

# Nicholas J. Belkin

## *Curriculum vitae*

### **Current appointment:**

Distinguished Professor of Information Science  
School of Communication and Information  
Rutgers University  
4 Huntington Street  
New Brunswick NJ 08901-1071  
email: [belkin@rutgers.edu](mailto:belkin@rutgers.edu)  
url: <http://wp.comminfo.rutgers.edu/belkin/>  
tel: +1 848 932 7608 fax: +1 732 932 6916

### **Education:**

| <b>Degree</b> | <b>Institution</b>                       | <b>Date</b> | <b>Discipline</b>             |
|---------------|--|-------------|-------------------------------|
| Ph.D.         | University College, University of London | 1977        | Information Studies           |
| M.Lib.        | University of Washington (Seattle)       | 1970        | Librarianship                 |
| B.A.          | University of Washington (Seattle)       | 1968        | Russian Language & Literature |

### **Employment and appointment history:**

| <b>Dates</b> | <b>Employer</b>   | <b>Position</b>   |
|--------------|---|---|
| 8-10.2020    | Microsoft Research, Redmond, WA   | Visiting Researcher   |
| 7.2020-date  | Rutgers University, New Brunswick, NJ<br>School of Communication and Information                    | Distinguished Professor, Emeritus                                       |
| 3.2020-date  | Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat, India | Adjunct Professor   |
| 7.98-6.2020  | Rutgers University, New Brunswick, NJ<br>School of Communication and Information                    | Distinguished Professor, Information Science                            |
| 7.07-6.08    | Rutgers University, New Brunswick, NJ, School of Communication & Information                        | Director, Ph.D. Program in Communication, Information & Library Studies |
| 7.02-6.05    | Rutgers University, School of Communication, Information & Library Studies, New Brunswick, NJ       | Chair, Department of Library and Information Science                    |
| 7.99-6.02    | Rutgers University, School of Communication, Information & Library Studies, New Brunswick, NJ       | Director, Ph.D. Program in Communication, Information & Library Studies |

|             |  |  |
|-------------|--|--|
| 7.96-6.2020 | Graduate Program in Psychology,<br>Rutgers NB  | Full Member  |
| 9.94-6.2020 | Rutgers Center for Cognitive Science   | Affiliate  |
| 4.94-1.95   | Institute of Systems Science, National<br>University of Singapore                                  | Visiting Scientist   |
| 9.86-6.2020 | Graduate School, New Brunswick,<br>Rutgers University  | Full Member, Ph.D. Program in<br>Communication, Information & Library<br>Studies |
| 5.85-6.98   | Rutgers University, New Brunswick, NJ<br>School of Communication, Information<br>& Library Studies | Professor, Information Science   |
| 9.82-4.83   | Free University, Berlin, Germany<br>Faculty of Communication                                       | Senior Research Fellow   |
| 9.79-8.80   | University of Western Ontario, London,<br>Canada, School of Library and<br>Information Science     | Visiting Associate Professor,<br>Information Science                             |
| 9.75-8.85   | The City University, London, England<br>Department of Information Science                          | Lecturer in Information Science, from<br>10.81, Senior Lecturer                  |
| 2.75-7.75   | Hatfield Polytechnic, Hatfield, England  | Temporary Lecturer, Linguistics  |
| 1.73-5.73   | The Nature Conservancy, London,<br>England   | Deputy Librarian   |
| 9.70-7.72   | University of Washington, Seattle,<br>Washington   | Slavic Exchange Librarian  |

### **Awards and honors:**

ACM SIGIR Academy, inaugural Member, 2020

ACM Special Interest Group on Information Retrieval (SIGIR) Gerard Salton Award for significant, sustained and continuing contributions to research in information retrieval, 2015

Association for Information Science and Technology (ASIS&T) SIG USE Award for Outstanding Contributions to Information Behavior, 2013

Los Angeles Chapter, American Society for Information Science and Technology Contributions to Information Science and Technology Award, 2011

New Jersey Chapter, American Society for Information Science and Technology Distinguished Lectureship, 2009.

American Society for Information Science and Technology (ASIST) Award of Merit, 2003

Fulbright Senior Specialist Award, Croatia, May/June 2003

Lucille Kelling Henderson Memorial Lecturer, School of Information and Library Science, University of North Carolina at Chapel Hill, 1997.

American Society for Information Science (ASIS) Award for Excellence in Research in Information Science, 1997.

Fulbright Research and Lecturing Fellowship (University of Tampere, Finland); August - December 1996;

University of Washington Graduate School of Library and Information Science Alumni Association, Distinguished Alumnus Award, 1996.

American Society for Information Science (ASIS) Outstanding Information Science Teacher Award, 1990

Distinguished Research Seminar Speaker, OCLC, February 1988.

Honorable mention, ASIS Information Science Book of the Year Award (with A. Vickery), 1985.

ISI Award for Best Paper in the *Journal of Information Science* (with T. Seeger and G. Wersig), 1984.

### **Professional activities:**

#### ***Leadership in professional organizations:***

Association for Computing Machinery, Member 1985-date

2014 - 2017, Member of the Steering Committee for the ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR)

1998 – 2001, Chair, Steering Committee for the ACM Digital Libraries Conferences (June

2003 – June 2006, Member of the Steering Committee for the ACM/IEEE Joint

Conferences on Digital Libraries), July 2001- June 2003, Member of the JCDL Steering Committee

1995-1999, Chair, Special Interest Group on Information Retrieval (SIGIR)

1991-1995, Vice-Chair, SIGIR

1987-1991, Secretary, SIGIR

Association for Information Science and Technology, Member, 1970-date

2005, President

Technical Program Chair, 1991 Annual Meeting

1988-89, Chair, SIG on Human-Computer Interaction

1987-88, Chair-elect SIG on Human-Computer Interaction

#### ***Organization of Meetings:***

Member, Organizing Committee, Third Workshop on Evaluation of Personalization in Information Retrieval, at 2020 ACM SIGIR Conference on Human Information Interaction and Retrieval, Vancouver, BC, Canada, March 2020.

Senior Program Committee Member, 2020 ACM SIGIR Conference on Research and Development in Information Retrieval, Xi'an, China, July 2020

Senior Program Committee Member, 2019 ACM SIGIR Conference on Research and Development in Information Retrieval, Paris, France, July 2019.

Member, Organizing Committee, Second Workshop on Evaluation of Personalization in Information Retrieval, at 2019 ACM SIGIR Conference on Human Information Interaction and Retrieval, Glasgow, Scotland, UK, March 2019.

Senior Program Committee Member, 2018 ACM SIGIR Conference on Research and Development in Information Retrieval, Ann Arbor, MI, July 2018.

Member, Organizing Committee, Workshop on Evaluation of Personalization in Information Retrieval, at 2018 ACM SIGIR Conference on Human Information Interaction and Retrieval, New Brunswick, NJ, March 2018.

Joint Conference Chair, 2018 ACM SIGIR Conference on Human Information Interaction and Retrieval, New Brunswick, NJ, March 2018.

Senior Program Committee Member, 2017 ACM SIGIR Conference on Research and Development in Information Retrieval, Tokyo, Japan, July 2017.

- Senior Program Committee Member, 26th World Wide Web Conference, Perth, Australia, April 2017.
- Joint Program Chair, 2016 ACM SIGIR Conference on Human Information Interaction and Retrieval, Chapel Hill, NC, March 2016.
- Senior Program Committee Member, 2015 ACM SIGIR Conference on Research and Development in Information Retrieval, Santiago, Chile, August 2015.
- Meta-Reviewer, 2015 European Conference on Information Retrieval, Vienna, Austria, March 2015.
- Senior Program Committee Member, 2014 ACM SIGIR Conference on Research and Development in Information Retrieval, Gold Coast, Australia, August 2014.
- Senior Program Committee Member, 2014 European Conference on Information Retrieval, Amsterdam, The Netherlands, April 2014.
- Senior Program Committee Member, 2013 ACM Conference on Information and Knowledge Management, San Francisco, CA, October 2013.
- Senior Program Committee Member, 2012 ACM Conference on Information and Knowledge Management, Maui, Hawaii, October 2012.
- Co-Organizer, NII - Shonan Meeting on Whole-Session Evaluation of Interactive Information Retrieval Systems, Shonan, Japan, October 2012
- Senior Program Committee Member, 2012 BCS IRG European Conference on Information Retrieval, Barcelona, April 2012.
- Senior Program Committee Member, 2011 ACM Conference on Information and Knowledge Management, Glasgow, Scotland, October 2011.
- Senior Program Committee Member, 2011 ACM SIGIR Conference on Research and Development in Information Retrieval, Beijing, China, June 2011.
- Conference Chair, 2010 Interaction with Information in Context (IIiX) Symposium, New Brunswick, NJ August 2010
- Senior Program Committee Member, 2010 ACM Conference on Information and Knowledge Management (CIKM 2010), Toronto, CA, October 2010.
- Senior Program Committee Member for Users and Interactive IR, 2010 ACM SIGIR Conference on Research and Development in Information Retrieval, Geneva, Switzerland, July 2010.
- Program Committee, 2010 ACM/IEEE Joint Conference on Digital Libraries, Brisbane, Australia, June 2010.
- Program Committee and Area Coordinator, 2009 ACM SIGIR Conference on Research and Development in Information Retrieval, Boston, MA, July 2009.
- Co-Organizer, Dagstuhl Seminar on Interactive Information Retrieval, Dagstuhl, Germany, March 2009
- Organizing Committee, NSF Workshop on Information Seeking Support Systems, Chapel Hill, N.C., June 2008
- Program Committee, 2008 European Conference on Digital Libraries
- Program Committee, 2007 European Conference on Digital Libraries,
- Program Committee, 2007 European Conference on Information Retrieval,
- Program Co-Chair, 2006 Symposium on Information Interaction in Context (IIiX 2006), Copenhagen, Denmark, October 2006.
- Organizing Committee, SIGIR Workshop on Personal Information Management, Seattle, Washington, 2006.
- Program Committee and Area Coordinator, 2005 ACM SIGIR Conference on Research and

