Curriculum Vitae

• <u>Personal Details:</u>

Name: **Peretz Shoval (Stangel)**

Date and place of birth: July 22, 1945; Tashkent (formerly USSR)

Date of immigration to Israel: May 25, 1949

Military Service: 1963 - 1978; Rank: Lt. Colonel

Address at Work: 1) Dept/ of Software & Information Systems Engineering, Ben-Gurion University of the Negev (BGU), Beer-Sheva, Israel
2) School of Information Systems, Netanya Academic College, Netanya, Israel

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URLs: http//: www.ise.bgu.ac.il/faculty/shoval
http://bgu.academia.edu/PeretzShoval
http://scholar.google.com/citations?user=_wmYvUoAAAAJ&hl=en

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• <u>Education:</u>

B.A.   1966-1970   Tel-Aviv University, Department of Economics, *Economics*.

M.Sc. 1973-1975   Tel-Aviv University, Faculty of Management, *Information Systems*.
Advisors: I. Borowitz and Z. Neumann.
Title of Thesis: "Evaluation of Users' Satisfaction Levels with Computerized Information Systems".

Ph.D. 1978-1981   University of Pittsburgh, Graduate School of Management, *Management Information Systems*.
Advisor: Harry E. Pople.
Title of Thesis: "An Expert/Consultation System for a Retrieval Database with a Semantic Network of Concepts".

Other Professional Education:

1971-1972   Technion - Israel Institute of Technology, Tel-Aviv Branch; Graduate Program for the Diploma of *Certified Computer Systems Analyst*.

• <u>Employment History:</u>

A) Academic Employment:

<u>Full time affiliations</u>

Oct. 2013 – Now: Netanya Academic College, School of Information Systems

Aug. 2000 – Sept. 2013: BGU, Dept. of Information Systems Engineering

Oct. 2013 – Professor Emeritus (BGU)

April 1996 – Full Professor (BGU)

April 1991 – Associate Professor (BGU)

Oct. 1987 – Senior-Lecturer; Tenured: January 1988 (BGU)

Sept. 1984 – Lecturer (BGU)

Sept. 1984 – Aug. 2000: Dept. of Industrial Engineering & Management; Information Systems program (BGU)

Affiliations at other universities and colleges

2009-2015 The Open University, Tel-Aviv, MBA Program: Seminars on IS Development Methodologies

2000-2008 Sapir Academic College, Sderot, Dept. of Software Systems.

1994-1995 The Open University, Tel-Aviv, Dept. of Computer Science: Visiting Professor for Academic Development.

1985-1991 BGU, Beer-Sheva, Dept. of Mathematics & Computer Science: Visiting Senior Lecturer (1988-1991); Visiting Lecturer (1985-1987).

1987-1989 Boston University & BGU Joint Program, Master of Management Program.

1982-1989 The Hebrew University, Jerusalem School of Business Administration, and the School of Library & Information Science.

1983-1986 Tel-Aviv University, Faculty of Management.

1983-1984 Technion, Israel Institute of Technology, Academic Advisor of the Graduate Program for Certified Computer Systems Analysts.

1979-1981 Point Park College, Pittsburgh, Dept. of Business Administration & Computer Science (part time lecturer during Ph.D. studies at the Univ. of Pittsburgh).

1978 Technion, Israel Institute of Technology, Tel-Aviv Branch; lecturer at the Graduate Program for Certified Computer Systems Analysts.

1975-1978 College of Management, Dept. of Business Administration, Tel-Aviv.

B) Professional Employment – prior to academia

1983-1984 Medan Computers (rep. of Honeywell Information Systems in Israel).

> *Job Title*: Manager of Software and Applications Department. The job involved management of the Basic and Applications Software groups of the company.

1981-1983 CDC, Control Data Corporation (Israel).
Job Title: Senior Consultant and Methodologist. The job involved specializing in systems analysis and design methods, database design and software engineering.

1975-1978 I.D.F., General Headquarters, The Planning Department.
Job Title: Lt. Colonel, Head of Systems Analysis Branch. The job involved heading of and participation in projects of analysis and long range planning of MIS, and consulting to top level officers in the I.D.F.

1973-1974 I.D.F., General Headquarters, The Budgets and Finance Department.
Job Title: Major, Head of Data Processing Section. The job involved analysis and design of a central information system for the department.

- ## Professional Activities:

A) Positions in Academic Administration at BGU:

2008 -2011 Head, Dept. of Information Systems Engineering, and chair of Doctoral Students Committee.

2000-2005 Head, Dept. of Information Systems Engineering (two terms). Founded the department and developed the programs of study.

1996-2000 Head, Information Systems Program, and Vice Head of the Dept. of Industrial Eng. & Management.

1993-1994 Head, Computing Committee, Dept. of Industrial Eng. & Management.

1992 Acting Head, Dept. of Industrial Eng. & Management.

1989-1994 Head, Information Systems Program, Dept. of Industrial Eng. & Management.

1988-1996 Consultant on computing and information systems to the Director General of Ben-Gurion University.

1988-1991 Member, University Committee on Computing Policy.

1988-1989 Head, Teaching Committee, Dept. of Industrial Engineering & Management.

1987 Head, Computing Committee, Dept. of Industrial Engineering & Management.

1985-1986 Head, Information Systems Program, Dept. of Industrial Eng. & Management. Initiated the Program and developed the curriculum.

B) Academic and Professional Positions:

2021 - Now Israel Council for Higher Education's (MALA"G) - Member of Supreme Committee for Promotion of Professors of Practice in Academic Colleges

2017 Israel Council for Higher Education's (MALA"G) - Member of Committee to increase the number of students in High-Tech studies

2013-Now Member of Editorial Board of *Data & Knowledge* Engineering (DKE) journal

2012-2020 Member of Editorial Board of *Serdica Journal of Computing*

2013 Israel Council for Higher Education's (MALA"G) - Member of the Int'l Committee for the Evaluation of Software Engineering and Information Systems Engineering Programs in the Israeli universities and academic colleges.

2010-Now Member of the Steering Committee of ER - Conceptual Modeling

2010-2011 Israel Council of High Education (MALA"G) - Chairman of the Committee for the Classification of Information Systems Programs at the Israeli universities and academic colleges.

2003-2020 Israel Council of High Education (MALA"G) - Member of the professional committee on accreditation of Information Systems Engineering programs/ departments at the Israeli colleges.

