

Fred Collopy

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Professional Experience

Professor and Department Chair of Information Systems, The Weatherhead School, Case Western Reserve University, Cleveland; 2001-present.

Professor of Cognitive Science, Case Western Reserve University, Cleveland; 2005-present.

Visiting Professor, Communications, Cornell University, Ithaca, NY, 2006.

Associate Professor, The Weatherhead School, Case Western Reserve University, Cleveland; 1996-2001.

Visiting Scientist, IBM Thomas J. Watson Research Center, Yorktown Heights, NY; 1998-1999.

Assistant Professor, The Weatherhead School, Case Western Reserve University, Cleveland; 1989-1996.

Adjunct Faculty, The Wharton School, Philadelphia; 1981-1989. Developed courses in the management of computing and in software design.

Research Consultant, IBM Corporation, Armonk NY; 1986-1988. Managed research on internal office systems.

Founder & President, Conceptual Instruments Company, Philadelphia; 1982-1985. Created a new software category and developed *The Desk Organizer*.

Analyst-Planner, Intelligent Devices, Inc., Cincinnati; 1977-1980. Developed and implemented strategies for marketing consumer computer products.

Co-founder, Thiel Audio Products Company, Lexington; 1975-1977. Participated in creation of a manufacturing company that produces and markets high-end, high-fidelity loudspeakers.

Associate, Whitewood Stamps Consulting, Boston; 1972-1974. Provided econometric support to governments, universities, and corporations involved in the planning of cable communications systems.

Research Assistant, Metropolitan Area Religious Coalition of Cincinnati; 1971-1972. Assisted in planning the media strategies of the city's major Protestant, Jewish, and Catholic congregations.

Consulting

I have consulted in the areas of information systems (Nordson Corporation, Cleveland Foundation, Federal Reserve Bank of Cleveland, Hillmed Medical, IBM, KeyCorp (formerly Society Bank), Ford Motor Company, Sealy, Biological & Popular Culture, Inc., Cleveland Public Schools), business forecasting (Prodigy—IBM/Sears, Prince Manufacturing, Fingerhut Corporation, the U.S. Coast Guard, the U.S. Naval Office of Personnel Research and Development, U.S. Environmental Protection Agency, WCPN—Cleveland Public Radio, Cleveland Public Schools), and telecommunications modeling (City of Cincinnati, State of Massachusetts, Mid-States Theaters, National Urban League).

Education

The Wharton School of the University of Pennsylvania; Ph.D. in Decision Sciences; 1990.

Thomas More College; Ft. Mitchell, Ky.; Bachelor of Arts *cum laude* in Philosophy; 1971.

Professional Appointments, Service and Awards

Teaching Excellence Award, Weatherhead School of Management, 2007-08.

International Journal of Forecasting, Editor, January 2005-present.

Information and Organizations, Editorial board, 1995-present.

International Journal of Forecasting, Associate Editor, 1993-2004.

US Environmental Protection Agency FIFRA Scientific Advisory Panel, Ad hoc reviewer, 2002-present.

International Institute of Forecasters, Director, 1993-2002.

Co-host, *Managing as Designing Workshop*, June 2002.

Co-editor, Special Issue on Judgmental Forecasting of the *International Journal of Forecasting*, March 1996.

Publicity Chair, International Conference on Information Systems (ICIS), 1996.

Academic Liaison, International Symposium on Forecasting (ISF), 1995.

AACSB, Web Project Coordinator, 1995.

Reviewer for: Management Science, Management Information Systems Quarterly, Information Systems Research, Information and Organization (Accounting, Management and Information Technologies), International Journal of Forecasting, Journal of Forecasting, Information and Management, Interfaces, Journal of Strategic Information Systems, Omega, International Journal of Human-Computer Systems, International Transactions in Operation Research, European Journal of Operational Research, International Conference on Information Systems (ICIS), Nonprofit Management and Leadership, Technovation, Journal of Management Education

Research Grants: National Science Foundation (2001), Mandel Scholars Grant (1995), Office of Naval Research (1992), Cleveland Foundation Grant for Arts Management (1992), WSOM Research Initiation Grant (1991).