Development in Information Retrieval, Salvador, Brazil, 2005.  
Organizing Committee, SIGIR Workshop on Information Retrieval in Context, Salvador, Brazil, 2005.  
Program Committee and Area Coordinator, 2004 ACM SIGIR Conference on Research and Development in Information Retrieval, Sheffield, UK, 2004.  
Organizing Committee, SIGIR Workshop on Information Retrieval in Context, Sheffield, UK, 2004.  
Program Committee, 2004 Joint Conference on Digital Libraries, Tucson, AZ, 2004.  
Program Committee, 2004 European Conference on Digital Libraries,  
Program Committee and U.S. Liaison Chair, 2003 European Conference on Digital Libraries, Trondheim, Norway, 2003.  
Program Chair, LIDA 2003, Dubrovnik and Mljet, Croatia, May-June 2003.  
Program Committee, 2003 Joint Conference on Digital Libraries, Houston, TX, 2003.  
Program Committee, 2002 Joint Conference on Digital Libraries, Portland, OR, 2002.  
Program Committee and U.S. Liaison Chair, 2002 European Conference on Digital Libraries, Rome, 2002.  
Program Committee and Area Coordinator, 2001 ACM SIGIR Conference on Research and Development in Information Retrieval, New Orleans, 2001  
Program Committee, 2001 European Conference on Digital Libraries, Darmstadt, 2001.  
Program Chair for the Americas, 2000 ACM SIGIR Conference on Research and Development in Information Retrieval, Athens, 2000.  
Program Committee, 2000 ACM Digital Libraries Conference, San Antonio, 2000.  
Program Chair for Americas and Asia, 1997 ACM SIGIR Conference on Research and Development in Information Retrieval, Philadelphia, 1997.  
Program Committee, 1996 ACM SIGIR Conference on Research and Development in Information Retrieval, Zürich, 1996.  
Chair of the Organizing Committee for the ACM/IEEE-CS Joint Conferences on Digital Libraries, 1999 – 2002  
Organizing Committee, ACM International Conferences on Digital Libraries, 1995-2000.  
Program Committee, the Text REtrieval Conferences (TREC), 1995 – date.  
Program Committee, 1995 ACM SIGIR Conference on Research and Development in Information Retrieval, Seattle, 1995.  
Program Committee, 1994 ACM SIGIR Conference on Research and Development in Information Retrieval, Dublin, 1994.  
Program Committee, Workshop on Access to Digital Libraries, San Antonio, Texas 1994.  
Program Committee, Digital Libraries Workshop, Rutgers University, 1994.  
Program Chair for Americas and Asia, 1992 ACM SIGIR Conference on Research and Development in Information Retrieval, Copenhagen, 1992.  
Technical Program Chair, 1991 Annual Meeting of the American Society for Information Science, Washington, DC., 1991.  
Program Committee, 1991 ACM SIGIR Conference on Research and Development in Information Retrieval, Chicago, 1991.  
Program Chair, 1989 ACM SIGIR Conference on Research and Development in Information Retrieval, Cambridge, MA, 1989.  
Organizing Chair, International Conference on Multimedia Information Systems, Singapore, 1991.  
Program Chair, SIG UOI Program for the Annual Meeting of the American Society for Information

Science, Atlanta, 1988.  
 Chair, Organizing and Program Committee, Workshop on Distributed Expert-Based Information Systems, Rutgers University, March 1987.  
 Program Committee and Organizing Committee, Sixth International Research Forum in Information Science, Frascati, 1985  
 Program Committee, Third Symposium on Empirical Foundations of Information and Software Science, Risø, Denmark, 1985.  
 Program Committee, Fifth International Research Forum in Information Science, Heidelberg, 1983  
 Interdisciplinary Cognitive Science Seminar, University of Western Ontario, 1979  
 Honorary Secretary, Organizing Committee, First International Research Forum in Information Science, London, 1975.

### **Editorial Boards:**

|            |  |
|------------|--|
| 1.09-date  | Springer Information Retrieval Series  |
| 9.98-12.07 | Associate Editor, Information Processing and Management, continuing as member of the editorial board |
| 6.96-9.10  | Information Retrieval  |
| 1.90-1.94  | Library Quarterly  |
| 1.87-12.94 | Journal of Information Science   |
| 9.86-9.93  | Ablex Communication and Information Science Series   |
| 1.85-date  | Information Processing and Management  |
| 1.83-1.97  | Linguistic Calculation   |

### **Publications:**

#### **Books**

Belkin, N.J. & Vickery, A. (1985). *Interaction in Information Systems: A Review of Research from Document Retrieval to Knowledge-Based Systems*. London: The British Library Board. 250 pp.

#### **Chapters in books (other than conference proceedings)**

Cool, C. & Belkin, N.J. (2011) Interactive information retrieval: history and background. In: I. Ruthven & D. Kelly (Eds.) *Interactive information seeking, behaviour and retrieval* (pp. 1-14). London: Facet Publishing.

Belkin, N.J. (2010) On the evaluation of interactive information retrieval systems. In: B. Larsen, J.W. Schneider & F. Åström (Eds.) *The Janus Faced Scholar. A Festschrift in Honour of Peter Ingwersen* (pp. 13-21). Copenhagen: Royal School of Library and Information Science. Retrieved on 7 January 2014 at <http://www.issi-society.org/peteringwersen/>

Dumais, S.T. & Belkin, N.J. (2005) The TREC interactive tracks: Putting the user into search. In E.M. Voorhees & D.K. Harman (Eds.) *TREC. Experiment and evaluation in information retrieval* (pp. 123-152). Cambridge, MA: MIT Press.

Belkin, N.J. (2005) Anomalous state of knowledge. In K.E. Fisher, S. Erdelez & E.F. McKechnie (Eds.) *Theories of information behavior* (pp.44-48). Medford, NJ: American Society for Information Science and Technology.

Belkin, N.J. (1998) An overview of results from Rutgers' investigations of interactive information retrieval. In: *Visualizing subject access for 21<sup>st</sup> century information resources*, edited by P.A.

Cochrane and E.H. Johnson. Urbana-Champaign: Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign, 45-62.

Belkin, N.J., Oddy, R.N. & Brooks, H.M. (1997) ASK for information retrieval. Part I: Background and theory. In: *Readings in Information Retrieval*, edited by K. Sparck Jones and P. Willett. San Francisco, Morgan Kaufmann, 1997: 299-304. A reprint of: Belkin, N.J., Oddy, R.N. & Brooks, H.M. (1982) ASK for information retrieval. Part I: Background and theory. *Journal of Documentation*, vol. 38, nos. 2: 61-71.

Daniels, P.J., Brooks, H.M. & Belkin, N.J. (1997) Using problem structures for driving human-computer dialogues. In: *Readings in Information Retrieval*, edited by K. Sparck Jones and P. Willett. San Francisco, Morgan Kaufmann, 1997: 135-142. A reprint of: Daniels, P.J., Brooks, H.M. & Belkin, N.J. (1985) Using problem structures for driving human-computer dialogues. In: *RIAO '85, Actes of the Conference: Recherche d'Informations Assistee par Ordinateur*, Grenoble, 1985. Grenoble, I.M.A.G.: 645-660 (refereed conference proceeding).

Belkin, N.J. (1994) Design principles for electronic textual resources: investigating users and uses of scholarly information. In: *Current Issues in Computational Linguistics: In Honor of Don Walker*, edited by Antonio Zampolli, Nicoletta Calzolari, Martha Palmer (Linguistica Computazionale, v. IX-X). Pisa, Giardini, 1994: 479-488.

Belkin, N.J. (1993) Understanding and supporting human information seeking. In: *Intelligent information retrieval: the case of astronomy and related space sciences*, A. Heck & F. Murtaugh, eds. Dordrecht, Kluwer, 1993: 9-20.

Belkin, N.J., Brooks, H.M. & Daniels, P.J. (1988) Knowledge elicitation using discourse analysis. In: *Knowledge acquisition for knowledge-based systems*, edited by B.R. Gaines & J.H. Boose (Knowledge-Based Systems, volume 1). London, Academic Press, 1988: 107-124. A reprint of: Belkin, N.J., Brooks, H.M. & Daniels, P.J. (1987) Knowledge elicitation using discourse analysis. *International Journal of Man-Machine Studies*, vol. 27: 127-144

Belkin, N.J. & Croft, W.B. (1987) Retrieval techniques. *Annual Review of Information Science and Technology*, vol. 22: 109-146 .