2000-2020 Member of Editorial Review Board of *Journal of Database Management*, IGI Group.

2002-2005 Member of Editorial Board of *Journal of Association of Information Systems.*

1994-1996 Ministry of Education, Division of Science & Technology. Member of professional committee for the development of curriculum on information technology.

1993-1998 Member of Editorial Board of *Journal of Document & Text Management*, Taylor Graham.

1994-1995 Ministry of Education, Council of High Education and the Center for Technological Education, Tel-Aviv. Member of the professional committee on designing courses on information systems at the high schools.

1993-1994 Israel Council of High Education (MALA"G). Member of professional committee on the evaluation of the Computer Science and Management Program at the Open University, Tel-Aviv.

1992 The College of High Education in Technology, Tel-Aviv. Member of committee on designing the Program for Qualified Teachers of Computing.

1988-1994 Representative of IPAI to TC-2 (Programming & Software Technology) of IFIP (International Federation for Information Processing).

1988-1990 IPAI, Chairman of the Working Group on Databases.

C) Membership in Professional/Scientific Societies (current and past):

- ACM, Association of Computing Machinery – Distinguished Member.
- AIS (Association for Information Systems) - Charter member.
- IEEE Computer Society.
- IFIP, International Federation for Information Processing, TC8.
- IPAI, Information Processing Association of Israel.
- ILAIS, Israel chapter of the AIS

• Educational Activities:

A) Courses Taught (at Undergraduate and Graduate levels):

Database Management Systems
Analysis and Design of Information Systems
Information Systems Development Methodologies
File Organization and Processing
Managerial and Economic Aspects of Computing
Introduction to Computers and Data Processing
Information Systems Development and Implementation
Management Information Systems

B) Research Students (Ph.D. and M.Sc. with thesis):

2018-2022 Noa Roy, Ph.D. (with Arnon Sturm)

2017 Noa Roy, M.Sc. (with B. Shapira and L. Rokach)

2011 Michal Dahan, M.Sc. (with A. Sturm)

2010 Jenny Abramov, M.Sc. (with A. Sturm)

2008 Veronica Maidel, M.Sc. (with B. Shapira)

2006 Yan Nagler, M.Sc.

2005 Diana Lisinger, M.Sc. (with B. Shapira)

2005 Efrat Nahmany, M.Sc. (with H. Glezer and M. Last)

2004 Avihay Yampolski, M.Sc. (with M. Last)

2004 Zvi Kuflik, Ph.D.

2004 Judith Kabeli, Ph.D.

2002 Revital Danoh, M.Sc.

1999 Bracha Shapira, Ph.D.

1999 Avinoam Lazarov, M.Sc.

1996 Opher Feldman, M.Sc. (Dept. of Math. & Computer Science)

1995 Sagit Shiran, M.Sc.

1994 Rachel Sherf, M.Sc.

1993 Marina Manusevitz, M.Sc.

1992 Nili Shreiber (Tshuva), M.Sc., (Dept. of Math. & Computer Science)

1991 Arad Kopp, M.Sc.

1990 Sara Zohn, M.Sc.

1989 Ofrit Manor, M.Sc.

1988 Dafna Efraim (Mashiah), M.Sc. (Dept. of Math. & Computer Science)

1987 Moshe Goldstein, M.Sc. (Dept. of Math. & Computer Science)

1986 Moshe Even-Chaime, M.Sc.

1985 Suzan Lazinger, M.A. (Hebrew University of Jerusalem)

• <u>Awards, Citations and Honors:</u>

2009 Selected by the **ACM** as **Distinguished Scientist**. This advance member grade recognizes professional members who have achieved a significant accomplishment in, or made a significant impact on, the computing field as researchers.

1995 Invited Member of the Public Council of the Chamber of Systems Analysts of Israel.

1995 The course Systems Analysis & Design, designed and taught by Shoval since creation of the Information Systems Program at BGU, was ranked number 1 (top) in importance among all courses of the Dept. of Industrial Eng. & Management; based on a survey of the graduates of the 1992 class.

1994 Invited to become Charter Member of AIS, the Association for Information Systems.

1991 **Diploma of Honors** for Contribution to the Advancement of Computing in Israel, awarded by IPAI, Information Processing Association of Israel..

1988-1990   Elected Member of the Council of IPAI – 2nd term.

1987   Best Teacher award; Dept. of Industrial Eng. & Manage.t, BGU - students' survey.

1986-1987   Elected Member of the Council of IPAI -1st term.

1980   University of Pittsburgh, Nominated delegate to the *Doctoral Consortium* of the 1st Int'l Conference on Information Systems (ICIS-1), Philadelphia, December 1980.

1978-1981   University of Pittsburgh; Graduate Student Assistantship (stipend and tuition).

1978   Henry Leon Weiller Fellowship for Doctoral Studies; awarded by the President of the State of Israel.

• <u>Research Areas:</u>

Information systems analysis and design methods

Database conceptual and logical design; Data modeling

Entity-Relationship, Binary-Relationship, Object-Oriented models

Database reverse engineering; View integration

CASE tools; Prototyping; User Interface design

Expert systems for information retrieval; Information filtering

Evaluation and selection of information systems

• <u>Scientific Publications</u>

A) Authored Books:

P. Shoval (2015). ***Planning, Analysis and Design of Information Systems**, 2nd (Revised) Edition.* The Open University Press, 3 Volumes**:**

- Volume 1: ***Planning*** (404 pages).

- Volume 2: ***Analysis and design of information systems using the functional approach*** (482 pages).

- Volume 3: ***Analysis and design of information systems using the object-oriented approach*** (297 pages).

P. Shoval (2007). ***Functional and Object-Oriented Analysis & Design - An Integrated Methodology***. Idea Publishing - IGI (337 pages).

P. Shoval (2004). ***Analysis & Design of Information Systems – Combining Processes and Objects.*** The Open University Press (314 pages).

P. Shoval (1998). ***Planning, Analysis and Design of Information Systems***. The Open University Press, 3 Volumes:

- Volume 1: ***Planning*** (291 pages).

- Volume 2: ***Analysis and Design*** (383 pages).

- Volume 3: ***Prototyping, CASE, and Object-Oriented Approach*** (182 pages).