Institutional Service

Case Western Reserve University

- Dean's Council, 2006 to present.
- Provost's Promotion and Tenure Committee, 2002, 2007.
- Faculty Advisory Committee, Presidential Search 2006.
- Climate Change Committee, 2006-present.
- Information Technology Advisory Committee, 2000-2004.
- University ERP Steering Committee, 2002.
- Provost's Committee on eLearning, 1998-2000.
- University Library Committee, 1990-1994.

Weatherhead School of Management

- Department chair, 2001-present.
- Chair of Appointments Committee, 2004-2005, 2007-present.
- Appointments Committee, 1999-2005, 2007-present.
- Curriculum Committee, 2006-present.
- Elected member of Council, 1999-2001.
- Chair of Weatherhead Connection Steering Committee, 2000-2004.
- Undergraduate Committee, 2002-2003.

PDPC, 2001-2002.
Chair of Information Resources and Technology Committee, 1994-2000.
Personnel Policy Committee 1996-1998.
Research Committee, 1993-1997.
Library Committee, 1991-1993.

Information Systems Department

Chair, 2001-present.
Director of MSM-IS Program, 1999-2001.
PhD Program Director, 1993-1997.

Related Academic Units

Department of Cognitive Science, 2004-present.
Mandel Center Program Faculty Member, 1994-present
REI Academic Advisory Board, 1994-1998.

Publications

R. J. Boland, Jr., F. Collopy, J. Grant, and Lin Zhao, "Virtual Prototyping of Financial Flows as a Form of Management Control," in Brandon and Kocaturk [eds.], *Virtual Futures for Design, Construction and Procurement*, Wiley Blackwell Publishing, 2008.

R. J. Boland, Jr., F. Collopy, K. Lyytinen, and Y. Yoo, "Managing as Designing: Lessons for Organization Leaders from the Design Practice of Frank O. Gehry," *Design Issues*, 24 (2008), 10-25.

M Germonprez, D. Hovorka, F. Collopy, "A Theory of Tailorable Technology Design," *Journal of the Association for Information Systems*, Volume 8 Issue 6 (June, 2007), Article 21.

J. S. Armstrong, F. Collopy and J. T. Yokum, "Decomposition by Causal Forces: A Procedure for Forecasting Complex Time Series," *International Journal of Forecasting*, 21 (2005), pp. 25-36.

F. Collopy, "Art and Management: Do We Share a Common Language?," in J. Faust and F. Collopy [eds.], *Managing as Designing: Dialogues in Art and Management*, 2005.

R. J. Boland, Jr. and F. Collopy [eds.] *Managing as Designing*, Stanford University Press, 2004.

R. J. Boland, Jr. and F. Collopy, "Design Matters for Management," in R. J. Boland, Jr. and F. Collopy [eds.], *Managing as Designing*, Stanford University Press, 2004, 3-18.

F. Collopy, "I Think With My Hands: On Balancing the Intuitive and Analytic in Designing," in R. J. Boland, Jr. and F. Collopy [eds.], *Managing as Designing*, Stanford University Press, 2004, 164-168.

R. J. Boland, Jr. and F. Collopy, "Toward a Design Vocabulary for Management," in R. J. Boland, Jr. and F. Collopy [eds.], *Managing as Designing*, Stanford University Press, 2004, 265-276.

F. Collopy and R. M. Fuhrer, "A Visual Programming Language for Expressing Visual Rhythms," *Journal of Visual Programming Languages*, 12 (2001), 283-297.

M. Adya, F. Collopy, M. Kennedy and J. S. Armstrong, "Identifying Features of Time Series for Rule-Based Forecasting," *International Journal of Forecasting*, 17 (2001), 143-157.

J. S. Armstrong and F. Collopy, "Identification of Asymmetric Prediction Intervals through Causal Forces," *Journal of Forecasting*, 20 (2001), 273-283.

F. Collopy, M. Adya and J. S. Armstrong, "Expert Systems for Forecasting," *Principles of Forecasting: A Handbook for Researchers and Practitioners*, J. S. Armstrong [ed.]: Norwell, MA: Kluwer Academic Publishers, (2001), 285-300.