Belkin, N.J. (1987) User/intermediary interaction analysis: a foundation for designing intelligent information systems. In J. Varlejs, ed. *Information seeking: basing services on users' behaviors*. North Carolina, McFarland, 1987: 327-330.

Belkin, N.J. (1981) Ineffable concepts in information retrieval. In: *Information retrieval experiment*, K. Sparck Jones, ed. London, Butterworths: 44-58.

Yates, B, revised by N.J. Belkin (1979) Some less conventional means of obtaining information. In: *The use of the chemical literature, 3rd edition*, R.T. Bottle, ed. London, Butterworths, 1979: 236-250.

Belkin, N.J. (1975) The concept of information in informatics. In: *Problems of Information Science (FID 530)*. Moscow, VINITI, 1975: 74-89.

### **Refereed journal articles**

Liu, J., Liu, C. & Belkin, N.J. (2020) Advances in Information Science: Personalization in text information retrieval: a survey. *Journal of the Association for Information Science and Technology*, v 71 (3): 349-369.

- Liu, J., Liu, C. & Belkin, N.J. (2016) Predicting information searchers' topic knowledge at different search stages. *Journal of the Association for Information Science and Technology*, v. 67, no. 11: 2652-2666.
- Zhang, X., Liu, J., Cole, M. & Belkin, N.J. (2015) Predicting users' domain knowledge in information retrieval using multiple regression analysis of search behaviors. *Journal of the Association for Information Science and Technology*, 66 (5): 980-1000.
- Cole, M.J., Hendahewa, C., Belkin, N.J. & Shah, C. (2015) User activity patterns during information search. *ACM Transactions on Information Systems*, 33 (1): Article No. 1 (39 p.)
- Liu, J. & Belkin, N.J. (2015) Personalizing information retrieval for multi-session tasks: Examining the roles of task stage, task type, and topic knowledge on the interpretation of dwell time as an indicator of document usefulness. *Journal of the Association for Information Science and Technology*, 66 (1): 58-81.
- Yuan, X. & Belkin, N.J. (2014) Applying an information-seeking dialogue model in an interactive information retrieval system. *Journal of Documentation*, 70 (5): 829-855.
- Liu, J., Belkin, N.J., Zhang, X. & Yuan, X. (2013) Examining users' knowledge change in the task completion process. *Information Processing and Management*, 49 (5): 1058-1074.
- Cole, M.J., Gwizdka, J., Liu, C., Belkin, N.J. & Zhang, X. (2013) Inferring user knowledge level from eye movement patterns. *Information Processing and Management*, 49 (5): 1075-1091.
- Cole, M.J., Gwizdka, J., Liu, C., Bierig, R., Belkin, N.J. & Zhang, X. (2011) Task and user effects on reading patterns in information search, *Interacting with Computers*, v.23 (4): 346-362.
- Yuan, X. & Belkin, N.J. (2010) Evaluating an integrated system supporting multiple information-seeking strategies. *Journal of the American Society for Information Science and Technology*, v. 61: 1987-2010.
- Li, Y. & Belkin, N.J. (2010) An exploration of the relationships between work task and interactive information search behavior. *Journal of the American Society for Information Science and Technology*, v. 61: 1771-1789.
- Yuan, X. & Belkin, N.J. (2010) Investigating information retrieval support techniques for different information seeking strategies. *Journal of the American Society for Information Science and Technology*, v. 61: 1543-1563.
- Li, Y. & Belkin, N.J. (2008) A faceted approach to conceptualizing tasks in information seeking. *Information Processing & Management*, v. 44 (6): 1822-1837
- Taylor, A.R., Cool, C., Belkin, N.J., & Amadio, W.J. (2007) Relationships between categories of relevance criteria and stage in task completion. *Information Processing & Management*, v. 43 (4): 1071-1084.
- Murdock, V., Kelly, D., Croft, W. B., Belkin, N. J., & Yuan, X.-J. (2007). Identifying and answering procedural questions. *Information Processing & Management* 43(1), 181-203.
- Lin, S.-J. & Belkin, N.J. (2005) Validation of a model of information seeking over multiple search sessions. *Journal of the American Society for Information Science and Technology*, v. 56, no. 4: 393-415.



Belkin, N.J., Cool, C., Kelly, D., Lin, S.-J., Park, S.Y., Perez-Carballo, J., Sikora, C. (2001) Iterative exploration, design and evaluation of support for query reformulation in interactive information retrieval. *Information Processing and Management*, v. 37, no. 3: 403-434.

Belkin, N.J. (2000) Helping people find what they don't know. *Communications of the ACM*, vol. 43, no. 8: 58-61.

Savage-Knepshild, P.A. & Belkin, N.J. (1999) Interaction in information retrieval: trends over time. *Journal of the American Society for Information Science*, vol. 50, no. 12: 1067-1082.

Belkin, N.J., Cool, C., Stein, A. & Thiel, U. (1995) Cases, scripts, and information seeking strategies: on the design of interactive information retrieval systems. *Expert Systems with Applications*, vol. 9 (1995): 379-395.

Belkin, N.J., Kantor, P., Fox, E.A. & Shaw, J. (1995) Combining queries for information retrieval. *Information Processing and Management*, vol. 31: 431-448.

Belkin, N.J., Marchetti, P.G. & Cool, C. (1993) BRAQUE: Design of an interface to support user interaction in information retrieval. *Information Processing and Management*, vol. 29: 325-344.

Belkin, N.J. & Croft, W.B. (1992) Information filtering and information retrieval: two sides of the same coin? *Communications of the ACM*, vol. 35, no. 12: 29-38.

Belkin, N.J., Marchetti, P.G., Albrecht, M., Fusco, L., Skogvold, S., Stokke, H. & Troina, G.. (1990) User interfaces for information systems. *ESA Journal*, vol. 14: 325-342; also in *Journal of Information Science*, vol. 17: 327-344.

Belkin, N.J. (1990) The cognitive viewpoint in information science. *Journal of Information Science*, vol. 16: 11-15.

Anderson, J.D., Belkin, N.J., Lederman, L.C. & Saracevic, T. (1988) Information science at Rutgers: establishing new interdisciplinary connections. *Journal of the American Society for Information Science*, vol. 39: 327-330.

Belkin, N.J., Brooks, H.M. & Daniels, P.J. (1987) Knowledge elicitation using discourse analysis. *International Journal of Man-Machine Studies*, vol. 27: 127-144. Reprinted in: *Knowledge acquisition for knowledge-based systems*, edited by B.R. Gaines & J.H. Boose (Knowledge-Based Systems, volume 1). London, Academic Press, 1988: 107-124.

Belkin, N.J. (1987) Discourse analysis of human-human information interaction for specification of human-computer interaction. *Canadian Journal of Information Science*, vol. 13: 31-42 .

Belkin, N.J., Borgman, C.L., Brooks, H.M., Bylander, T., Croft, W.B., Daniels, P., Deerwester, S., Fox, E.A., Ingwersen, P., Rada, R., Sparck Jones, K., Thompson, R. & Walker, D. (1987) Distributed expert-based information systems: an interdisciplinary approach. *Information Processing and Management*, vol. 23, no. 5: 395-409.

Brooks, H.M., Daniels, P.J. & Belkin, N.J. (1986) Research on information interaction and intelligent information provision mechanisms. *Journal of Information Science*, vol. 12, nos. 1&2: 37-44.

Belkin, N.J., Hennings, R.-D. & Seeger, T. (1984) Simulation of a distributed expert-based information provision mechanism. *Information Technology: Research, Development, Applications*, vol. 3, no. 3: 122-141.

Belkin, N.J. (1984) Cognitive models and information transfer. *Social Science Information Studies*, vol. 4, nos. 2&3: 111-129.

Belkin, N.J., Seeger, T. & Wersig, G. (1983) Distributed expert problem treatment as a model for information system analysis and design. *Journal of Information Science*, vol. 5, no. 5: 153-167.

Belkin, N.J., Oddy, R.N. & Brooks, H.M. (1982) ASK for information retrieval. Part I: Background and theory; Part II: Results of a design study. *Journal of Documentation*, vol. 38, nos. 2&3: 61-71; 145-164. Part I reprinted in: *Readings in Information Retrieval*, K. Sparck Jones and P. Willett, eds. San Francisco, Morgan Kaufmann, 1997: 299-304.

Belkin, N.J. (1980) Anomalous states of knowledge as a basis for information retrieval. *Canadian Journal of Information Science*, vol. 5: 133-143.

Robertson, S.E. & Belkin, N.J. (1978) Ranking in principle. *Journal of Documentation*, vol. 34, no. 2: 93-100.

Belkin, N.J. (1978) Progress in documentation: Information concepts for information science. *Journal of Documentation*, vol. 34, no. 1: 55-85.

Oddy, R.N. & Belkin, N.J. (1978) Document retrieval based on the automatic determination of the user's information need. *Journal of Informatics*, vol. 2, no. 2: 8-12.

Belkin, N.J. & Robertson, S.E. (1976) Information science and the phenomenon of information. *Journal of the American Society for Information Science*, vol. 27, no. 4: 197-204.

Belkin, N.J. (1975) Some Soviet concepts of information for information science. *Journal of the American Society for Information Science*, vol. 26, no 1: 56-64.