B) Monograms:

P. Shoval (1992; 1994; 1998; 2002; 2006). *Files Organization and Processing - Lecture Notes*, BGU (117 pages).

P. Shoval (1992; 1994). *Systems Analysis and Design with ADISSA Methodology - Lecture Notes*, BGU (128 pages).

C) Ph.D. Dissertation:

P. Shoval (1981). *An Expert Consultation System for a Retrieval Database with a Semantic-Network of Concepts*. University of Pittsburgh. Ann Arbor, Mich.: University Microfilms.

D) Editorship of Collective Volumes:

J. Parsons, M. Saeki, **P. Shoval**, C. Woo and Y. Wand (2010), Editors: *Conceptual Modeling – ER2010,* Proceedings of the 29th Int'l Conf. on Conceptual Modeling, Vancouver, Canada, November 2010, LNCS 6412, Springer (488 pages).

P. Shoval and A. Silberschatz (1998). Guest Editors: *Data & Knowledge Engineering,* Vol. 28 (95 pages).

P. Shoval and A. Silberschatz (1997), Editors: *Next Generation Information Technologies and Systems,* Proceedings of the 3rd NGITS Workshop, June 1977 (252 pages).

P. Shoval (1991), Editor: *Proceeding of the 26th Annual IPAI (Information Processing Association of Israel) National Conference*, Jerusalem, October 1991 (396 pages).

E) Journal Papers:

N. Roy-Hubara, S. Sturm, **P. Shoval** (2021). "Selecting Databases for Polyglot Persistence Applications", Data & Knowledge Engineering (DKE), Vol 37.

N. Roy-Hubara, L. Rokach, B. Shapira, **P. Shoval** (2017). "Modeling graphical database schema", IEEE IT Professional, Vol. 19(6), 34-43.

C. Landwehr, J. Ludewig, R. Meersman, D.L. Parnas, **P. Shoval**, Y. Wand, D. Weiss, E. Weyuker (2016). "Software Systems Engineering - a capability approach", The Journal of Systems and Software (JSS), Vol. 125, pp. 354-364.

M. Dahan, **P. Shoval**, A. Sturm (2014). "Comparing the impact of the OO-DFD and the Use Case methods for modeling functional requirements on comprehension and quality of models - a controlled experiment". *Requirements Engineering*, Vol. 19, pp. 27–43. (First published on line on May 2012.)

J. Abramov, A. Sturm, **P. Shoval** (2012). "Evaluation of the Pattern-based method for Secure Development (PbSD): a controlled experiment". *Information & Software Technology*, Vol. 54, pp. 1029-1043.

J. Abramov, O. Anson, M. Dahan, **P. Shoval**, A. Sturm (2012). "A methodology for integrating access control policies within database development". *Computers and Security*, Vol. 31 (3), pp. 299-314.

V. Maidel, **P. Shoval,** B. Shapira, M. Taieb-Maimon (2010). "Ontological content-based filtering for personalised newspapers: a method and its evaluation". *Online Information Review (OIR),* Vol. 34 (5), pp.729 – 756.

B. Shapira, **P. Shoval,** J. Meyer and N. Tractinsky (2009). "*ePaper* - a personalized mobile newspaper". *Journal of the American Society for Information Science and Technology (JASIST)*, Vol. 60 (11), pp. 2333-2346.

P. Shoval, V. Maidel and B. Shapira (2008). "An ontology- content-based filtering method". *Int'l Journal of Information Theories and Applications*, Vol. 15 (4), pp. 303-314. (An earlier version appeared in: Proc. of 5th Int'l Conference on Information & Research Applications - I.Tech-2007, Varna, Bulgaria, June 2007, pp. 51-63.)

T. Kuflik, Z. Boger and **P. Shoval** (2006). "Filtering search results using an optimal set of terms identified by an Artificial Neural Network". *Information Processing & Management*, Vol. 42, pp. 469-483.

P. Shoval and J. Kabeli (2005). "Data modeling or functional modeling – which comes first? An experimental comparison". *Communications of the AIS (Association of Information Systems)*, Vol. 16, pp. 827-843.

C. Glezer, M. Last, E. Nahmani and **P. Shoval** (2005). "Quality and comprehension of UML interaction diagrams – an experimental comparison". *Information & Software Technology*, Vol. 47, pp. 675-692.

J. Kabeli and **P. Shoval** (2005). "Comprehension and quality of analysis specifications – a comparison of FOOM and OPM methodologies". *Information & Software Technology*, Vol. 47 (4), pp. 271-290.

P. Shoval, R. Danoch and M. Balabam (2004). "Hierarchical entity-relationship diagrams: the model, method of creation and experimental evaluation". *Requirements Engineering*, Vol. 9, pp. 217-228.

P. Shoval and T. Kuflik (2004). "Effectiveness of title-search vs. full-text search in the Web". *Int'l Journal of Information Theories & Applications*, Vol. 11 (2), p. 151-157.

T. Kuflik, B. Shapira and **P. Shoval** (2003). "Stereotype-based versus personal-based filtering rules in information filtering systems". *Journal of the American Society for Information Science & Technology (JASIST)*, Vol. 54 (30), pp. 243-250.

M. Balaban and **P. Shoval** (2002). "MEER – an EER model enhanced with structure methods". *Information Systems,* Vol. 27, pp. 245-275.

A. Lazarov and **P. Shoval** (2002). "A rule-based system for automatic assignment of technicians to service faults". *Decision Support Systems,* Vol. 32, pp. 343-360.

U. Hanani, B. Shapira and **P. Shoval** (2001). **"**Information filtering: overview of issues, research and systems". *User Modeling and User-Adapted Interaction (UMUAI)*, Vol. 11 (3), August, pp. 203-259.

Also translated into Chinese and appeared in an abbreviated version in: *New Technology of Library and Information Service* (2005/6), pp. 30-38. (Translated and abbreviated by Cheng Ni, Cui Jianhai and Wang Jun).

Z. Boger, T. Kuflik, **P. Shoval** and B. Shapira (2001). "Automatic keyword identification by artificial neural networks compared to manual identification by users of filtering systems". *Information Processing & Management*, Vol. 37 (2), pp. 187-198.

P. Shoval and J. Kabeli (2001). "FOOM: functional- and object-oriented analysis & design of information systems - an integrated methodology". *Journal of Database Management*, Vol. 12 (1), pp. 15-25.

B. Shapira, **P. Shoval** and U. Hanani (1999). "Experimentation with an information filtering system that combines cognitive and sociological filtering integrated with user stereotypes". *Decision Support Systems*, Vol. 27, pp. 5-24.

