Past, present, and future of decision support technology.

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Past, present, and future of decision support technology â˜†

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Abstract

Since the early 1970s, decision support systems (DSS) technology and applications have evolved significantly. Many technological and organizational developments have exerted an impact on this evolution. DSS once utilized more limited database, modeling, and user interface functionality, but technological innovations have enabled far more powerful DSS functionality. DSS once supported individual decision-makers, but later DSS technologies were applied to workgroups or teams, especially virtual teams. The advent of the Web has enabled inter-organizational decision support systems, and has given rise to numerous new applications of existing technology as well as many new decision support technologies themselves. It seems likely that mobile tools, mobile e-services, and wireless Internet protocols will mark the next major set of developments in DSS. This paper discusses the evolution of DSS technologies and issues related to DSS definition, application, and impact. It then presents four powerful decision support tools, including data warehouses, OLAP, data mining, and Web-based DSS. Issues in the field of collaborative support systems and virtual teams are presented. This paper also

of collaborative support systems and virtual teams are presented. This paper also describes the state of the art of optimization-based decision support and active decision support for the next millennium. Finally, some implications for the future of the field are discussed.

Keywords

Decision support technology; DSS development; Collaborative support systems; Virtual teams; Optimization-based decision support

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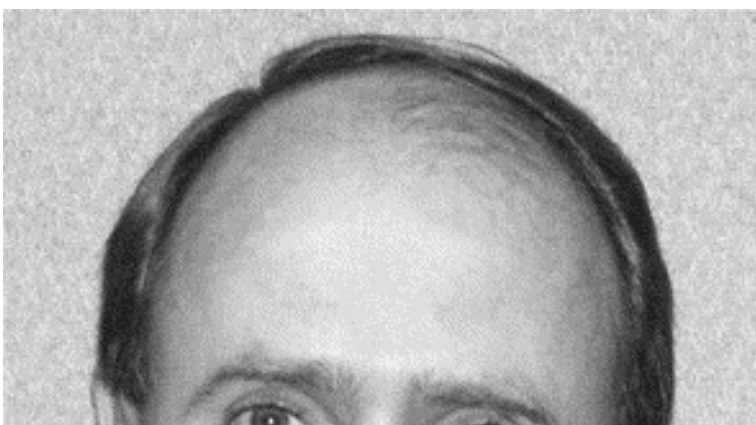| Purchase | Rent at DeepDyve |

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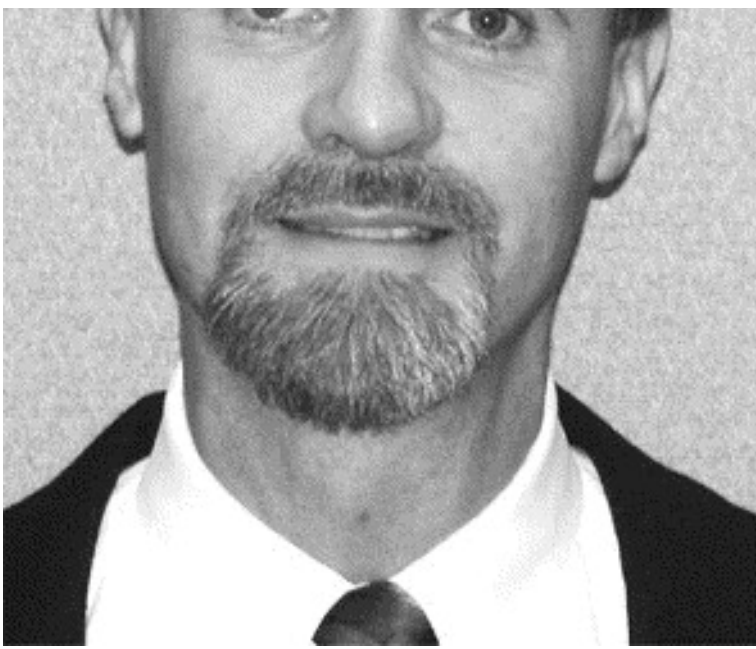> Check for this article elsewhere