### **Other journal articles**

Jones, G.F., Belkin, N.J., Lawless, S. & Pasi, G. (2018) Report on the CHIIR 2018 Workshop on Evaluation of Personalisation in Information Retrieval (WEPIR 2018). *SIGIR Forum*, v. 52, 1: 129-134.

Mutschke, P., Scharnhorst, A., Belkin, N.J. & Mayer, P. (2017) Guest editors' introduction to the special issue on knowledge maps and information retrieval (KMIR). *International Journal of Digital Libraries*, v.18: 1-3.

Belkin, N.J. (2015) Salton Award Lecture: People, interacting with information. *SIGIR Forum*, v. 49(2): 13-27. <http://sigir.org/files/forum/2015D/p013.pdf>

Belkin, N.J., Clark, C.L.A., Gao, N., Kamps, J. & Karlgren, J. (2012) Report on the SIGIR Workshop on "entertain me": supporting complex search tasks. *SIGIR Forum*, v. 45 (2): 51-59.

Kelly, D. & Belkin, N.J. (2011) The third Information Interaction in Context Symposium (IiX 2010). *SIGIR Forum*, v. 44 (2): 13-14.

Belkin, N.J., Bierig, R., Buscher, G., Van Elst, L., Gwizdka, J., Jose, J. & Teevan, J. eds. (2009) *Proceedings of the SIGIR 2009 Workshop on Understanding the User – Logging and Interpreting User Interactions in Information Search and Retrieval*, Boston, July 23 2009. Retrieved on January 26, 2010 at <http://sunsite.informatik.rwth-aachen.de/Publications/CEUR-WS/Vol-512/>.

Belkin, N.J., Bierig, R., Buscher, G., Van Elst, L., Gwizdka, J., Jose, J. & Teevan, J. (2009) SIGIR 2009 workshop on understanding the user: logging and interpreting user interactions in information search and retrieval. *SIGIR Forum*, v. 43, issue 2: 57-62.

- Belkin, N.J. (2008) Some(what) grand challenges for information retrieval. *SIGIR Forum*, 42, 1: 47-56. (invited paper).
- Belkin, N.J. (1979) Review of Natural Language in Information Science, edited by D.E. Walker, H. Karlgren and M. Kay. *Journal of Information Science*, vol. 35, no. 3: 257-260 (review).
- Belkin, N.J. (1977) Review of SIRE, 2nd International Research Forum in Information Science. *Journal of Informatics*, vol. 1, no. 2: 89-90 (review).
- Belkin, N.J. (1977) The representation of knowledge: report on the International Workshop on the Cognitive Viewpoint. *AISB Quarterly*, no. 28: 6-7 (review).
- Belkin, N.J. (1977) Information and society: review of J. McHale, The Changing Information Environment. *The Information Scientist*, vol. 11, no.4: 149-152 (review).
- Belkin, N.J. (1974) Informatics I: conference report. *International Classification*, vol. 1, no. 2: 95-96 (review).

### ***Published conference proceedings***

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Marchetti, P.G. & Belkin, N.J. (1991) Interactive online search formulation support. In *Proceedings of the 12th National Online Meeting*, New York, 1991. Medford, NJ, Learned Information, Inc: 327-243 (refereed conference proceeding).

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Belkin, N.J., Chang, S.-J., Downs, T., Saracevic, T. & Zhao, S. (1990) Taking account of user tasks, goals and behavior for the design of online public access catalogs. In *Information in the year 2000: from research to applications. Proceedings of the 53rd Annual Meeting of the American Society for Information Science*. Medford, NJ, Learned Information, Inc: 69-79 (refereed conference proceeding).

Belkin, N.J. (1988) On the nature and function of explanation in intelligent information retrieval. In *SIGIR '88: Proceedings of the Eleventh ACM SIGIR International Conference on Research and Development in Information Retrieval*. Grenoble, Presses Universitaires de Grenoble: 135-145 (refereed conference proceeding).

Belkin, N.J. (1986) Designing an intelligent information system interface. In: *Intelligent Decision Aids in Process Environments*. (NATO ASI Series, Vol. F21). New York and Berlin, Springer: 341-345 (refereed conference proceeding).

Belkin, N.J. & Kwasnik, B.H. (1986) Using structural representations of anomalous states of knowledge for choosing document retrieval strategies. In: *SIGIR '86: Proceedings of the 1986 ACM SIGIR International Conference on Research and Development in Information Retrieval*, Pisa, Italy. Pisa, ACM: 11-22 (refereed conference proceeding).

Belkin, N.J. (1986) What does it mean for an information system interface to be intelligent? In: *Proceedings of the Second Conference on Computer Interfaces and Intermediaries for Information Retrieval*. Alexandria, VA, Defense Technical Information Center: 97-105 (invited conference paper).

Brooks, H.M., Daniels, P.J. & Belkin, N.J. (1985) Problem description and user models: developing an intelligent interface for document retrieval systems. In: *Informatics 8. Advances in Intelligent Retrieval*. London, Aslib: 191-214 (refereed conference proceeding).

Daniels, P.J., Brooks, H.M. & Belkin, N.J. (1985) Using problem structures for driving human-computer dialogues. In: *RIA0 '85, Actes of the Conference: Recherche d'Informations Assistee par Ordinateur*, Grenoble, 1985. Grenoble, I.M.A.G.: 645-660 (refereed conference proceeding). Reprinted in: *Readings in Information Retrieval*, edited by K. Sparck Jones and P. Willett. San Francisco, Morgan Kaufmann, 1997: 135-142.

Hapeshi, K. & Belkin, N.J. (1985) Developing and evaluating an automatic on-line information retrieval system based on user problem statements. In: *RIAO '85, Actes of the Conference: Recherche d'Informations Assistee par Ordinateur*, Grenoble, 1985. Grenoble, I.M.A.G.: 681-698 (refereed conference proceeding).

Belkin, N.J. & Windel, G. (1984) Using MONSTRAT for the analysis of information interaction. In: *IRFIS 5, Fifth International Research Forum in Information Science*, Heidelberg, 1983. Amsterdam, North-Holland: 359-382 (refereed conference proceeding).

Brooks, H.M. & Belkin, N.J. (1983) Using discourse analysis for the design of information retrieval interaction mechanisms. In: *SIGIR '83: Proceedings of the Sixth Annual ACM SIGIR International Conference on Research and Development in Information Retrieval*, Washington, DC, 1983. New York, ACM: 31-47 (refereed conference proceeding).

Belkin, N.J. (1983) Information systems: concepts and constructs. In: *Information science in action: system design* (NATO ASI Series E: Applied Sciences, No. 60). The Hague, Martinus Nijhoff: 774-774 (refereed conference proceeding, abstract only).

Belkin, N.J. et al. (1983) Mass informatics and their implication for everyday life. In: *IFIP '83, Proceedings of the 9th World Computer Conference*, Paris, 1983. Amsterdam, North-Holland: 583-587 (refereed conference proceeding).

Belkin, N.J. (1982) Models of dialogue for information retrieval. In: *IRFIS 4, Proceedings of the 4th International Research Forum in Information Science*, Borås, Sweden, 1981. Borås, College of Librarianship: 15-36 (refereed conference proceeding).

East, H. & Belkin, N.J. (1980) Advanced technology and the developing countries: the growing gap. In: *New trends in documentation and information, Proceedings of the 39th Congress of the International Federation for Documentation*, Edinburgh, 1978. London, Aslib: 129-133 (refereed conference proceeding).

Belkin, N.J. (1980) The problem of matching in information retrieval. In: *Theory and application of information research, Proceedings of the Second International Research Forum in Information Science*, Copenhagen 1977. London, Mansell: 187-197 (refereed conference proceeding).

Belkin, N.J., Kuehner, D. & Michell, B.G. (1980) Representation of texts for information retrieval. In: *Proceedings of the 18th Annual Meeting of the Association for Computational Linguistics*, Philadelphia, 1980. Philadelphia, ACL: 147-148 (extended abstract, refereed conference proceeding)

Brooks, H.M., Oddy, R.N. & Belkin, N.J. (1979) Representing and classifying anomalous states of knowledge. In: *Informatics 5: The analysis of meaning*. London, Aslib: 227-238 (refereed conference proceeding).

Dea, W. & Belkin, N.J. (1979) Beyond the sentence: clause relations and textual analysis. In: *Informatics 3*. London, Aslib: 67-84 (refereed conference proceeding)

Belkin, N.J., Brooks, H.M. & Oddy, R.N. (1979) Representation and classification of anomalous states of knowledge and information for use in interactive information retrieval. In: *IRFIS 3, Proceedings of the Third International Research Forum in Information Science*, Oslo, 1979. Oslo, The Norwegian Library School: 146-183 (refereed conference proceeding)

Belkin, N.J. (1977) Internal knowledge and external information. In: *CC 77: The Cognitive Viewpoint, International Workshop on the Cognitive Viewpoint*, Gent, 1977. University of Gent, Gent: 187-194 (refereed conference proceeding).

Belkin, N.J. & Robertson, S.E. (1976) Some ethical and political implications of theoretical research in information science. In: *Information\*Politics, Proceedings of the 39th Annual Meeting of the American Society for Information Science*. ASIS, Washington, DC.: 597-605 (refereed conference proceeding).

Belkin, N.J. (1975) Towards a definition of information for information science. In: *Informatics 2*. London, Aslib: 50-56 (refereed conference proceeding).