M. Balaban and **P. Shoval** (1999). "Enhancing the ER model with integrity methods". *Journal of Database Management,* Vol. 10 (4), pp. 14-23.

P. Shoval and O. Feldman (1997). "A combination of the Mk-II function points software estimation method with the ADISSA methodology for systems analysis and design". *Information & Software Technology,* Vol. 39, pp. 855-865.

B. Shapira, **P. Shoval** and U. Hanani (1997). "Stereotypes in information filtering systems". *Information Processing & Management,* Vol. 33 (3), pp. 273-287.

B. Shapira, U. Hanani, A. Raveh and **P. Shoval** (1997). "Information filtering: a new two-phase model using stereotypic user profiling". *Journal of Intelligent Information Systems*, Vol. 8, pp. 155-165.

P. Shoval (1997). "Experimental comparisons of Entity-Relationship and Object-Oriented data models". *Australian Journal of Information Systems*, Vol. 4 (2), pp. 74-81.

P. Shoval and S. Shiran (1997). "Entity-Relationship and Object-Oriented data modeling - an experimental comparison of design quality". *Data & Knowledge Engineering (DKE)*, Vol. 21, pp. 297-315.

P. Shoval and R. Giladi (1996). "Determination of an implementation order for IS projects". *Information & Management*, Vol. 31, pp. 67-74.

B. Shapira, **P. Shoval**, A. Raveh, U. Hanani (1996). "Hypertext browsing: a new model based on information filtering with user profiles using data analysis methods". *Online & CD-ROM Review*, Vol. 20 (1), pp. 3-10.

P. Shoval (1995). "Experimental comparison between automatic and manual menu-interface design methods". *Interacting With Computers*, Vol. 7 (1), pp. 73-89.

P. Shoval (1995). "Structured method for designing subsystems". *Information & Software Technology*, Vol. 37 (2), pp. 79-85.

Y. Kornatzky and **P. Shoval** (1994). "Conceptual design of object-oriented database schemas using the binary-relationship model". *Data & Knowledge Engineering (DKE)*, Vol. 14, pp. 265-288.

P. Shoval and I. Frumermann (1994). "OO and EER conceptual schemas: a comparison of use comprehension".*Journal of Database Management*, Vol. 5 (4), pp. 28-38.

R. Giladi and **P. Shoval** (1994). "An architecture of an intelligent system for routing user requests in a network of heterogeneous databases". *Journal of Intelligent Information Systems (JIIS),* Vol. 3, pp. 205-221.

A. Mehrez, G. Howard, Y. Lugasi and **P. Shoval** (1993). "Information system planning and selection: a multi-attribute theoretic approach". *The Computer Journal*, Vol. 36 (6), pp. 525-541.

P. Shoval and N. Shreiber (1993). "Database reverse engineering: from the relational to the binary-relationship model". *Data & Knowledge Engineering (DKE)*, Vol. 10, pp. 293-315.

P. Shoval (1993). "On non-constrained, constrained and mandatory many-to-many relationship types". *Journal of Database Management*, Vol. 4 (1), pp. 3-14.

G. Babin, F. Lustman and **P. Shoval** (1991). "Specification and design of transaction systems: a formal approach". *IEEE Transactions on Software Engineering*, Vol. 17 (8), August, pp. 814-829.

P. Shoval (1991). "One-to-one dependencies in database design". *IEEE Transactions on Knowledge & Data Engineering*, Vol. 3, September, pp. 371-379.

P. Shoval (1991). "An integrated methodology for functional analysis, process design and database design". *Information Systems*, Vol. 16 (1), pp. 49-64.

P. Shoval and S. Zohn (1991). "Binary-Relationship integration methodology". *Data & Knowledge Engineering (DKE)*, Vol. 6 (3), May, pp. 225-250.

M. Dror, **P. Shoval** and A. Yelin (1991). "Multi-objective linear programming: another DSS". *Decision Support Systems*, Vol. 7, pp. 221-232.

P. Shoval, B. Arazi, E. Gudes and D. Ephraim (1990). "ERSE: an expert retrieval system for electronic databases". *Expert Systems for Information Management*, Vol. 3 (2), pp. 85-114.

P. Shoval (1990). "Functional design of a menu-tree interface within structured system development". *Int'l Journal of Man-Machine Studies*, Vol. 33, October, pp. 537-556.

P. Shoval and N. Pliskin (1990). "Structured support for advanced end-user prototyping". *Education and Computing*, Vol. 6 (1), July, pp. 33-41.

P. Shoval and O. Manor (1990). "Software engineering tools supporting ADISSA methodology for systems analysis and design. *Information & Software Technology*, Vol. 32 (5), pp. 357-369.

N. Pliskin and **P. Shoval** (1989). "Responsibility sharing between sophisticated users and professionals in Structured Prototyping". *Information & Software Technology*, Vol. 31 (8), October, pp. 438-448.

P. Shoval and Y. Lugasi (1989). "Computer systems selection: the graphical cost-benefit approach". *Information & Management*, Vol. 15, pp. 163-172.
    Also translated into Dutch and appeared in: *Management en Organisatie van Automatiseringsmiddelen*. The Netherlands, 1990/2, pp. 72-83.

P. Shoval and N. Pliskin (1988). "Structured prototyping: integrating prototyping into structured system development". *Information & Management*, Vol. 14 (1), pp. 19-30.

P. Shoval (1988). "ADISSA: Architectural Design of Information Systems based on Structured Analysis". *Information Systems*, Vol. 13 (2), pp. 193-210.

P. Shoval, E. Gudes, and M. Goldstein (1988). "GISD: a graphical interactive system for database conceptual design". *Information Systems*, Vol. 13 (1), pp. 81-95.

P. Shoval and M. Even-Chaime (1987). "ADDS: a system for automatic database schema design based on the Binary Relationship model". *Data & Knowledge Engineering (DKE)*, Vol. 2, pp. 123-144.

N. Pliskin and **P. Shoval** (1987). "End-user prototyping: sophisticated users supporting system development". *Data Base*, Vol. 18 (4), pp. 7-17.

P. Shoval and Y. Lugasi (1987). "Models for computer systems evaluation and selection". *Information & Management*, Vol. 12 (3), March, pp. 117-129.

P. Shoval and M. Even-Chaime (1987). "Database schema design: an experimental comparison between Normalization and Information Analysis". *Data Base*, Vol. 18 (3), pp. 30-39.