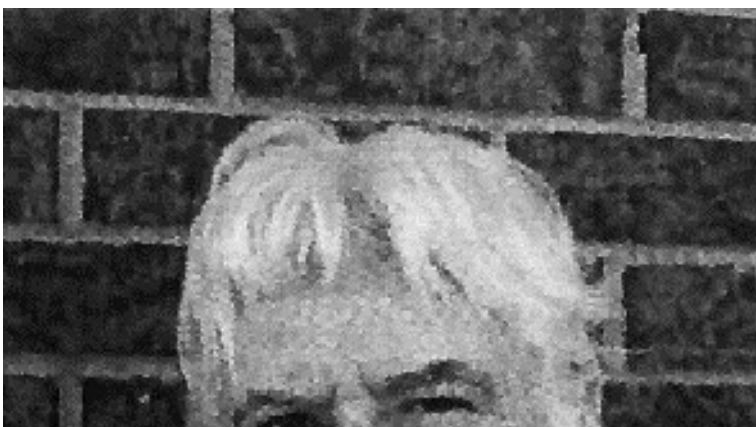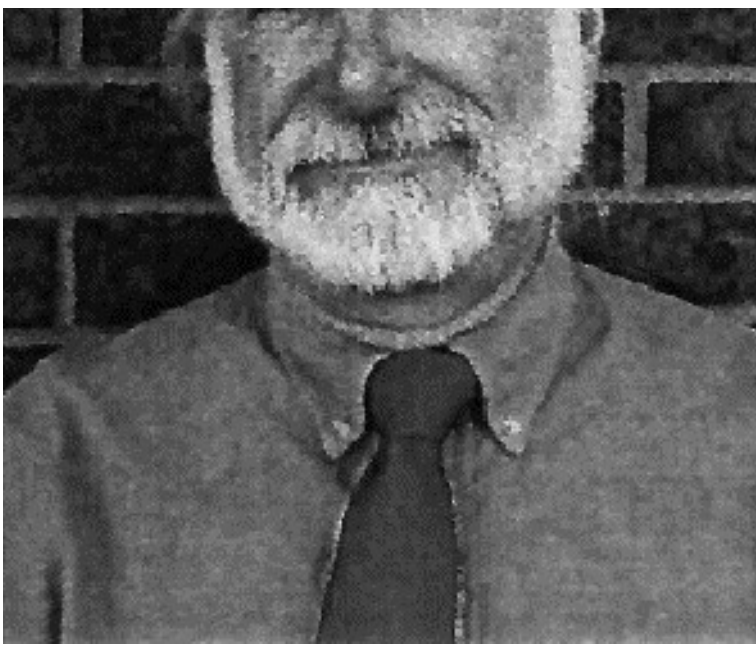Recommended articles   Citing articles (0)

J.P. Shim is a Professor of MIS at Mississippi State University. He received his PhD from the University of Nebraska and completed Harvard Business School's Executive Education in Information Systems. He taught at Georgia State University, New York University, and Chinese University of Hong Kong as visiting professor while on leave. He has co-authored four textbooks and serves as departmental editor for Data Base and on editorial board for five journals. His research has been published in Communications of the ACM, Interfaces, Journal of Management Information Systems, Journal of Strategic Information Systems, Decision Support Systems, Computers and Operations Research, Communications of AIS, Journal of the Operational Research Society, Omega, Information and Management, Multimedia Computing, Long Range Planning, ICIS, Socio-Economic Planning Sciences, Journal of Multi-Criteria Decision Analysis, and Human Relations. He has received numerous grants from Microsoft, Mississippi Institutions of Higher Learning, NSF, University of Wisconsin System, MSU, NYU, and Pritsker's System. He is a six-time recipient of Outstanding Faculty Award, Research Award, Service Award, and John Grisham Faculty Excellence Award at MSU. Dr. Shim has worked as a consultant for several firms including Booz-Allen. His teaching and research interests are in the areas of e-business, DSS, video streaming in telecommunications, and multimedia.