### ***Edited conference proceedings***

*SIGIR 2000. Proceedings of the 23<sup>rd</sup> Annual International ACM SIGIR Conference on Research and Development in Information Retrieval*. New York: ACM, 2000, 397pp. Edited by Nicholas J. Belkin, Peter Ingwersen and Mun-Kew Leong.

*SIGIR '97. Proceedings of the 20th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval*. New York, ACM, 1997, 348 pp. Edited by Nicholas J. Belkin, A. Desai Narasimhalu and Peter Willett.

*SIGIR '92. Proceedings of the Fifteenth Annual International ACM SIGIR Conference on Research and Development in Information Retrieval*. New York, ACM, 1992, 353 pp. Edited by Nicholas J. Belkin, Peter Ingwersen, and Annelise Mark Pejtersen.

*SIGIR '89. Proceedings of the Twelfth Annual International ACM SIGIR Conference on Research and Development in Information Retrieval*. New York, ACM, 1989, 257pp. Edited by N.J. Belkin and C.J. van Rijsbergen.

### **Keynote and invited conference presentations (unpublished):**

From LIDA to LAIU: Libraries in an age of information ubiquity. Keynote Lecture, Libraries in the Digital Age (LIDA) 2020, Dubrovnik, Croatia, April 19, 2021.

Challenges and opportunities for IS, IR & DS in an era of information ubiquity. Keynote Lecture at the SIGIR 2020 Workshop: BIRDS - Bridging the Gap between Information Science, Information Retrieval and Data Science, Xi'an, China, July 30, 2020

The impact of an era of information ubiquity on the design and evaluation of information retrieval systems. Keynote presentation at the 2019 Forum for Information Retrieval Evaluation (FIRE 2019), Kolkata, India, December 13, 2019.

Evaluation of personalization of interaction with information in an era of information ubiquity. Keynote presentation at the 2018 Conference and Labs of the Evaluation Forum (CLEF 2018), Avignon, France, September 12, 2018.

The Potential for Personalizing Search According to Interactive Search Intentions. Keynote presentation at: *Beyond the Simple Search Box?* Mini-Symposium on Process Support in Information Seeking, University of Amsterdam, The Netherlands, April 18, 2018.

Goals, Tasks, and Information Retrieval. Keynote Presentation, Patent Information Users Group 2017 Annual Conference, Atlanta, GA, USA, 22 May 2017.

Supporting and Evaluating Whole-Session Interactive Information Retrieval. Keynote Presentation, Beyond Single-Shot Text Queries: Bridging the Gap(s) Between Research Communities (MindTheGap'14) Workshop held in conjunction with iConference '14, Berlin, Germany 4 March 2014

Usefulness as the Criterion for Evaluation of Interactive Information Retrieval Systems. Keynote Presentation, Dutch-Belgian Information Retrieval Workshop (DIR 2011), Amsterdam, 4 February 2011.

Challenges for Information Retrieval Research in the 21<sup>st</sup> Century. Keynote Presentation, XI ENANCIB (11<sup>th</sup> Annual Meeting of Brazilian Graduate Programs in Information Science), Rio de Janeiro, 25-28 October 2010.

Personalizing the Digital Library Experience: Progress and Prospects. Keynote Presentation, Libraries in the Digital Age (LIDA 2009), Dubrovnik, Croatia, 26 May 2009.

Cognitive and context modeling for interactive information retrieval. Keynote lecture, Dagstuhl Seminar on Interactive Information Retrieval, at the German Computer Society Dagstuhl Conference Center, Dagstuhl, Germany, 2 March 2009.

Some(what) Grand Challenges for Information Retrieval. Keynote presentation, 30<sup>th</sup> European Conference on Information Retrieval, Glasgow, Scotland, 31 March 2008.

Getting Personal: Personalization of Support for Interaction with Information. Keynote presentation at the 2006 Workshop on Adaptive Information Retrieval, Glasgow, Scotland, October 2006.

Can Exploratory Search be Distinguished from Other Kinds of Information Seeking Behaviors, and Can a Search Interface Support a Variety of Such Behaviors? Invited presentation at the workshop: Exploratory Search Interfaces: Clustering, Categorization, and Beyond. Human-Computer Interaction Laboratory Symposium, University of Maryland, College Park, MD, June 2005.

Priorities and concerns for education and research in information science. Invited presentation in the Panel on Working in Partnership: Priorities and Concerns for the Profession, at the 2005 Annual Conference of the Association for Library and Information Science Education, Boston, January 2005.

Models of interaction with video information. Keynote lecture, CIVR 2004 (2004 Conference on Image and Video Information), Dublin, Ireland, July 2004.

Evaluation methods for interactive information retrieval. Invited presentation at LIDA 2002 (Libraries in the Digital Age), Dubrovnik, Croatia, May 2002.

User modeling issues in customized information delivery. Invited presentation at the ACM SIGIR '99 Workshop on Customized Information Delivery, Berkeley CA, August 1999.

Complementary models for the representation and organization of knowledge. Invited Keynote Lecture, Fourth Annual Conference of the Spanish Chapter of the International Society for Knowledge Organization, Granada, Spain, 22 April 1999.

Information retrieval as interaction with information. CUIB/UNAM International Seminar "Research in Information for Virtual Universities", National Autonomous University of Mexico, Mexico City. August 1997.

Design and evaluation problems in multi-lingual information retrieval. Workshop on Information Retrieval with Oriental Languages, Taejun, Korea. June 1996. Invited keynote lecture.

Information retrieval as interaction. A series of four lectures, sponsored by the Academia Sinica, the Computational Linguistics Society of the Republic of China, and the Taiwan Chapter of the American Society for Information Science, at the Academia Sinica and the National University of Taiwan, Taipei, Taiwan. September 1994.

Digital libraries: history, functions, implementation, interaction and evaluation. A series of four invited lectures at the Institute of Systems Science, National University of Singapore. August 1994.

The structure of interaction in intelligent information retrieval. First International Symposium for Information Science, Keynote Lecture, Konstanz, Germany. October 1990.

The natures of information. Seventh Nordic Conference for Information and Documentation, Keynote Lecture, Aarhus, Denmark. August 1989

Implications of 'intelligent information system' research for online catalogs. Rome, Venice, Florence. A series of lectures sponsored by the Italian Library Association, and others, Invited Lecture Series. January 1988.

Transparency in intelligent systems. Danish Artificial Intelligence Society Seminar on AI system architecture, complexity and transparency', Keynote Lecture, Koge, Denmark. October 1986.

Modeling the user in information interaction. Twelfth Annual Conference of the Association of Information Officers in the Pharmaceutical Industry, Torquay, England. June 1985.

### **Panels, colloquia and other unpublished presentations:**

#### ***Panel and conference presentations***

Invited panelist at CAIR 2017, Workshop on Conversational Approaches to Information Retrieval, held at SIGIR 2017, Tokyo, Japan, 11 August 2017.

Invited panelist on Evaluation of Dynamic Search for Complex Tasks, at CLEF 2017, Dublin, Ireland, 12 September 2017.

Moderator of the Panel: Multiple Facets of Personalization, at the 2009 Annual Meeting of the American Society for Information Science and Technology, Vancouver, BC, November 2009.

Member of the Panel: Celebrating 10 Years of SIG USE: A Fish Bowl Dialogue on IB Research Past, Present & Future, at the 2009 Annual Meeting of the American Society for Information Science and Technology, Vancouver, BC, November 2009.

What is not context? Panel presentation at the 2006 Symposium on Information Interaction in Context, Copenhagen, Denmark, October 2006.

Interface design for Web information retrieval systems. Workshop presentation at LIDA 2003, Dubrovnik and Mljet, Croatia, May 2003. With C. Cool.

Why you should want to be interdisciplinary, and what it takes to do it. Presentation at the panel on “Interdisciplinarity in Information Science: What does it Mean?” at the Annual Conference of the Association of Library and Information Science Educators, San Antonio, January 1999.

Supporting multiple information seeking behaviors in digital libraries. Panel presentation at the IEEE Conference on Advances in Digital Libraries, Santa Barbara, April 1998.

Improvement or Distortion Effects of Information Technology on the Development of Natural Languages. Panel presentation at COLING-96, The 16th International Conference on Computational Linguistics, Copenhagen. August 1996.

Design principles for electronic textual resources: investigating users and uses of scholarly information. Association for Computing in the Humanities - Association of Literary and Linguistic Computing (ACH-ALLC) '93 Conference, Georgetown University, Washington, DC. June 1993.

Understanding user-intermediary dialogues from multiple perspectives. 54th Annual Meeting of the American Society for Information Science, Washington, DC. October 1991.

Hypertext and information retrieval: what are the fundamental concepts?. Panel presentation at the First European Conference on Hypertext, Paris. November 1990.

Evaluating computer-based tools in organizations. ACM Conference on Office Information Systems, Cambridge, MA. April 1990.

On the nature and role of complex user representations in text-based intelligent systems. AAAI Spring Symposium on Text-Based Intelligent Systems, Stanford, CA. March 1990.

User modeling for software reuse. Twelfth Annual ACM SIGIR Conference on Research and Development in Information Retrieval, Panel on Information Retrieval and Software Reuse. Cambridge, MA, June 1989.