M. Hanani and **P. Shoval** (1986). "A combined methodology for systems analysis and design based on ISAC and NIAM". *Information Systems*, Vol. 11 (3), pp. 245-253.

P. Shoval (1986). "Comparison of decision support strategies in expert consultation systems". *Int'l Journal of Man-Machine Studies*, Vol. 24, pp. 125-139.

P. Shoval (1985). "Essential information structure diagrams and database schema design". *Information Systems*, Vol. 10 (4), pp. 417-423.

P. Shoval (1985). "Principles, procedures and rules in an expert system for information retrieval". *Information Processing and Management*, Vol. 21 (6), pp. 475-487.

F) Chapters in Books:

J. Abramov, O. Anson, A. Sturm, and **P. Shoval** (2012). "Tool support for enforcing security policies on databases". In: S. Nurcan (Ed.): IS Olympics - Information Systems in a Diverse World. LNBIP 107, Springer, pp. 126--141. (An earlier version appeared in *Proc. of CAISE2011 Forum* – A tool demonstrations forum, held within the 23rd CAISE Conference, London, UK, 20-24 June, 2011, pp. 41-48.)

M. Levy, L. Rokach, B. Shapira and **P. Shoval** (2012). "Personalized knowledge service for smart cell-phone based on usage - conceptual model and intention prediction algorithm". In: Kantola Karwowski (Eds.) *Knowledge Service Engineering Handbook*. *CRC press at Taylor & Francis*, pp. 310-323.

P. Shoval and J. Kabeli-Shani (2009). "Designing class methods from dataflow diagrams". In: Papadopoulos, G. et al. (Eds.) *Information Systems Development - Towards a Service Provision Society*. Springer, pp. 1-10. (An earlier version appeared in *Proc. of ISD-08, 13th Int'l Conf. on Information Systems Development,* Cyprus; Aug. 2008.)

P. Shoval, M. Last and A. Yampolsky (2009). "Data modeling and functional modeling - examining the preferred order of using UML class diagrams and use cases". In: Halpin et al. (Eds.): *Innovations in Information Systems Modeling: Methods and Best Practices*. IGI Global, Ch. 7, pp. 122-142. (An earlier version appeared in *Proc. of 11th CAISE/IFIP8.1 Int'l Workshop on Evaluation of Modeling Methods in Systems Analysis and Design (EMMSAD'06)*, Luxemburg, June 2006, pp. 453-464.)

P. Shoval and J. Kabeli (2009). "Functional and Object-Oriented Methodology for Analysis and Design". In: M. Khosrow-Pour (Editor). *Encyclopedia of Information Science and Technology*, 2nd Edition, IGI Global, pp. 1592-1600.

L. Tenenboim, B. Shapira, **P. Shoval** (2008). "Ontology-based classification of news in an electronic newspaper". Book Series: Information Science and Computing; Book 2: Advanced Research in Artificial Intelligence, pp. 89-97. (Presented at the Int'l Conference on Intelligent Information & Engineering Systems (INFOS), Varna, Bulgaria, June 2008.)

J. Kabeli and **P. Shoval** (2005). "Quality of analysis specifications – a comparison of FOOM and OPM methodologies. In K. Siau (Editor): *Advanced Topics in Database Research*, Vol. 4. Idea Group, Hershey, Chapter 13, pp. 283-296. (An earlier version appeared in *Proc. of the 9th CAISE/ IFIP8.1/EUNO Int'l Workshop EMMSAD'04*, Riga, Latvia, June 2004, pp. 139-150.)

P. Shoval and J. Kabeli (2005). "Essentials of Functional and Object-Oriented Methodology". In: M. Khosrow-Pour (Ed.). *Encyclopedia of Information Science and Technology*, Idea Group Reference, pp. 1108-1115.

J. Kabeli and **P. Shoval** (2005). "A comparison of the FOOM and OPM methodologies for user comprehension of analysis specifications". In: J. Krogstie, T. Halpin & K. Siau (Editors): *Information Modeling Methods and Methodologies,* Idea Group, Hershey, Chapter 9, pp.175-195. (An earlier version appeared in: *Proc. of the 7th CAISE/ IFIP8.1 Int'l Workshop EMMSAD'02*, Toronto, Canada, May 2002, pp. 23-36.)

R. Danoch, **P. Shoval** and M. Balaban (2005). "Comprehension of hierarchical ER diagrams compared to flat ER diagrams". In: J. Krogstie, T. Halpin & K. Siau (Editors): *Information Modeling Methods, and Methodologies,* Idea Group, Hershey, Chapter 12, pp. 241-257.

J. Kabeli and **P. Shoval** (2003). "The application of FOOM methodology to IFIP conference case study". In Peckham, J. and Lloyd, S. (Editors): *Practicing Software Engineering in the 21st Century*, IRM Press, Hershey. Chapter VII, pp. 82-95.

P. Shoval, R. Danoch and M. Balaban (2003). "Hierarchical ER diagrams (HERD) - the method and experimental evaluation". In: A. Olive, M. Yoshikawa and E. Yu (Eds.), *Advanced Conceptual Modeling Techniques*, Lecture Notes in Computer Science 2784, Springer, pp.264-274. (An earlier version appeared in: *Proc. of the 1st Int'l Workshop IWCMQ-0,* Tampere, Finland. October 2002.)

P. Shoval and J. Kabeli (2002). "FOOM - Functional and Object-Oriented Methodology for analysis and design of information systems". In K. Siau (Editor): *Advanced Topics in Database Research*, Idea Group, Hershey, pp. 58-86.

M. Balaban and **P. Shoval** (2002), "Enforcing cardinality constraints in the ER model with integrity methods". In K. Siau (Editor): *Advanced Topics in Database Research*, Idea Group, Hershey, pp. 1-16.

S. Lazinger and **P. Shoval** (1987). "Prototyping a microcomputer-based online library catalog". *Occasional Papers* series, No. 177. University of Illinois, March, pp. 3-47.

G) Refereed Articles in Collective Volumes and Proceedings of International Conferences and Workshops:

N. Roy-Hubara, A. Sturm and **P. Shoval** (2021). "Designing Document databases - a comprehensive requirements perspective". Proc of ER'21 CoMoNOs Workshop, Springer LNCS 13012, pp. 15–25.