J. S. Armstrong, M. Adya and F. Collopy, "Rule-Based Forecasting: Using Expert and Domain Knowledge in the Extrapolation of Time Series," *Principles of Forecasting: A Handbook for Researchers and Practitioners*, J. S. Armstrong [ed.]: Norwell, MA: Kluwer Academic Publishers, (2001), 259-282.

M. Adya, J. S. Armstrong, F. Collopy and M. Kennedy, "An Application of Rule-based Forecasting to a Situation Lacking Domain Knowledge: The M3-IJF Competition" *International Journal of Forecasting*, 16 (2000), 477-484.

F. Collopy, "Color Form and Motion: Dimensions of a Musical Art of Light," *Leonardo*, 33 (2000), 355-360.

F. Collopy, R. M. Fuhrer and D. Jameson, "Visual Music in a Visual Programming Language," *IEEE Symposium on Visual Languages*, (1999), 111-118.

M. Adya and F. Collopy, "How Effective are Neural Networks at Forecasting and Prediction? A Review and Evaluation," *Journal of Forecasting*, 17 (1998), 481-495.

J. S. Armstrong and F. Collopy, "Integration of Statistical Methods and Judgment for Time Series Forecasting: Principles from Empirical Research," in G. Wright and P. Goodwin [eds.] *Forecasting with Judgment*, John Wiley & Sons, Ltd., (1998), 269-293.

F. Collopy, "Bias in Retrospective Self-Reports of Time Use: An Empirical Study of Computer Users," *Management Science*, 42 (1996), 758-767.

J. S. Armstrong and F. Collopy, "Competitor Orientation: Effects of Objectives and Information on Managerial Decisions and Profitability," *Journal of Marketing Research*, 33 (1996), 188-199.

M. Adya and F. Collopy, "Does AI Research Aid Prediction? A Review and Evaluation," *Proceedings of the International Conference on Information Systems*, (1995), 123-140.

F. Collopy, M. Adya and J. S. Armstrong, "Principles for Examining Predictive Validity: The Case of Information Systems Spending Forecasts," *Information Systems Research*, 5 (1994), 170-179.

J. S. Armstrong and F. Collopy, "The Profitability of Winning," *Chief Executive*, (June 1994), 61-63.

J. S. Armstrong and F. Collopy, "Causal Forces: Structuring Knowledge for Time Series Extrapolation," *Journal of Forecasting*, 12 (1993), 103-115.

F. Collopy and J. S. Armstrong, "Rule-Based Forecasting: Development and Validation of an Expert Systems Approach to Combining Time Series Extrapolations," *Management Science*, 38 (1992), 1394-1414.

J. S. Armstrong and F. Collopy, "Error Measures for Generalizing about Forecasting Methods: Empirical Comparisons," *International Journal of Forecasting*, 8 (1992), 69-80.

F. Collopy and J. S. Armstrong, "Generalization and Communication Issues in the Use of Error Measures: A Reply," *International Journal of Forecasting*, 8 (1992), 107-109.

F. Collopy and J. S. Armstrong, "Expert Opinions about Extrapolation and the Mystery of the Overlooked Discontinuities," *International Journal of Forecasting*, 8 (1992), 575-582.

W. R. Foster, F. Collopy and L. H. Ungar, "Neural Network Forecasting of Short, Noisy Time Series," *Computers in Chemical Engineering*, 16 (1992), 293-297.

F. Collopy and J. S. Armstrong, "Toward Computer-Aided Forecasting Systems: Gathering, Coding and Validating the Knowledge," in G. R. Widmeyer (Ed.), *DSS 89 Transactions*, TIMS College on Information Systems, Providence, RI, (1989), 103-119.

F. Collopy, "White Collar Computing: A Field Study Using Automated Logging," *Proceedings of the Twenty-First Annual Hawaii International Conference on System Sciences*, (1988), vol. IV, 236-244.

Published Notes, Reviews, Commentaries and Editorials

F. Collopy, "Foreword," in M. Avital, R.J. Boland, and D.L. Cooperrider (Eds), *Designing Information and Organizations with a Positive Lens, Advances in Appreciative Inquiry Series*, Volume 2, Elsevier Science, 2008, Oxford, pp. xxi-xxii.

F. Collopy, "Difficulty and complexity as factors in software effort estimation," *International Journal of Forecasting*, 23 (2007), 469-471.