Artificial intelligence and science: whose knowledge? whose expertise? whose decisions?. AAAS Annual Meeting, Symposium on 'The impact of advances in information technologies on science: policy issues', Philadelphia. May 1986.

The analysis of human-human information interaction for the specification of human-computer information system interfaces. Third Symposium on Empirical Foundations of Information and Software Science, Risø, Denmark. July 1985.

Discourse analysis for information retrieval. International Federation for Documentation - Linguistics in Documentation Committee Seminar on Linking in Text, Osterbybruk, Sweden. March 1984.

***Lectures for research seminars, workshops and colloquia (unpublished)***

What have we learned about information seeking conversations, and how can that help us decide on the goals of conversational search, and identify problems in achieving those goals? \*From the point of view of interactive information retrieval. Overview lecture, Dagstuhl Seminar on Conversational Search, Schloss Dagstuhl, Germany, 11 November 2019.

Exploring Information Seeking and Searching Intentions: An Overview of Recent Research at Rutgers University. Research Seminar, Department of Computer Science, Tsinghua University, Beijing, China, 4 December 2018.



Exploring Information Seeking and Searching Intentions: An Overview of Recent Research at Rutgers University. Invited Lecture, Department of Information Management, Peking University, Beijing, China, 5 December, 2018.

Exploring Information Seeking and Searching Intentions: An Overview of Recent Research at Rutgers University. Invited Lecture, Department of Information Resources Management, Business School, Nankai University, Tianjin, China, 7 December 2018.

Usefulness as the Criterion for Evaluation of Interactive Information Retrieval. Research seminar, Department of Computer Science and Applied Cognitive Science, University of Duisburg/Essen, Duisburg, Germany, 8 June 2015.

Usefulness as the Criterion for Evaluation of Interactive Information Retrieval. Invited presentation at GESIS, The Leibniz Institute for the Social Sciences, Cologne, Germany, 26 May 2015.

A Brief History of Interactive Information Retrieval Research and (Some) Practice. School of Information and Library Science Seminar, University of North Carolina, Chapel Hill, NC, 3 October 2014.

Rutgers' Research on Personalizing Information Retrieval. Department of Computer Science Seminar, University of Delaware, Newark, DL, 23 October 2013.

Usefulness as the Criterion for Evaluation of Interactive Information Retrieval Systems. School of Information Studies Seminar, Syracuse University, Syracuse NY, 7 November 2011.

Personalizing Interaction with Information. Department of Information Management Seminar, Peking University, Peking, China, 4 July 2011.

Personalizing Interaction with Information. Department of Information Management Seminar, Nankai University, Tianjin, China, July 2011.

Personalizing Information Retrieval: Discovering Behavioral Correlates of Task Type, Topic Knowledge and Document Usefulness. Rutgers/Yahoo! Machine Learning Seminar, Piscataway, NJ, December 2009.

Personalizing Support for Interaction with Information. New Jersey ASIST Distinguished Lectureship, New Brunswick, NJ, September 2009.

Getting Personal: Studies in Identifying User- and Other Context-Related Factors for Personalization of Interaction with Information. Seminar presentation, School of Library and Information Science, University of Zadar, Zadar, Croatia, May 2009.

Getting personal: Studies in identifying user- and other context-related factors for personalization of interaction with information. Invited lecture, Syracuse University School of Information Studies, April 2009.

Getting Personal: Personalization of Support for Interaction with Information. Seminar presentation, Åbo Akademi, Åbo/Turku, Finland, December 2006.

Getting Personal: Personalization of Support for Interaction with Information. Seminar presentation, University of Washington, Seattle, Washington, May 2006.

Getting Personal: Personalization of Support for Interaction with Information. Seminar presentation, University of British Columbia, Vancouver, Canada, March 2006.

A crash course in information retrieval. A series of four lectures presented at the Department of Library Science, University of Osijek, Croatia, June 2003.

A classification of interactions with information. Two lectures presented at the Faculty of Philosophy, University of Zagreb, Zagreb, Croatia, June 2003.

Interface techniques for making searching for information more effective. CHI 2003 Workshop on Best Practices and Future Visions for Search User Interfaces, Fort Lauderdale, April 2003.

User modeling and information retrieval. Lead presentation at the Workshop on Challenges in Information Retrieval and Language Modeling, Center for Intelligent Information Retrieval, University of Massachusetts, Amherst, September 2002.

Modeling user characteristics with information search and use behaviors. JCDL 2002 Workshop on Document Search Interface Design for Large-Scale Collections and Intelligent Access, Portland, OR, July 2002. With D. Kelly.

A framework for criteria and measures for evaluation of user interfaces in digital libraries. Fourth DELOS Workshop on Evaluation of digital libraries: Testbeds, measurements, and metrics. Budapest, June 2002.

Prospects for Information “Selection”. Advisory paper for the Unified Cryptologic Architecture Office Technical Exchange Meeting on Information Processing – Applications and Software. Hanover, MD, 3 March 2000.

An overview of results from Rutgers’ investigations of interactive information retrieval. ASIS Graduate Student Research Forum, Pratt Institute, New York, NY. May 1997.

Adapting information systems to human needs. Sixth Rutgers WINLAB Workshop on Third Generation Wireless Information Networks, Rutgers University, New Brunswick, NJ. March 1997.

Understanding and supporting multiple information seeking behaviors in a single system framework. Research Colloquium, Siemens Corporate Research, Princeton, 25 May 1999.

Understanding and supporting people’s interactions with information. Colloquium, College of Information Science and Technology, Drexel University, May 1998.

Co-leader and co-organizer of the Workshop on Information Exploration, at the ACM Conference on Human Factors in Computing Systems (CHI 98), Los Angeles, April 1998. With Gene Golovchinsky.

Rutgers’ research in interactive information retrieval. Colloquium, Department of Library and Information Science, UCLA, April 1998.

Understanding and supporting people’s interactions with information: collaboration, not agency. “What is Cognitive Science?”, a lecture series sponsored by the Rutgers Center for Cognitive Science, October 1997.

Measures for the evaluation of multimedia information retrieval. Dagstuhl Seminar 9716: “Evaluation of Multimedia Information Retrieval”, Dagstuhl, Germany. April 1997.

Various things about interactive multi-media information retrieval and its evaluation. Dagstuhl Seminar 9716: “Evaluation of Multimedia Information Retrieval”, Dagstuhl, Germany. April 1997.

The TREC-5 interactive track experience. Second Mira Workshop, University of Padova, Monselice, Italy. November 1996.

Information retrieval tools, an advisory position paper for the American Chemical Society Task Force on Research: Workshop on The Impact of New Information Technologies. Columbus, Ohio. May 1995.

Technology Forecast: Directions of retrieval technologies. Technologies for Current Awareness: Tomorrow's Information Today, a joint meeting of the ASIS New England Chapter and the SLA Boston Chapter, Westford, MA. April 1995.

Interaction with information as a framework for research in information retrieval. Research Colloquium, Norwegian College of Library and Information Science and Journalism, Oslo. October 1996.

Interaction as the central process of information retrieval. Distinguished Seminar in Information Retrieval, IR Festival, Department of Computing Science, University of Glasgow, Scotland. September 1995.

Strategies for evaluation of interactive multimedia information retrieval systems. MIRO Final Workshop, University of Glasgow, Scotland. September 1995.

Evaluation of interactive multimedia information retrieval systems. International Joint Conference on Artificial Intelligence (IJCAI) Workshop on Multimedia Information Retrieval, Montreal, Canada. August 1995.

Supporting information seeking in multi-media databases. International Workshop on Networked Multimedia Information Retrieval and Reuse, held at the European Space Agency (ESA-ESRIN), Frascati, Italy. Sponsored by the European Space Agency, the Fondazione Ugo Bordoni, the Italian Computer Science Society, and the Commission of the European Communities. March 1995.

Information retrieval: Where it is, where it's going. Research Seminar at the NEC Research Laboratories, Princeton, NJ. February 1995.

Digital libraries: interaction and evaluation. School of Information and Library Studies, University of Michigan. June 1994.

On the relationship between discourse structure and user intention. Dagstuhl Seminar on Summarizing Text for Intelligent Communication, Dagstuhl, Germany. December 1993.

Information retrieval as an interactive process. University of Konstanz, Department of Information Science, Research Seminar, Konstanz, Germany. July 1992.

Information retrieval as interaction. Federal Technical University Zürich, Department of Computer Science, Research Seminar, Zürich. July 1992.

On the evaluation of highly interactive, dialogue-based information systems. German Foundation for Computer Science Research, Institute for Integrated Publication and Information Systems (GMD-IPSI), Research Workshop. July 1992.

On the evaluation of interactive information retrieval. European Space Agency, ESRIN Seminar, Frascati, Italy. March 1992.

On the nature and structure of interaction in information retrieval. Royal School of Librarianship, Copenhagen, Denmark. February 1992.

Is information filtering just another name for information retrieval? And if so, so what?. Bellcore Workshop on High-Performance Information Filtering, Morristown, NJ. November 1991.

User interfaces for OPACs. Research Workshop on User Interfaces for Online Public Access Catalogs, Library of Congress, Washington, DC. November 1991.

Intelligent Information Retrieval. NSF Workshop on Future Directions in Text Analysis, Retrieval and Understanding, Chicago. October 1991.