N. Roy-Hubara, **P. Shoval** and A. Sturm (2019). "A method for database model selection". Proc. Of EMMSAD'19 Conference: Exploring Modeling Methods for Systems Analysis and development, Roma, 3-4 June, 2019.

N. Roy-Hubara1, L. Rokach1, B. Shapira1 and **P. Shoval** (2018). "Evaluation of a design method for graph database". Proc. of EMMSAD'18 Conference: Exploring Modeling Methods for Systems Analysis and development, Estonia, 11-12 June, 2018.

M. Dahan, **P. Shoval** and A. Sturm (2011). "An empirical comparison between two methods for defining functional requirements: Use Cases vs. OO-DFDS". Proc. of the 6th Mediterranean Conference on Information Systems (MCIS), Limassol, Cyprus, 3-5 September, 2011.

J. Abramov, A. Sturm and **P. Shoval** (2011). "A pattern based approach for secure database design". Proc. of the 1st Int'l Workshop on Information Systems Security Engineering (WISSE); in conjunction with the 23rd CAISE Conference, London, UK, 20-24 June 2011. In: C. Solinesi & O. Pastor (Eds.): CaiSE 2011 Workshops, LNBIP 83, pp. 637-651.

M. Levy, **P. Shoval**, B. Shapira (2010). "Personalized knowledge service based on smart cell-phone usage: a conceptual framework". Proc. of the 16th Americas Conference on Information Systems (AMCIS), Lima, Peru, August 12-15, 2010.

M. Levy, **P. Shoval**, B. Shapira, D. Aviram, M. Tubi (2010). "Task modeling infrastructure for analyzing smart phone usage". Proc. of ICMB - 9th Int'l Conf. on Mobile Business, 13-15 June 2010, Athens, Greece.

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V. Maidel, **P. Shoval,** B. Shapira and M. Taieb-Maimon (2008). "Evaluation of an ontology-content-based filtering method for a personalized newspaper". Proc. of RecSys08, ACM Int'l Conference on Recommender Systems, Lausanne, Switzerland, October, pp. 91-98.

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B. Shapira, **P. Shoval,** J. Meyer, N. Tractinsky, D. Mimran (2008). "ePaper - the personalized mobile newspaper". Proc. of 12th Int'l Conference on Intelligent User Interfaces (IUI '08), January 2008, Canary Islands, Spain.

P. Shoval, V. Maidel, B. Shapira (2007). "An ontology- content-based filtering method". Proc. of 5th Int'l Conference on Information & Research Applications (I.Tech-2007), Varna, Bulgaria, June 2007, pp. 51-63.

D. Shirtz, Z. Bluvband, Y. Elovici, **P. Shoval** (2007). "Computer systems & Information SSR: a unified approach for decision making". Proc. of Reliability & Maintainability Symposium, IEEE-RAMP'07, pp. 427-433.

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C. Glezer, M. Last, E. Nahmani, **P. Shoval** (2005). "Experimental comparison of sequence and collaboration diagrams in different application domains". *Proc. of the Tenth CAISE/ IFIP8.1 Int'l Workshop on Evaluation of Modeling Methods in Systems Analysis and Design (EMMSAD'05)*, Porto, Portugal, June 2005, pp. 463-476.

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J. Kabeli and **P. Shoval** (2003). "Software analysis process – which order of activities is preferred? an experimental comparison using FOOM methodology". *Proc. of WsSTE'03 - IEEE Int'l Conference on Software – Science, Technology & Engineering*, Herzliya, Israel, 4-5 November 2003.

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J. Kabeli and **P. Shoval** (2002). "FOOM and OPM methodologies - experimental comparison of user comprehension". *Proc. of the 5th Int'l Workshop NGITS'02*, Caesarea, Israel, June 2002. Published in: A. Halevi and A. Gal (Eds.), *Next Generation Information Technologies and Systems*, Lecture Notes in Computer Science 2382, Springer-Verlag, pp. 107-122.

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P. Shoval, P. Ein-Dor, R. Giladi and I. Spiegler (1996). "A Meta knowledge base and a search mechanism for distributed, heterogeneous databases". *Proc. of AIS'96, Americas Conference on Information Systems*, Phoenix, Arizona, August.

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P. Shoval (1989). "ADISSA tools"*, Proc. of the 4th Israel Conference on Computer Systems and Software Engineering*, Herzliya, June. Published by IEEE Computer Society Press, IEEE Service Center, Piscataway, NJ, pp. 153-157.

P. Shoval (1983). "Knowledge representation in consultation systems for users of retrieval systems", in: C. Keren and L. Perlmuter (eds.), *Proc. of Int'l Symposium on the*

Application of Mini and Micro Computers in Information, Documentation and Libraries, Tel-Aviv. Published by North Holland, Amsterdam, pp. 631-643.

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H) Short Papers and Poster Presentations at Int'l Conferences:

J. Abramov, O. Anson, A. Sturm and **P. Shoval** (2011). "Tool support for enforcing security policies on databases". *Proc. of CAISE2011 Forum* – A tool demonstrations forum held within the 23rd CAISE Conference, London, UK, 20-24 June, 2011, pp. 41-48.

P. Shoval (2005). "FOOM – Functional and Object Oriented Methodology – an integrated approach". Abstract of Tutorial. In: J. Akoka et al. (Eds.). *Perspectives in Conceptual Modeling*, *Lecture Notes in Computer Science 3770*. (Proc. of the 24th Conference on Conceptual Modeling - ER 2005), pp. 459-460.

T. Kuflik and **P. Shoval** (2003). "Automatic generation of content-based user profiles compared to rule-based profiles for information filtering". Short paper*, Proc. of the Int'l Conference on Intelligent User Interfaces (IUI)*, January 12-15, Miami, FL.

T. Kuflik and **P. Shoval** (2000). "Generation of user profiles for information filtering - a research agenda", poster presentation, *Proc. of SIGIR2000 Conference on Information Retrieval*, Athens, Greece, July.

P. Shoval and A. Silberschatz (1998). Guest Editorial: "Next Generation Technologies and Systems", *Data & Knowledge Engineering,* Vol. 28, pp. 253-254.

G. Har-Noy, M. Gluz, **P. Shoval**, U. Onken and J. Merchuk (1997). "The *Air Lift* system database: a bank of data for airlift performance", short paper, *Proc. of the 4th Japanese/German Symposium Bubble Columns*, Kyoto, Japan, December.

