducted to grasp the foundation as invariants. Cellular modeling has been found to be of key importance. The adjunction spaces and cell attaching functions of cyber graphics are investigated through varieties of examples to find out the invariants successfully.

Key words and phrases: adjunction spaces, cell attaching functions, a hierarchy of invariants, cellular spatial structures.

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