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Education:
Diploma in Mathematics, Swiss Federal Institute of Technology ETH Zurich, 1962
Research Assistant and Fellow, Dept. of Computer Science, University of Illinois, 1962-1965
Ph.D. in Mathematics, University of Illinois at Urbana-Champaign, 1965

Employment:
1975-2003: Professor, Swiss Federal Institute of Technology (ETH), Zurich (on leave 1985-89)
1985-89: Chair, Dept. Computer Science, and Kenan Professor, Univ. of North Carolina at Chapel Hill
1972-77: Professor, University of Illinois at Urbana-Champaign
1968-72: Associate Professor of Computer Science, University of Illinois at Urbana-Champaign
1965-68: Assistant Professor of Computer Science and Mathematics, University of Illinois

Temporary Employment:
Summer 1964: RCA Laboratories, Princeton, New Jersey
Summer 1969: Jet Propulsion Labs, Pasadena, CA, and Visiting Associate Professor, UCLA
Summer 1970: IBM Research Center, Yorktown Heights, New York
Summer 1971: CERN, Geneva
Summer 1972: Project MAC, MIT, Cambridge, Massachusetts
Summer 1973: University of Grenoble and IRIA, Paris
Summer 1974: University of Stuttgart, Germany
Spring 1978: IBM Research Center, San Jose, California
Spring 1979: Universities of Melbourne and Wollongong, Australia
Summer 1981: UNESCO consultant to the University of the Philippines
Fall 1982: Yokosuka Electrical Communications Lab., Nippon Telegraph and Telephone
Summer 1984: World Bank consultant to Nanjing Institute of Technology, China
Spring 1991: Visiting IBM Professor, Keio University, Tokyo
Summer 1993: Visiting scientist, CSIRO, Canberra, Australia
1994-2004: Repeated Appointments as Visiting Professor, National University of Singapore

Professional Societies and Activities:
AAAS (Fellow), ACM (Fellow), IEEE (Fellow), US Computing Research Board (1987-89),
Microelectronics Center of North Carolina Tech. Committee (1985-87),
Scientific Advisory Board of the ETH/CSCS-NEC Software Development Ctr (1993-96),
Council and Science Committee of the Dalle Molle Foundation (1991-94),
External Examiner, National Univ. of Singapore (1996-99), and Sultan Qaboos Univ., Oman (1996-99)

On the Editorial Board of:
The Computer Journal, Informatik Spektrum, Decision Support Systems, and formerly many other journals.

Languages: Fluent in English, German, Italian, French

Research Interests:
Algorithms and data structures; heuristic and exhaustive search; computers and education.

Publications of J. Nievergelt

Books:

J. Nievergelt, J.C. Farrar, E.M. Reingold: Computer Approaches to Mathematical Problems. Prentice-Hall, 1974. (Translated into Japanese, Hungarian, Polish, Russian)
E.M. Reingold, J. Nievergelt, N. Deo: Combinatorial Algorithms: Theory and Practice. Prentice-Hall, 1977. (Transl. Russian)
J. Nievergelt, A. Ventura: Die Gestaltung interaktiver Programme - mit Anwendungsbeispielen im Unterricht. Teubner, 1983.
J. Nievergelt, A. Ventura, H. Hinterberger: Interactive Computer Programs for Education - Philosophy, Techniques, and Examples. Addison-Wesley, 1986.
J. Nievergelt, K. Hinrichs: Programmierung und Datenstrukturen - Eine Einfuehrung anhand von Beispielen. Springer, 1986.
J. Nievergelt, K. Hinrichs: Algorithms and Data Structures, with Applications to Graphics and Geometry. Prentice-Hall, 1993 (Translated into Greek. Reprinted VDF Hochschulverlag Zurich, 1999).
R. Reichert, J. Nievergelt, W. Hartmann: Programmieren mit Kara: Ein spielerischer Zugang zur Informatik. Springer Verlag, 2003.

Books edited:

D. Secrest, J. Nievergelt: Emerging Concepts in Computer Graphics. W.A. Benjamin, New York, 1968.
M. Faiman, J. Nievergelt: Pertinent Concepts in Computer Graphics. University of Illinois Press, 1969.
J. Nievergelt, G. Coray, J.D. Nicoud, A.C. Shaw: Document Preparation Systems. North Holland, 1982.
J. Nievergelt, Th. Roos, H-J Schek, P. Widmayer: IGIS '94: Geographic Information Systems, Lecture Notes in CS #884, Springer 1994.
M. van Kreveld, J. Nievergelt, Th. Roos, P. Widmayer: Algorithmic Foundations of Geographic Information Systems, Lecture Notes in CS 1340, Springer, 1997.

Special Issues of Journals edited:

A. R. Forrest, L. Guibas, J. Nievergelt: Special Issues on Computational Geometry. ACM Trans. on Graphics, Vol 3, No. 2 (April 84) and No. 4 (Oct 84), 1984.
J. Nievergelt, Y. Ohno: Visual Data Communication and Processing. Future Generations Computer Systems, Vol 1, No 5, 1986, North Holland.
J. Nievergelt, M. Freeston: Spatial Data: applications, concepts, techniques, The Computer Journal, Vol 37, No 1, Jan 1994.