P. Shoval (1990). "Sub-system design", short paper, *Proc. of CompEuro '90, IEEE International Conference Computer Systems & Software Engineering*, Tel-Aviv, May, IEEE Computer Society Press, Los Alamitos, CA., pp. 546-547.

P. Shoval (1990). "A methodology for integration of Binary-Relationship conceptual schemas", short paper, *Proc. of Parbase-90, International Conference on Databases, Parallel Architectures & their Applications*, Miami Beach, Florida, March, IEEE Service Center, Piscataway, NJ, pp. 435-437.

P. Shoval (1989). "A method for functional design of menu-tree interface integrated within structured system development", poster presentation*, HCI-89, International Conference on Human-Computer Interaction*, Boston, MA. September.

J. Vries, **P. Shoval**, J. Moosy, S. McCledon, and G. Banks (1986). "An intelligent information retrieval system for laser disk medical information", abstract, *Medinfo-86*, Fifth World Congress on Medical Informatics, Washington DC, October.

I) Papers in Journals and Proceedings of Israeli Conferences (*in Hebrew*):

N. Roy-Hubara, **P. Shoval**, L. Rokach, B. Shapira (2018). "Design of a graph database schema". Proc. of the 12th ILAIS Conference, Shamoon College of Engineering, Ashdod, June.

P. Shoval (2013). "Ranking suppliers of multi-alternative proposals of IT projects – the Graphical Cost-Benefit method". Proc. of the 7th ILAIS Conference, Ruppin Academic Center, July.

O. Inbar, N. Traktinsky, J. Mayer, **P. Shoval** and B. Shapira. (2008). "Considerations in the design of a human-computer interface for a mobile news delivery service. *Proc. of the 15th Conference on Industrial Engineering Management*, Tel-Aviv, March.

J. Kabeli and **P. Shoval** (2004). "FOOM methodology for analysis & design of information systems – combining the functional and object-oriented approaches". Abstract. *Proc. of the Annual National Conference on Data Processing*, IPAI, Tel Aviv, March.

R. Giladi and **P. Shoval** (1995). "An intelligent system for routing user requests in a network of autonomous databases", *Proc. of the 29th National Conference on Data Processing*, IPAI, Jerusalem, January.

P. Shoval (1994). "Automatic design of OODB schema using a semantic data model*", Proc. of the Computing Week*, IEEE Computer Society, Bar-Ilan University, Israel, November.

P. Shoval and A. Kopp (1992). "A comparative experiment between automatic and manual methods for menu-tree design", *Proc. of the sixth Annual Conference on Management Information Systems*, Tel-Aviv University, May, pp. 7-23.

N. Shreiber and **P. Shoval** (1991). "Mapping a relational database schema into a binary-relationship conceptual schema", *Proc. of the 26th National Conference on Data Processing*, IPAI, Jerusalem, October, pp. 305-322.

P. Shoval and A. Kopp (1991). "CASE tools for developing structured prototypes", *Proc. of the fifth Annual Conference on Management Information Systems*, Tel-Aviv University, April, pp. 89-105.

Appeared also in: *Machshevim* (Computers), Vol. 116, August 1991, pp. 20-26.

P. Shoval and N. Pliskin (1990). "Division of labor between professionals and advanced end-users in system development", *Proc. of the fourth Annual Conference on Management Information Systems*, Tel-Aviv University, May, pp. 18-28.

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P. Shoval (1989). "Sub-systems design with ADISSA methodology", *Proc. of the 24th Conference on Data Processing*, IPAI, Jerusalem, November, pp. 13-17.

P. Shoval (1989). "An expert system for medical information retrieval", *Yad Lakore (The Reader's Aid)*, Israel Journal for Libraries and Archives, Vol. 23 (3-4), Feb., pp. 70-78.

P. Shoval and N. Pliskin (1989). "Structure prototyping by sophisticated users", *Proc. of the 20th Annual Conference of the Israel Association of Information Systems Analysts*, June. Published in *Maydaon*, Vol. 11, pp. 53-58.

P. Shoval and Y. Lugasi (1989). "The graphical cost-benefit method for system selection", *Proc. of the third Annual Conference on Management Information Systems*, Tel-Aviv University, May, pp. 77-94.

Z. Kupelik, E. Gudes, A. Mizeles and **P. Shoval** (1988). "A general expert system for allocation", *Proc. of the 5th Israel Symposium on Artificial Intelligence, Vision and Pattern Recognition*, Tel-Aviv, December, pp. 293-299.

P. Shoval (1988). "One-to-One dependencies in database design", *Proc. of the 23rd National Conference on Data Processing*, IPAI, Tel-Aviv, October, pp. 25-37.

P. Shoval (1988). "Graphical aspects of ADDS: a system for automatic database design", *Proc. of the 19th Annual Conference of the Israel Association of Information Systems Analysts*, June. Published in: *Maydaon*, Vol. 10 (51-52), 1988, pp. 182-191.

P. Shoval and O. Manor (1988). "Functional menus design within ADISSA methodology for systems analysis and design", *Proc. of the Second Annual Conference on Management Information Systems*, Tel-Aviv Univ., May. Published in: *Machshevim (Computers)*, Vol. 85, August 1988, pp. 35-38.

P. Shoval and Y. Lugasi (1988). "Evaluation and selection of computer systems", *Proc. of the 5th Conference on Industrial Engineering and Management*, Beer Sheva, May.

P. Shoval, O. Manor, O. Zinger and Y. Kotzer (1988). "Functional design of menus in information systems development", *Proc. of the 5th Conference on Industrial Engineering and Management*, Beer Sheva, May.

P. Shoval (1986). "An expert system for medical information retrieval*", Proc. of the 21st National Conference on Data Processing*, IPAI, Jerusalem, pp. 183-191.

   Appeared also in: *Machshevim (Computers),* Vol. 6 (2), February 1987, pp. 8-12.

M. Hanani and P. Shoval (1986). "A contribution to the construction of a methodology for the entire information system life cycle", *Proc. of the 4th Conference on Industrial Engineering Management*, Tel-Aviv, March, pp. 14-29.

 M. Hanani and **P. Shoval** (1985). "A combined methodology for systems analysis and database design based on ISAC and NIAM", *Proc. of the 20th National Conference on Data Processing*, IPAI, Jerusalem, pp. 227-251.
   Appeared also in: *Ma'ase Hoshev, The Journal of IPAI*, Vol. 13 (3), June 1986, pp. 17-27.