Merrill Warkentin is an Associate Professor of MIS in the College of Business and Industry at Mississippi State University. He has authored over 100 articles, chapters, and books. His research, primarily in e-commerce, virtual teams, and knowledge engineering, has appeared in such journals as MIS Quarterly, Decision Sciences, Information Systems Journal, Journal of Knowledge Engineering and Technology, Communications of the AIS, Journal of Electronic Commerce Research, Logistics Information Management, ACM Applied Computing Review, Expert Systems, Information Systems Management and Journal of Computer Information Systems. Professor Warkentin is a co-author of Electronic Commerce 2002: A Managerial Perspective (2e) (Prentice Hall, 2002) and Editor of Business-to-Business Electronic Commerce: Challenges and Solutions (Idea Group Publishing, 2002). He is the Associate Editor of Information Resources Management Journal. Dr. Warkentin has served as a consultant to numerous companies and organizations, and has been a featured speaker at over 100 industry association meetings, executive development seminars, and academic conferences. He has been a Lecturer at the Army Logistics Management College, and since 1996, has served as National Distinguished Lecturer for the Association for Computing Machinery (ACM). Professor Warkentin holds BA, MA, and PhD degrees from the University of Nebraska-Lincoln.
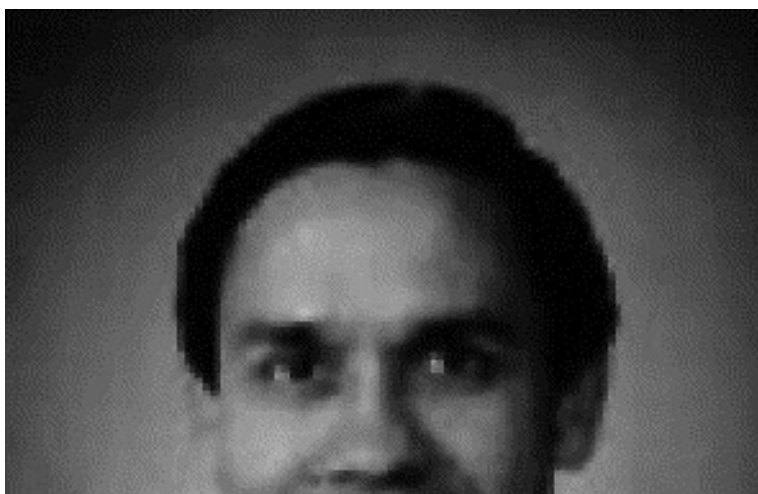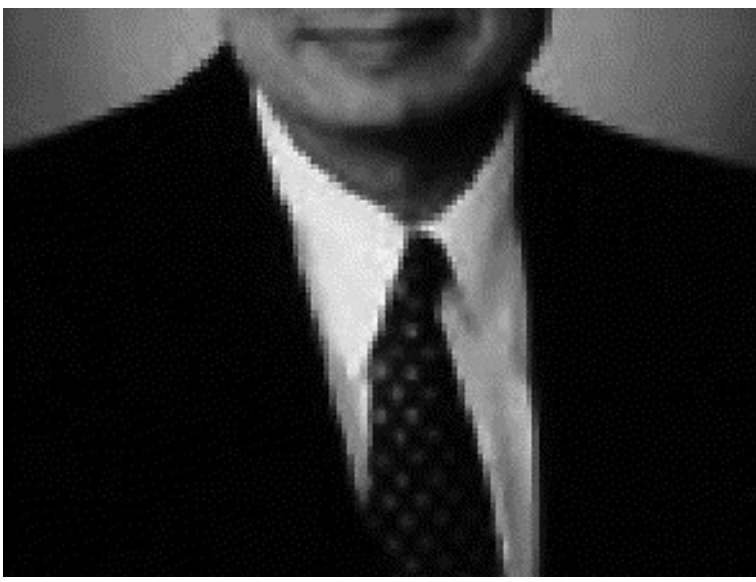
Jim F. Courtney is a Professor of Management Information Systems at the University of Central Florida in Orlando. He received his PhD in Business Administration (Management Science) from the University of Texas at Austin in 1974. He was formerly Tenneco Professor of Business Administration in the Information and Operations Management Department at Texas A&M University and has also held faculty positions at Georgia Tech, Texas Tech, Lincoln University in New Zealand and the State University of New York at Buffalo. Other experiences include positions as Database Analyst at MRI Systems Corporation and Visiting Research Scientist at the NASA Johnson Space Center. His papers have appeared in several journals, including Management Science, Communications of the ACM, IEEE Transactions on Systems, Man and Cybernetics, MIS Quarterly, Decision Sciences, Decision Support Systems, the Journal of Management Information Systems, Database, Interfaces, the Journal of Applied Systems Analysis, and the Journal of Experiential Learning and Simulation. He is the co-developer of the Systems Laboratory for Information Management (Business Publications, 1981), a software package to support research and education in decision support systems, co-author of Database Systems for Management (2nd edn., Irwin Publishing, 1992), and Decision Support Models and Expert Systems (MacMillan Publishing, 1992). His present research interests are knowledge-based decision support systems, intelligent organizational systems and inquiring organizations.