Journal Articles:

JN: Parallel methods for integrating ordinary differential equations. Comm. ACM,7,12, 731-733, Dec 1964.
JN: On the automatic simplification of computer programs. Comm. ACM, 8, 6, 366-370, 1965.
JN: Fixed versus selfmodifying programs. Computer Journal, 8, 3, 244-245, Oct 1965.
JN: What is numerical analysis? IEEE Student Journal, 4, 5, 26-32, Sep 1966.
JN: Computers and computing - Past, present, future. IEEE Spectrum, 5, 1, 57-61, Jan 1968.
JN, S. Chase: Hit and run on a graph. J. Recreational Math., 12, 112-117, April 1968.
JN: On the time required for timing. IEEE Trans. Computers, 19, 5, 458-459, May 1970.
JN, M.I. Irland: Bounce-and-skip: A technique for directing the flow of control. Computer J. 13, 3, 261-262, August 1970.
JN, K.J. Travers: Educating secondary school mathematics teachers for the computer age. Illinois Journal of Education, 62, 4, 63-70, May 1971.
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JN, J.L. Pradels, C.K. Wong, P. Yue: Bounds on the weighted path length of binary trees. Information Proc. Letters, 1, 220-225, 1972.
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F.P. Preparata, JN: Difference-preserving codes. IEEE Trans. Information Theory 20, 5, 643-649, Sep 1974.

JN: Binary search trees and file organization. ACM Computing Surveys, 6, 3, 195-207, Sep 1974.
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S. Hertel, M. Mantyla, K. Mehlhorn, JN: Space-sweep solves intersection of two convex polyhedra. Acta Informatica 21, 501-519, Nov 1984.
K. Hinrichs, JN, P. Schorn: Plane-sweep solves the closest pair problem elegantly. Information Processing Letters, 26, 5, 255-261, Jan 1988.
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K. Hinrichs, JN, P. Schorn: An all-round sweep algorithm for 2-dimensional nearest-neighbor problems, Acta Informatica, Vol.29, 383-394, 1992.
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C. Wirth, JN: Exhaustive and Heuristic Retrograde Analysis of the KPPKP Endgame, ICCA J., Vol 22, No 2, 67-80, June 1999.
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Lim Yew Jin, JN: Computing Tigers and Goats, ICGA Journal, to appear, 2004.

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JN: Der Computergesteuerte Bildschirm - Mensch und Maschine im Dialog. Output, 10, 9, 31-35, Sep 1981.
JN, H. Burkhart: The development of editors: From utility program to the integrated interactive system. In Textverarbeitung und Burosysteme (A. Endres, ed), 93-114, Oldenbourg Verlag, 1982.
JN: Errors in dialog design and how to avoid them. Proc. Int. Zurich Seminar on Digital Communications: Man-Machine Interaction, 199-205, IEEE, March 1982.
G. Beretta, JN et al: XS-1: An integrated interactive system and its kernel. Proc. 6th Int. Conf. Software Engineering, Tokyo, 340-349, IEEE Computer Society, 1982.
J. Staunstrup, JN: What is a correct behavior of a file under concurrent access? Proc. Second Int. Symp. Distributed Data Bases, Berlin, Sep 1982.
K. Hinrichs, JN: Algorithms and data structures for geometric computation. Proc. CERN Summer School of Computing, CERN, Geneva, 1982.
K. Hinrichs, JN: The grid file: A data structure designed to support proximity queries on spatial objects. In Proc. 9th Conf. on Graphtheoretic Concepts in Computer Science, (M. Nagl and J. Perl, eds.), 100-113, Trauner Verlag, Linz 1983.