F. Collopy, "Visual Music as a Performing Art", *Offscreen*, Volume 11, Issue 8-9 (August-September 2007), article 10.

F. Collopy, "New Sounds, New Society—A Review of Trevor Pinch and Frank Trocco's *Analog Days: The Invention and Impact of the Moog Synthesizer*," *Metascience*, 13 (2004), 187-191.

F. Collopy, "How Much Stock Should You Put in Expert Forecasts?" review of Dilek Onkal, J. Frank Yates, Can Simga-Mugan and Sule Oztin's OBHDP paper "Professional vs. Amateur Judgment Accuracy: The Case of Foreign Exchange Rates," *International Journal of Forecasting*, 20 (2004), 731-732.

F. Collopy, "A Pattern Language for Forecasters," *Interfaces*, (November-December, 2003).

F. Collopy, "Where Do the Forecasting Auditor's Questions Come From?," *International Journal of Forecasting*, 19 (2003), 30-31.

F. Collopy, "From Exploration to Confirmation: Movement Through the M-Competitions," *International Journal of Forecasting*, 17 (2001), 554-555.

F. Collopy, review of Paul Goodwin and Robert Fildes "Judgmental forecasts of time series affected by special events: Does providing a statistical forecast improve accuracy?," *International Journal of Forecasting*, 16 (2000).

G. M. Wright, M. J. Lawrence and F. Collopy, "The Role and Validity of Judgment in Forecasting," *International Journal of Forecasting*, 12 (1996), 1-8.

F. Collopy, review of F. D. Davis, G. L. Loshe and J. E. Kottermann, "Harmful Effects of Seemingly Helpful Information on Forecasts of Stock Earnings," *International Journal of Forecasting*, 11 (1995), 354-355.

F. Collopy, "A World-Wide Information System for Forecasters," *International Journal of Forecasting*, 10 (1994), 491-494.

F. Collopy, review of P. Teicholz, "Forecasting Final Cost and Budget of Construction Projects," *International Journal of Forecasting*, 10 (1994), 474-475.

T. Hancock, J. Lane, R. Ray, D. Glennon, J. S. Armstrong, M. J. Mahoney, R. Hubbard and F. Collopy, "Factors Influencing Academic Research Productivity: A Survey of Management Scientists," *Interfaces*, 22 (1992), 26-38.

J. S. Armstrong and F. Collopy, review of N. R. Sanders and L. P. Ritzman, "The Need for Contextual and Technical Knowledge in Judgmental Forecasting," *International Journal of Forecasting*, 8 (1992), 651-652.

F. Collopy and J. S. Armstrong, review of D. Bunn and G. Wright, "Interaction of Judgmental and Statistical Forecasting Methods: Issues and Analysis," *International Journal of Forecasting*, 8 (1992), 277-279.

F. Collopy, review of P. N. Pant, and W. H. Starbuck, "Innocents in the Forest: Forecasting and Research Methods," *International Journal of Forecasting*, 7 (1991), 400-401.

Performances and Art Presentations

The Rhythmic Light Ensemble Presents Sonic & Visual Music, Live at Cleveland's Ingenuity Festival, July 2007.

F. Collopy, "Three Centuries of Color Scales," in K. Brougher, J. Strick, A. Weisman, and J. Zilczer, *Visual Music: Synaesthesia in Art and Music Since 1900*, Thames & Hudson, 2005.

Bruce Wands, *Art in the Digital Age*, Thames & Hudson, 2004.

SonicLight, Paradiso, Amsterdam, February 2003, performed Imager live with music by Dino Felipe.

Performance Cinema Symposium, Dimension 7, San Francisco, September 2003, performed Imager live with music by Henry Warwick.

New Center for Art & Technology, Cleveland, September 2002, performed Imager live with music by Kassaba.

"Improvisational Lumia: Painting Along with Musicians," Artist's Statement, *Leonardo*, 34 (2001), 353.

Matt Woolman, *Sonic Graphics/Seeing Sound*, New York: Rizzoli, 2000, 40-43.

"A Very Brief History of Lumia," SIGGRAPH 2000 Conference Abstracts and Applications CD.