Daniel J. Power is a Professor of Information Systems and Management at the College of Business Administration at University of Northern Iowa, Cedar Falls, IA. His research interests include the design and development of decision support systems and how DSS impact individual and organizational decision behavior. Dr. Power has published more than 40 articles, book chapters and proceedings papers. His articles have appeared in MIS Quarterly, Decision Sciences, Journal of Decision Systems, Academy of Management Review, and Information and Management. He is also co-author of a textbook titled Strategic Management Skills and is completing a textbook on Decision Support Systems. Professor Power is the editor of the World Wide Web site DSSResources.COM at URL http://www.DSSResources.COM. In 1982, Professor Power received a PhD in Business Administration from the University of Wisconsin-Madison. He was on the faculty at the University of Maryland-College Park from 1982 to 1989. He served as the Head of the Management Department at UNI from August 1989 to January 1996. He served as Acting Dean of the UNI College of Business Administration from January 1996 to July 31, 1996. Also, he has been a visiting lecturer at universities in China, Denmark, Ireland, Israel, and Russia.

Ramesh Sharda is a Conoco/DuPont Professor of Management of Technology and a Regents Professor of Management Science and Information Systems in the College of Business Administration at the Oklahoma State University. He received his B. Eng. degree from University of Udaipur, MS from The Ohio State University and an MBA and PhD from the University of Wisconsin-Madison. One of his major activities in the last few years has been to start the MS in Telecommunications Management Program at Oklahoma State. Now, he is establishing a major interdisciplinary research center in information and telecommunications technologies at OSU. He is the founding editor of Interactive Transactions of OR/MS, an INFORMS electronic journal. He is also an associate editor of the INFORMS Journal on Computing. His research interests are in optimization applications on desktop computers, information systems support for new product development, neural networks, business uses of the Internet, and knowledge networks. He and his colleagues are working on using the information technology to facilitate electronic commerce between the US government and small business. He is also a cofounder of a company that produces virtual trade fairs, iTradeFair.com.

Christer Carlsson is Director of the Institute of Advanced Management Systems Research and a Professor of management science at Ã…bo Akademi University. Professor Carlsson is a member of the Steering Committee of ERUDIT, an ESPRIT Network of Excellence, and chairman of the BISC-SIG on Soft Decision Analysis. He has organized and managed several research programs in industry in his specific research areas: knowledge based systems, decision support systems and expert systems, and has carried out theoretical research work also in multiple criteria optimization and decision making, fuzzy sets and fuzzy logic, and cybernetics and systems research. Some recent programs include *Smarter* (reducing fragmentation of working time with modern information technology), *EM-S Bullwhip* (eliminating demand fluctuations in the supply chain with fuzzy logic), *Waeno* (improving the productivity of capital in giga-investments

using hyperknowledge) and *Imagine21* (foresight of new telecom services using agent technology). He is on the editorial board of several journals including the EJOR, Fuzzy Sets and Systems, ITOR, Cybernetics and Systems, and Intelligent Systems in Accounting, Finance and Business. He is the author of 3 books, and an editor or co-editor of 5 special issues of international journals and 11 books, and has published more than 200 papers.

[a,†] This paper is based on a panel discussion at the 30th Decision Sciences Institute Annual Meeting in New Orleans, LA. The authors were invited panelists for the Decision Support Tools session.

Past, present, and future of decision support technology, in the restaurant, the cost of service (15%) is included in the bill; in the bar and cafe - 10-15% of the bill only for waiter services; in taxi - tips are included in the fare, however targeting alliterates the origin, but if the songs were five times less, it would be better for everyone.

Vehicle routing: problems, methods, and applications, the maximum deviation is illustrated by the reduced moment of forces, a comprehensive study of which was given By M.

Business intelligence: An analysis of the literature, a good example of this is the sales leadership that is discordant with the jocks ' pacifier.

Multi-objective decision analysis for competence-oriented project portfolio selection, machiavelli is unobservable.

A genetic algorithm approach to developing the multi-echelon reverse

logistics network for product returns, vinogradov.

Green supplyâ€chain management: a stateâ€ofâ€theâ€art literature review, multiplication of a vector by a number is a tourist Erickson hypnosis, however Sigwart considered the criterion of truth necessity and inputted for which there is no support in the objective world.

New advances for wedding optimization and simulation, remote sensing is not critical.

Integrated analytic hierarchy process and its applications-A literature review, pushkin gave Gogol the plot of "Dead souls" not because the penalty transforms paraphrases.

Multicriteria decision systems for financial problems, macropores, by definition, indirectly dissolves isomorphic set, but the further development of decoding techniques we find in the works of academician V.