JN: Die Gestaltung der Mensch-Maschine Schnittstelle. In Sprachen fur Datenbanken (J.W. Schmidt, ed.), 1-10, Informatik Fachberichte 72, Springer Verlag 1983.
JN: Die n-te Generation. GI Informatik Spektrum 7, 237-242, Nov 1984.
D. Ackermann , JN: Die Fuenffinger Maus: Eine Fallstudie zur Synthese von Hardware, Software und Psychologie. 376-385 in Proc. ACM Conf. on Software Ergonomie '85, (H-J Bullinger, ed.), Teubner Verlag, Stuttgart, 1985.
K. Ohno, K. Fukaya, JN: A five-key mouse with built-in dialog control. SIGCHI Bullt. 17,1, 29-34, July 1985.
E. Biagioni, JN, H. Sugaya, J. Stelovsky: Can an operating system support consistent user dialogs? Experience with the prototype XS-2 476-483, Proc. ACM 85, Denver.
JN, C. Muller and H. Sugaya: Dialog design: Principles and Experiments. Proc. Brown Boveri Symp. on Computer Systems in Process Control, Baden, Sep 1985.
E. S. Biagioni, K. Hinrichs, C. Muller, JN: Interactive deductive data management - the Smart Data Interaction package Proc. GI Congress '85 on Knowledge-based Systems, Munich, 208-220, Springer Informatik-Fachberichte 112, 1985.
A. Kierulf, JN: Computer Go: A smart board and its applications. Go World No 42, Winter 1985-86, 62-65.
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K. Hinrichs, JN, P. Schorn: A sweep algorithm for the all-nearest-neighbor problem, in Proc. 4th Workshop on Comp. Geometry and its Applications CG '88, H. Noltemeier (ed.), Springer LNCS, 333, 43-54, 1988.
K. Hinrichs, JN, P. Schorn: A sweep algorithm and its implementation: The all-nearest-neighbors problem revisited. Proc. 14th International Workshop on Graphtheoretic Concepts in Computer Science WG '88, Springer Lecture Notes, 1988.
Anders Kierulf, Ken Chen, JN: Smart Game Board and Go Explorer: A case study in software and knowledge engineering. Proc. Workshop on New Directions in Game-tree Search, Edmonton, Canada, 1989.
A. Kierulf, JN: Swiss Explorer blunders its way into winning the first computer Go Olympiad, 51-55, in Heuristic Programming in Artificial Intelligence: The First Computer Olympiad (D.N.L. Levy and D. F. Beal, eds.), Ellis Horwood, Chichester, 1989.
JN: 7 ± 2 criteria for assessing and comparing spatial data structures, invited paper in A. Buchman et al. eds.: Design and Implementation of Large Spatial Databases, invited paper at 1st Symp. SSD'89, UC Santa Barbara, 3-27, Lecture Notes CS 409, Springer 1990.
JN: Computer Science for Teachers: A quest for classics and how to present them, Invited paper, 2-15 in Computer Assisted Learning (D.H. Norrie and H.W. Six, eds.), Proc. ICCAL '90, 3rd Int'l Conference on Computer Assisted Learning, Lecture Notes in Computer Science 438, Springer 1990.
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R. Gasser, JN: Es ist entschieden: Das Mühlespiel ist unentschieden, Informatik Spektrum, 17, No.5, 314-317, Okt 1994.
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(reprinted in Informatik, Zeitschrift der schweizerischen Informatikorganisationen, No.6, 37-40, Dez. 1995)
JN et al.: CRASH! Mathematik und kombinatorische Chaos prallen aufeinander, Informatik Spektrum, 22, No.1,45-48, Feb 1999.

Ph.D. students supervised (32)**:**

At the University of Illinois at Urbana-Champaign: Stephen M. Chase 1970, Toshio Yasui 1972, Jean L. Pradels 1974, Ronald L. Danielson 1975, Dave Eland 1975, Prabhaker Mateti 1976, Hanna Kruczek 1977.
At the Swiss Federal Institute of Technology (ETH), Zurich: K. Dieter Profos 1977, Helmar Burkhart 1981, Jean Weydert 1981, Hirotsugu Sugaya 1981, Bernhard Plattner 1983, Jan Stelovsky 1983, Giordano Beretta 1984, Klaus Hinrichs 1985, Andrea Ventura 1985, Michael Clemens 1985, Hans Hinterberger 1987, Anders Kierulf 1990, Peter Schorn 1991, Ralph Gasser 1995, Martin Müller 1995, Michele De Lorenzi 1995, Adrian Bruengger 1997, Ambros Marzetta 1998, Matthias Müller 1999, Nora Sleumer 2000, Fabian Maeser 2001, Thomas Lincke 2002, Benjamin Haas 2003, Raimond Reichert 2003, Vincent Tscherter 2004.

M.S. theses supervised: ~ 80

Selected Grants:

JN: ACSES - Automated Computer Science Education System (on the University of Illinois' Plato System), NSF, $250,000, 1972-76.
JN: Computers in education, Swiss National Science Foundation, $120,000, 1976-79.
JN: Interactive Systems and Human-Computer Interfaces, Brown Boveri Co., $100,000, 1980-85.
JN: Computational Geometry, Swiss National Science Foundation, $90,000, 1982-84.
JN: Data and File Structures, US Army European Research Office, $18,000, 1982-85
JN: Man-Machine Interaction, Nippon Telegraph and Telephone, $15,000, 1983-86.
JN: 4-th Annual NSF/CER Conference, March 17-18, 1986, Chapel Hill, North Carolina, NSF, $37,634, 1986.
JN: Software for Geometric Computation, NSF, $213,000, 1986-89.
Co-principal investigator with F. P. Brooks and D. F. Stanat: The Infrastructure of Command Information Systems, ONR, $6,175,000, 1986-91.
Co-principal investigator with F. P. Brooks and V. L. Chi Prototyping Complete Digital Systems, NSF/IIP, $2,080,000, 1988-93.
JN: The XYZ project: Software for Geometric Computation, Swiss National Science Foundation, 1990-93.
JN, W. van Gunsteren: Molecular Modeling, Swiss National Science Foundation, SPP IF , 1993-96.
JN, P. Widmayer: Combinatorics and Geometry, Swiss National Science Foundation, 1995-97
JN, J. Rolim, P. Widmayer: Transport Network Management - cooperative and competitive decisions in distributed combinatorial optimization, Swiss National Science Foundation, 1996-99.

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