The nature of interaction in information retrieval. UCLA, Graduate School of Library and Information Studies. May 1991.

The role of user modeling for clarification and explanation in information retrieval interaction. USC ISI Colloquium, Marina del Rey, CA. May 1991.

The role of user modeling for clarification and explanation in intelligent information retrieval. University of the Saarland, Colloquium of the Department of Computer Science and the Department of Information Science, Saarbrücken, Germany. November 1990.

Watching users in libraries: methodologies for system design. Xerox Palo Alto Research Center (PARC) Seminar, Palo Alto, CA. March 1990.

Review of user interfaces for information systems. European Space Agency, ESRIN International Workshop on User Interfaces for Information Systems, Frascati, Italy. February 1990.

An overview of intelligent information retrieval. Merck Pharmaceuticals, Merck Research Seminar. January 1990.

User-centered design for information systems. Bell Communications Research, Bellcore User-Centered Design Forum, Red Bank NJ. November 1989.

The nature of explanation in intelligent information retrieval. Online Computer Library Center (OCLC), OCLC Distinguished Seminar Series, Dublin OH. February 1988.

The nature and function of explanation in the intelligent information retrieval system. American Society for Information Science, Potomac Valley Chapter, Washington, DC. February 1988.

Architectures for intelligent information retrieval systems. University of Udine, Department of Mathematics and Computer Science. January 1988.

On the nature and function of explanation in intelligent information retrieval. University of Udine, Department of Mathematics and Computer Science. January 1988.

User modeling in intelligent information systems. University of Udine, Department of Mathematics and Computer Science. January 1988.

What constitutes intelligence in an information system?. University of Padova, Department of Electronics and Computer Science. January 1988.

What constitutes intelligence in an information system?. General Electric Research & Development Center, Artificial Intelligence Group Seminar. November 1987.

Explanation in intelligent retrieval. Rutgers University, Computer Science Seminar. October 1987.

Uses of complex multi-media objects and information retrieval techniques. International Workshop on Multimedia Complex Objects, Taormina, Italy. June 1987.

A model of transparency as a basis for explanation in an expert intermediary for information retrieval. Bell Communications Research, Computer-Human Interaction Seminar, Morristown NJ. May 1987.

Investigating user modeling in information interaction by discourse analysis. Rutgers University, Department of Psychology, Cognitive Colloquium. March 1987.

Designing an intelligent information system interface. AT&T Bell Labs, Holmdel, NJ. January 1987.

Designing intelligent information provision mechanisms. University of Toronto, Faculty of Library and Information Science. February 1986.

How intermediaries model users in information interaction. University of Toronto, Faculty of Library and Information Science. February 1986.

Using problem structures to guide human-computer dialogues. University of Western Ontario, School of Library and Information Science. February 1986.

Developing an expert information system interface. Royal Danish School of Librarianship, Copenhagen. March 1985.

Using problem structures for driving human-computer dialogues. University of Linkjoping, LIBLAB Seminar. March 1985.

Research in the development of intelligent information system interfaces. Swedish Special Library Association, Lund, Sweden. March 1985.

Research in the development of an intelligent information system interface. The City University, London, Cognitive Studies Seminar. December 1984.

Designing intelligent information system interfaces. Bellcore, Murray Hill, NJ. September 1984.

The future of information studies in the context of the information revolution. Rutgers University, School of Communication, Information & Library Studies. September 1984.

The significance of interaction in information processes. British Library Research and Development Department Seminar on Basic Information Research, Cranfield, England. September 1983 (with A. Vickery).

Specification of the problem description function in information interaction. Free University Berlin, Department of Communication, Information Science Seminar. March 1983.

Application of the distributed expert model to information provision mechanism analysis and design. University of Konstanz, Department of Administrative Studies, Information Science Colloquium. February 1983.

Research trends in information science in the anglo-saxon countries. Free University Berlin, Faculty of Communication, Information Science Seminar. December 1982.

Text analysis for information retrieval. University of Linkjoping, Library Seminar. September 1981.

Models of dialogue for information retrieval. Aslib Informatics Group, London. November 1981.

The anomalous state of knowledge as a basis for information retrieval. Drexel University, School of Library and Information Science. June 1980.

Representation of texts for information retrieval. University of Western Ontario, Cognitive Studies Seminar. April 1980 (with B.G. Michell)

Representation of anomalous states of knowledge as a basis for information retrieval. University of Michigan, University Colloquium. March 1980.

Anomalous state of knowledge-based information retrieval. Syracuse University, School of Information Studies. February 1980.

Anomalous states of knowledge as a basis for information retrieval. University of Western Ontario, School of Library and Information Science. December 1979.

Anomalous states of knowledge as a basis for information retrieval. Case Western University, School of Library Science. October 1979.

Cognitive aspects of information science. British Library Research and Development Department Workshop on Basic Information Research, Cranfield, England. September 1978.

Information and anomalous states of knowledge in information science. Sheffield University, School of Library and Information Science. June 1978.

Concepts of information in information science. Polytechnic of North London, School of Librarianship. May 1978.

Cognitive and linguistic problems in information science. University of California, Berkeley, School of Library and Information Studies. October 1976.

Ethical and political implications of theoretical research in information science. University of Washington, Seattle, University Lecture. October 1976.

Problems of knowledge representation for information retrieval. University of Washington, Department of Psychology. October 1976.

### **Research grants and contracts:**

| <b>Dates</b> | <b>Title/Topic</b>   | <b>Funding Body</b> | <b>Role</b>                     | <b>Amount</b>          |
|--------------|--|---------------------|---------------------------------|------------------------|
| 05.16-08.19  | Research Experience for Undergraduates Supplement to Characterizing and Evaluating Whole Session Interactive Information Retrieval | NSF                 | Principal Investigator          | \$8,000                |
| 09.14-08.19  | Characterizing and Evaluating Whole Session Interactive Information Retrieval  | NSF                 | Principal Investigator          | \$499,425              |
| 08.13-12.14  | Automatic identification of information searcher intentions during an information seeking session.                                 | Google, Inc.        | Principal Investigator          | \$53,032               |
| 10.07-09.11  | Personalizing the digital library experience (with J. Gwizdka & X. Zhang, Rutgers)   | IMLS                | Co-Principal Investigator (1/3) | \$968,000              |
| 10.00-09.04  | Improving access through user- and topic-based language models. Collaborative research with W.B. Croft                             | NSF                 | Principal Investigator          | \$244,000 (at Rutgers) |

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|-------------|---|-------------------------|---------------------------------|-----------|
|             | and J. Allan, University of Massachusetts, Amherst  |                         |                                 |           |
| 09.96-08.99 | Understanding and supporting multiple information seeking strategies (with J. Pérez-Carballo, Rutgers)        | DARPA                   | Co-Principal Investigator (50%) | \$600,000 |
| 05.95-04.96 | The understanding, use and effectiveness of automatic relevance feedback in interactive information retrieval | NIST                    | Principal Investigator          | \$101,309 |
| 1.93-10.93  | Query combination for information retrieval: Equipment grant (with P.Kantor, Rutgers)                         | NIST/ARPA               | Co-Principal Investigator (50%) | \$9,800   |
| 10.88-10.90 | Design Principles for Third Generation Online Public Access Catalogs (with T. Saracevic, Rutgers)             | USDE                    | Co-Principal Investigator (50%) | \$106,963 |
| 10.88-10.90 | As above  | OCLC                    | Co-Principal Investigator (50%) | \$10,000  |
| 06.88       | Participate in SIGIR '88, Grenoble  | NSF                     | Principal Investigator          | \$1,022   |
| 01.87       | Organize and conduct Workshop on Distributed Expert-Based Information Systems, Rutgers                        | Bellcore                | Principal Investigator          | \$5,000   |
| 09.86       | Participate in SIGIR '86, Pisa  | NSF                     | Principal Investigator          | \$1,000   |
| 09.85       | Participate in NATO ASI on Intelligent Decision Aids in Process Environments                                  | NATO                    | Principal Investigator          | \$650     |
| 09.83-08.84 | Implementation of a prototype distributed expert-based IR system (with G. Wersig, Free University Berlin)     | NATO                    | Co-Principal Investigator (50%) | BF250,000 |
| 08.83       | Attend IJCAI '83, Karlsruhe   | British Library (BLRDD) | Principal Investigator          | £650      |
| 04.83-12.85 | Representation and matching of anomalous states of knowledge and document texts                               | BLRDD                   | Principal Investigator          | £34,000   |
| 12.81-06.84 | Information retrieval interaction: review and recommendations (with A. Vickery, University of London)         | BLRDD                   | Co-Principal Investigator (50%) | £9,050    |
| 08.79       | Participate in IRFIS 3, Oslo  | BLRDD                   | Principal Investigator          | £270      |
| 08.78       | Participate in NATO ASI on Information Systems Design, Crete  | NATO                    | Principal Investigator          | \$400     |
| 07.78       | Attend AISB/GI Conference, Hamburg, Germany   | BLRDD                   | Principal Investigator          | £170      |

|             |  |       |                                 |        |
|-------------|--|-------|---------------------------------|--------|
| 05.78-06.79 | Design study for an anomalous state of knowledge-based IR system (with R.N. Oddy, University of Aston) | BLRDD | Co-Principal Investigator (50%) | £1,050 |
| 09.76-10.76 | Visit to USA to study new methods of text and knowledge representation                                 | BLRDD | Principal Investigator          | £200   |