“A Very Brief History of Lumia,” One Iota/Two Iota Video Compilation, 2000.

Computer Software

Imager (for Macintosh computers) visual music software, 2000.

TimeScope (for Macintosh computers) Rule-Based Forecasting software, 1991.

The Desk Organizer (for IBM PCs and Macintosh computers) Warner Software; New York, 1983.

Internet Sites, Videos and Multimedia Productions

Managing as Designing: Bringing the Art of Design to the Practice of Management, half hour video, 2003.

Unauthorized Duets: The Authorized Edition, CD for computers, 2000.

A site that supports business forecasting research and practice is located at <http://www.ms.ic.ac.uk/iif/index.htm>

A site that explores design issues in visual music, imagers, and lumia is located at <http://RhythmicLight.com>

A site on Managing as Designing is located at <http://design.case.edu>

Expert blogger for Fast Company on Manage by Designing, located at: <http://www.fastcompany.com/blog/fred-collopy/manage-designing-0>

PhD Theses Supervised

Lin Zhao, *A Dynamic Representation of Financial Ratios: A Design and Empirical Test*, 2007.

Kritsachai Somsaman, *The Perception of Emotions in Multimedia: An Empirical Test of Three Models of Conformance and Context*, 2003.

Dowan Kwan, *The Effect of Valuation Logics of Information Technology on Company Performance: A Pluralistic Assessment of Paradox*, 2001.

Monica Adya, *Critical Issues in the Extension of Rule-Based Forecasting: Refinement, Evaluation, and Validation*, 1997.

Lectures

“A Dynamic Representation of the Health of a Firm: Design Directions,” IS Department Seminar, January 23, 2009.

“Managing Creativity or Managing Creatively,” APCI Design Innovation Conference, Paris, January 13, 2009.

“A Dialogue on the Use of Design for Managing,” (with Christopher Riker of Nottingham-Spirk), Beta Gamma Sigma, Cleveland Chapter, December 4, 2008.

“Manage by Designing: a Guide for Small Enterprises,” COSE, Cleveland, October 22, 2008.

“Manage by Designing: a Challenge for Leaders,” Weatherhead Alumni Association, Chicago, October 15, 2008.

“Why Am I Not Rationale in My Designing?” Penn State University Workshop on Rationale and Creativity in Software Design, June 15, 2008.

“Managing as Designing: Meeting a Challenge for Graduate Education,” Weatherhead Webinar, September 26, 2007.

“Order and Spontaneity: Diana Cooper and Fred Collopy in Conversation,” Meyers School of Art, University of Akron, September 13, 2007.

“Producing Human-Centered, Usability-Sensitive and HCI-Competent Managers, CIOs and CEO,” (invited panel with Ping Zhang, et al.), CHI 06, Montreal, April 24, 2006.

“The Design of an Interactive and Dynamic Representation of the Firm,” (poster with Lin Zhao and Julia Grant), CHI 06, Montreal, April 24, 2006.

“Designing Abstract Visualizations,” Syracuse University (April 28, 2008), University of Pittsburgh (June 2, 2006).

“Designing Abstract Visualizations: From Musical to Managerial,” New Media Constortium, Cleveland, June 8, 2006.

“Replacing Decision with Design in Software Effort Estimation,” International Symposium on Forecasting, Santander, Spain, June 13, 2006.

“On The Use of Statistical Tests in Forecasting,” (session chair), International Symposium on Forecasting, Santander, Spain, June 14, 2006.

“Rule-Based Forecasting @ Adolescence,” The International Symposium on Forecasting, San Antonio, June 14, 2005.

Rules for Forecasters: Using Historical Data and Judgments Effectively, Forecasting Summit, Orlando, February 15, 2005.

“Designing Abstract Visualization: From Musical to Managerial,” Cornell Information Science Seminar Series, November 17, 2004

“Navigating Music, Art and Business,” The Art of Navigation: The World as an Interface Symposium, Cleveland Institute of Art, February 20-21, 2004.

“Performing Abstract Visuals in Real-Time—Some Issues and Ideas,” The San Francisco Performance Cinema Symposium, September 17, 2003.

“An Attempt to Reproduce the Hill, O’Connor and Remus Neural Network Study,” (with Lin Zhao) *International Symposium on Forecasting*, Merida, Mexico, June 2003.

“An Instrument for Performing Real-Time Abstract Animations,” SonicLight 2003, Amsterdam, Feb 23, 2003.

“The Contributions of Painters to the Development of Visual Music,” SonicLight 2003, Amsterdam, Feb 21, 2003.

“Color, Form and Motion: The Application of Some Ideas from Constructivism to Visual Music and to Management”, MIT Media Lab, Dublin, Ireland, June 26, 2002.

“Managing as Designing”, Weatherhead Chicago-Based Alumni Seminar, Chicago, IL., July 19, 2002.

“Managing as Designing,” Professional Fellows Program, Cleveland, OH., September 9, 2002.

“Lumia for a new Time,” Academy of Management, Toronto, August 2000 (with Dick Boland).

“A Constructive Approach to Playing Dynamic Graphics,” SIGGRAPH 2000, New Orleans, July 2000.

“Expert Systems for Forecasting: Empirical Evidence,” International Symposium on Forecasting, Lisbon Portugal, June 2000.

“Visual Music in a Visual Programming Language,” *IEEE Symposium on Visual Languages*, Tokyo Japan, September 1999.

“We Won! We Lost! We Tried! We Tied!: On the Performance of Rule-Based Forecasting in the M-3 Competition,” *International Symposium on Forecasting*, Washington D.C., June 1999.

“Graphic Improvisation,” *Columbia University Interactive Media Festival*, New York, April 1999.

“Designing Instruments for Visual Improvisation and Composition,” *International Symposium on Electronic Arts*, Manchester England, September 1998.

“Expert Systems for Forecasting and Prediction,” *International Symposium on Forecasting*, Edinburgh Scotland, June 1998.

“Some Notes on the Design of an Instrument for Visual Improvisation and Composition,” San Francisco State University, MIT Media Lab, IBM’s Watson Research Center, University of Illinois’ Beckman Institute, 1997-98.

“Managing in a World of Emerging Technologies,” Weatherhead Affiliate Program, December 1997.

“Attitude as an Antecedent to Information Systems Use: A Meta-Analysis of Twenty-Five Years of Empirical Research,” *Academy of Management*, 1997 (with H. Yang and B. Vandenbosch).

“Application of Artificial Intelligence Techniques to Problems in Business Forecasting: A Review of Empirical Results,” Ford Research Lab, March 1997.

“Automatic Identification of Features for Use in Rule-Based Forecasting,” *International Symposium on Forecasting*, Istanbul Turkey, June 1996.

“Does AI Research Aid Prediction? A Review and Evaluation,” *International Conference on Information Systems*, December 1995.

“Forecasting on the Internet,” *International Symposium on Forecasting*, Toronto, June 1995.

“On Worrying about the Impacts of Technology on Democracy,” Discussant at the *Conference on Democracy and the Culture of Communications*, Cleveland, April 1995.

“Valuing Information Technology,” Discussant at the *International Conference on Information Systems*, Vancouver, B.C., December 1994.

“Trends in Information Technology,” Federal Reserve Bank of Cleveland, December 1994.

“Use of Technology by Non-Profit Organizations,” *Achieving the Transforming Organization Conference*, Cleveland, November 1994.

“Error Measures for Comparing Forecasting Methods,” *ORSA/TIMS Conference*, Detroit, October 1994.

“Theoretical Foundations for Developing Rules for Extrapolation,” *The International Symposium on Forecasting*, Stockholm, Sweden, June 1994.

“The Use of Machine Learning to Refine Rule-Based Forecasting: An Analysis and Empirical Study,” *International Symposium on Forecasting*, Pittsburgh, PA, June 1993.

“Mixing Business Research and Arts Knowledge to Forecast Where the Money Will Come From,” Washington, D.C., April 1993.

“Forecasting Revenues in Public Radio: An Application of Expert Systems,” Mandel Center for Nonprofit Organizations, Cleveland, March 1993.

“Rule-Based Forecasting,” featured speech at the *1991 International Symposium on Forecasting*, New York and presented at U. of Auckland, U. of Canterbury, U. of Otago, Pennsylvania State U., Carnegie-Mellon U., University of Pittsburgh, Navy Personnel R & D Center, San Diego, 1991-1993.