### Tutorial presentations:

| Date | Topic   | Venue/Sponsor  |
|------|---|--|
| 7.19 | European Summer School on Information Retrieval, Lecturer   | University of Milan – Bicocca and University of Padova, Milan, Italy   |
| 5.03 | Tutorial on Interface Design for Web Information Retrieval (with C. Cool)                             | LIDA 2003, Libraries in the Digital Age, Dubrovnik, Croatia.   |
| 6.97 | Tutorial on User Modeling in Information Retrieval  | UM 97, Sixth International Conference on User Modeling, Sardinia, Italy  |
| 4.96 | Tutorial on Interface Issues and Interaction Strategies for Information Retrieval (with S. Henninger) | CHI '96, 1996 ACM Special Interest Group on Computer-Human Interaction Conference on Human Factors in Computing Systems. Vancouver, B.C. |
| 5.95 | Tutorial on User Interfaces for Information Retrieval Systems (with S. Henninger)                     | CHI '95, Boulder CO  |
| 4.94 | Tutorial on User Interfaces for Information Retrieval Systems (with S. Henninger)                     | CHI '94, Boston  |
| 7.91 | Summer School on Information Retrieval, Lecturer  | University of Padova and Italian Computer Society, Bressanone, Italy   |
| 7.90 | Summer School on Information Retrieval, Organizer, Lecturer   | University of Padova and Italian Computer Society, Padova, Italy   |
| 3.90 | Seminar on User Interfaces for Information Systems  | European Space Agency, Frascati, Italy   |
| 1.90 | Tutorial on Artificial Intelligence and Information Retrieval   | International Conference on Artificial Intelligence and Manufacturing, Singapore   |
| 6.88 | Tutorial on Intelligent Information Retrieval (with W.B. Croft)                                       | Italian Computer Society, Padova, Italy  |

### Supervision of Ph.D. students:

- Rha, E.Y. (2020). An Exploratory Study of Social Aspects of Task-Based Information Seeking Behavior. Ph.D. Thesis, SC&I, Rutgers University. Primary advisor.
- Baik, E. (2019). Trustworthiness evaluation in recommendation seeking behavior. Ph.D. Thesis, SC&I, Rutgers University. Primary advisor.



- Huurdeman, H.C. (2018) Dynamic Support for Complex Information Seeking Stages. Ph.D. Thesis, University of Amsterdam. External examiner.
- Elsweiler, D. (2017) Behavior and Information Science. Habilitationsschrift, University of Regensburg. External examiner.
- Chuklin, A. (2017) Understanding and Modeling Users of Modern Search Engines. Ph.D. Thesis, University of Amsterdam. External examiner.
- Sun, S. (2017). Personal health information management in chronic illnesses. Ph.D. Thesis, SC&I, Rutgers University. Primary advisor.
- Cole, M.J. (2015). Representing the Search Session Process. Ph.D. Thesis, SC&I, Rutgers University. Primary advisor.
- Oh, K.-E. (2013). The Process of Organizing Personal Information Ph.D. Thesis, SC&I, Rutgers University. Primary advisor.
- Liu, C. (2012). Personalizing Information Retrieval Using Interaction Behaviors in Search Sessions in Different Types of Tasks. Ph.D. Thesis, SC&I, Rutgers University. Primary advisor.
- Sharp, M. (2010) Dimensions of drug information. Ph.D. Thesis, SC&I, Rutgers University. Primary advisor.
- Liu, J. (2010) Personalizing information retrieval using task type and stage, topic knowledge and task products. Ph.D. Thesis, SC&I, Rutgers University. Primary advisor.
- Lopatovska, I. (2009) Emotional aspects of the online information retrieval process. Ph.D. Thesis, SCILS, Rutgers University. Primary advisor.
- Freund, L.S. (2008) Exploiting Task-Genre Relationships in Support of Information Retrieval in the Workplace. Ph.D. Thesis, University of Toronto. External examiner.
- Li, Y.-L. (2008) A task classification for studying information behavior. Ph.D. Thesis, SCILS, Rutgers University. Primary advisor.
- Ramírez Camps, Georgina (2007) Structural features in XML retrieval. Ph.D. Thesis, University of Amsterdam. External examiner.
- Yuan, X.-J. (2007) Support for multiple information seeking behaviors in a single system framework. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Huvila, I. (2006) The ecology of information work: A case study of bridging archaeological work and virtual reality based knowledge organization. Ph.D. Thesis, Åbo Akademi, Finland. External examiner.
- Kim, J.-H. (2006) Task as a predictable indicator of information seeking behavior on the web. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Lee, H.-J. (2006) Mediated information retrieval for the Web environment. Ph.D. Thesis, SCILS, Rutgers University. Primary advisor.
- Tang, M.-C. (2005) Browsing in a faceted information space: a longitudinal study of searcher's assimilation of a novel displaying tool. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Bot, R. S. (2005) Improving document representation by accumulating relevance feedback - the relevance feedback accumulation (RFA) algorithm. External member of dissertation committee at New Jersey Institute of Technology.
- Kelly, D. (2004) Information search and use behaviors as implicit sources of user preference and states of knowledge for modeling information needs over time in interactive information retrieval. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Pavlovsky, L. (2003) Values in library design. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.

- Lin, S.J. (2001) Supporting multiple information seeking episodes. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Savage, P. (2001) Supporting interaction in information retrieval systems. Ph.D. Thesis, Department of Psychology, Rutgers University. Primary Advisor.
- Sikora, C. (2001) Multi-modal cues for enhancing Web search memory. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Rieh, S.Y. (2000) Information quality and cognitive authority in the World Wide Web. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Cooper, L. (2000) The socialization of information behavior: A study of the move from personal typification towards intersubjectivity in children's understanding of library information. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Nordlie, R. (2000) User revelation: user-librarian interaction as model for automated retrieval systems. Ph.D. Thesis, University of Oslo. External thesis examiner.
- Park, S.-Y. (1999) Supporting information retrieval interaction with multiple distributed databases. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Algon, J. (1999) Effect of task on the information-seeking behavior of individuals in a work-group environment. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Hong, X. (1999) Patterns of users' goals and users' searching behaviors: Implications for system design. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Barkonian, H. (1999) Concurrently browsing heterogeneous media with distributed media appliances: toward usability for the converging media environment. Ph.D. Thesis, Dept. of Mechanical and Industrial Engineering, University of Toronto. External thesis examiner.
- Daniels, J.J. (1997) Retrieval of passages for information reduction. Ph.D. Thesis, Department of Computer Science, University of Massachusetts. External thesis committee member.
- Downs, T. (1997). Explanation in the information retrieval interaction setting. M.Phil. Thesis, SCILS, Rutgers University. Primary Advisor.
- Veerasamy, A. (1997). Visualization and user interface techniques for interactive information retrieval systems. Ph.D. Thesis, College of Computing, Georgia Institute of Technology. Member of committee, supervising information retrieval research.
- Riecken, R. D. (1997) Ph.D. Thesis, Department of Psychology, Rutgers University. Member of thesis committee.
- Koenemann, J. (1996) Understanding interactive relevance feedback. Ph.D. Thesis, Department of Psychology, Rutgers University. Primary Advisor.
- Sonnenwald, D.H. (1993) Communication in design. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Wu, M.-M. (1992) Information interaction dialogue: a study of patron elicitation in the information retrieval interaction. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Zingale, C.M. (1991) The effects of attentional allocation and stimulus configuration on reports of illusory conjunctions. Ph.D. Thesis, Department of Psychology, Rutgers University. Member of thesis committee.
- Shenouda, W. (1991) Online search strategy modification by end users. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Rao, U. (1991) Hypertext functionality: A theoretical framework. Ph.D. Thesis, Graduate Program in Management, Rutgers University. External thesis committee member.
- Su, L.T. (1991) An investigation to find appropriate measures for evaluating interactive information retrieval. Ph. D. Thesis, SCILS, Rutgers University. Primary Advisor

- Bernstein, D.R. (1990) Understanding spreadsheets: effects of power users' learning style and computer training on performance and mental model acquisition. Ph.D. Thesis, SCILS, Rutgers University. Primary Advisor.
- Kwasnik, B.H. (1989) The influence of context on classificatory behavior. Ph.D. Thesis, SCILS, Rutgers University. Member of committee and primary research supervisor.
- Thompson, R. (1988). Ph.D. Thesis, Dept of Computer Science, University of Massachusetts. External committee member.
- Allen, B. (1988) Bibliographic and text-linguistic schemata in the user-intermediary interaction. Ph.D. Thesis, School of Library and Information Science, University of Western Ontario. External committee member.
- Daniels, P.J. (1987) Developing the user modeling function of an intelligent interface for document retrieval systems. Ph.D. Thesis, Department of Information Science, The City University, London. Primary Advisor.
- Brooks, H.M. (1986) An intelligent interface for document retrieval systems: developing the problem description and retrieval strategy components. Ph.D. Thesis, Department of Information Science, The City University, London. Primary Advisor
- Sallis, P.J. (1979) A meta-information structure for representing arguments in scientific text. Ph.D. Thesis, Centre for Information Science, The City University, London. Primary Advisor.