“An Evaluation of Exponential Growth and Diffusion Models for Information Systems Spending Forecasts,” *International Symposium on Forecasting*, Wellington, New Zealand, August 1992.

“Decomposition of Time Series by Causal Forces,” *1992 Conference on Behavioral Decision Making*, San Francisco, May 1992.

“Information Systems Support for Managers and Professionals: Descriptions and Prescriptions,” Wharton Executive Education Program on Management Information Systems for Strategic Advantage in 1987 and 1988; Weatherhead School MIDS Partners Board, 1989; Japanese Institute of Office Automation, 1992.

“A Multidisciplinary Look at Forecasting,” *Financial Management Association*, October 1991.

“Applications of Rule-Based Forecasting,” *ORSA/TIMS Conference*, Nashville, May 1991.

“The Value of Causal Forces in Extrapolation,” *Decision Sciences Institute 21st Annual Meeting*, San Diego, November 1990.

“Modified Seasonal Factors in Exponential Smoothing,” *ORSA/TIMS Conference*, Philadelphia, October 1990.

“Workshop: Rules for Forecasters,” London School of Business, June 1990 and the *International Association of Business Forecasters*, Baltimore, October 1990.

“Mind-Machine Interaction,” featured speech at the *International Symposium on Forecasting*, Athens, Greece, June 1990.

“Judgmental Forecasting by an Expert vs. Forecasting by the Expert’s Rules,” *Behavioral Decision Research in Management Conference*, Philadelphia, June 1990.

“Closing a Knowledge Gap with Rule-Based Forecasting,” *Symposium on Integrating Technology into Business Education*, Carnegie-Mellon University, Pittsburgh, March 1990.

“Selecting and Applying the Proper Forecasting Method: A Rule-Based Approach,” MIDS Partners Board, Case Western Reserve University, December 1989.

“Information Systems Support for Managers and Professionals: Descriptions and Prescriptions,” Cleveland Data Center, City of Cleveland, October 1989.

“A Reanalysis of the M-Competition Using Relative Error Scores,” *ORSA/TIMS Joint National Meeting*, New York, October 1989.

“Expert Systems in Forecasting,” Session Organizer, *ORSA/TIMS Joint National Meeting*, New York, October 1989.

“Knowledge Acquisition Methods: A Computer-Aided Approach,” *Twelfth Research Conference on Subjective Probability, Utility and Decision Making*, Moscow, USSR, August 1989.

“Selection Rules for Extrapolation Methods: Rule-Based Forecasting,” *International Symposium on Forecasting*, Vancouver, B.C., June 1989.

“A Research Program for Improving Accuracy in Manpower Forecasts,” U.S. Navy Personnel Research & Development Center, San Diego, June 1989.

“Toward Computer-Aided Forecasting Systems: Gathering, Coding and Validating the Knowledge,” *TIMS Ninth International Conference on Decision Support Systems*, San Diego, June 1989.

“A Decision Support System to Aid in Forecasting,” U.S. Coast Guard, Washington, D.C., March 1989.

“Selecting and Applying the Proper Forecasting Method: A Rule-Based Approach,” INSEAD, Fontainebleau, France; January 1989 and Harvard University, Cambridge, April 1989.

“Intelligence for Software Systems: Where Do We Find It?,” Manchester School of Business, Manchester, UK, January 1989.

“Computer-Aided Forecasting,” *Conference on Technology in Business Education*, Stanford Graduate School of Business, December 1988.

“Problems and Opportunities for Government Forecasters,” keynote address *First Federal Forecasters Conference*, Washington, D.C., April 1988.

“Under What Conditions is Forecasting Accuracy Achieved? Expert Opinion and Empirical Evidence,” *International Symposium on Forecasting*, Amsterdam, June 1988.

“White Collar Computing: A Field Study Using Automated Logging,” *Hawaii International Conference on System Sciences*, December 1988.

“Measuring Computer Use,” IBM Thomas J. Watson Research Center, November 1987.

“Managerial Computing: Individual and Corporate Impacts,” IBM Corporate Headquarters, October 1987.

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