M. Even-Chaime and **P. Shoval** (1985). "A system for logical design of data bases", *Proc. of the 20th National Conference on Data Processing*, IPAI, Jerusalem, pp. 5-21.

P. Shoval (1984). "Search and evaluation rules in expert systems for information retrieval", *Proc. of the 19th National Conference on Data Processing*, IPAI, Jerusalem, 63-78.
   Appeared also in: *Ma'ase Hoshev, The Journal of IPAI*, Vol. 12 (1), Feb. 1985, pp. 31-37.

P. Shoval (1983). "Experiments with decision support systems: the case of an expert system database users", *Proc. of the 18th National Conference on Data Processing*, IPAI, Jerusalem, pp. 105-119.

P. Shoval (1983). "Essential information structure diagrams and the creation of a skeleton for Relational and Network schemata*, Proc. of the 18th National Conference on Data Process*ing, IPAI, Jerusalem, pp. 59-72.

P. Shoval (1982). "Information analysis and database conceptual design", *Proc. of the 17th Conference on Data Processing*, IPAI, Jerusalem, pp. 41-61.

Awarded prize for outstanding paper.

I. Borovitz, Z. Neumann and **P. Shoval** (1978). "Assessing users' satisfaction with information systems". *The Israeli Review of Business Economics*, Vol. 3 (9-10), 5-18.

N. Ahituv and **P. Shoval** (1975). "Computer tenders and contracts", *Proc. of the 10th National Conference on Data Processing*, IPAI, Jerusalem, pp. 49-90. Awarded prize for outstanding paper.

J) Classified Articles and Reports:

(All classified reports listed below have been published within the I.D.F.)

P. Shoval (1978). "Long-range plan of information systems for the Military Training department and the training units", April.

N. Levin and **P. Shoval** (1978). "An information retrieval system for military affairs: design and implementation", February.

N. Levin and **P. Shoval** (1977). "A war-game system for military convoys in combat", August.

N. Ahituv, M. Hadas and **P. Shoval** (1977). "Long-range plan for the organization and information systems for the Military Personnel branch and units", July.

P. Shoval (1977). "Supply systems in combat: consumption and renewal models and policy", April.

P. Shoval (1977). "Electronic warfare systems: the value and cost of information", March.

P. Shoval (1976). "Design and implementation of an information system for weapon systems contracts", September.

P. Shoval (1976). "Analysis and design of an information system for the military juristic system, April.

P. Shoval (1976). "Military recruiting to service: organization, operation and information systems", 2 volumes: Vol. 1 - February; Vol. 2 - May.

N. Ahituv and **P. Shoval** (1975). "Analysis and design of the management information system of the Personnel branch of the IDF, August.

P. Shoval and I. Venetzia (1975). "Analysis of the operation and organization of Armour maintenance units in combat", August.

E. Segev, **P. Shoval** and E. Wald (1975). "Analysis of the organizational structure and operation of the personnel department of the IDF", 4 volumes: Vol. 1 - April; Vol. 2 - June; Vol. 3 - July; Vol. 4 - October.

P. Shoval (1975). "Formulae for calculation of arrival times of mobilized reserve forces", May.

E. Wald and **P. Shoval** (1975). "Models for mobilization of reserve forces", March.

- **<u>Lectures and Presentations at Meetings and Invited Seminars</u>** (<u>not followed by published proceedings</u>)**:**

A) Presentations of Seminars at Universities:

Sep. 2018   Bulgaria, Burgas: Invited talk on "Modeling Graph Databases" at the 8th Int'l DiPP2018 Conference.

Jan. 2013   Spain, Barcelona, Universitat Politecnica de Catalunya. Title: "Functional Modeling and Conceptual Data Modeling – Which is the Preferred Order of Activities?"

July 2011   Bulgaria Academy of Science, Dept. of Mathematics and Informatics, Sofia. Title: "An Empirical Comparison between Two Methods for Defining Functional Requirements: Use Cases vs. OO-DFDs".

Dec. 2006   University of Haifa, Dept. of Management Information Systems, Haifa. Title: "Experiments on the preferred order of analysis activities – research results".

Oct. 2006   Bulgarian Academy of Science, Dept. of Mathematics and Informatics, Sofia, Bulgaria. Title: "Data modeling or functional modeling – which comes first? - experimental comparisons".

Jan. 2006   Tel Aviv University, Dept. of Industrial Engineering. Title: "Data modeling or functional modeling – which comes first? – experimental comparisons".

Oct. 2005   Klangfurt University, Austria. Title: "FOOM – Functional and Object Oriented Methodology – An Integrated Approach". Tutorial presented at: Conceptual Modeling – ER 2005 Conference.

Feb. 2005   University of Auckland, Dept. of Information Systems, Auckland, New-Zealand. Title: "Examining the preferred order of analysis activities – research results".

Sep. 2004   ITC – IRST (Institute of Research in Science & Technology), Trento, Italy. Title: "FOOM methodology and its evaluation".

Sep. 2001   Technical University of Valencia, Spain; Dept. of Information Systems. Title: "FOOM – functional and object-oriented analysis and design methodology".

May 1997   Vienna University of Business & Economics, Austria; Dept. of Information Systems. Title: "Object-Oriented vs. Entity-Relationship data modeling: experimental comparisons".

Jan. 1997   Technion, Haifa; Dept. of Industrial Engineering & Management. Title: "Experimental comparisons of Entity-Relationship and Object-Oriented data models".

May 1996   Ben-Gurion University; Dept. of Mathematics & Computer Science. Title: "Entity-Relationship and Object-Oriented data modeling".

Mar. 1993   Free University, Amsterdam, Netherland; Dept. of Computer Science. Title: "Reverse database engineering: from relational to the binary relationship model".

Dec. 1991   Technion, Haifa; Dept. of Industrial Engineering & Management. Title: "View integration methodology based on the binary-relationship model".

Aug. 1988   University of Montreal, Canada; Dept. of computer Science. Title: "Binary-Relationship based tools for conceptual and logical database design".

Aug. 1988   University of Montreal, Canada; School of Business (2 seminars):

a) "Graphical cost/benefit analysis of alternative computer-based systems",
b) "Functional of a menu-tree interface".

Dec. 1987   University of Pittsburgh, PA; Graduate School of Business Admin. Title: "Conceptual and logical database design".

May 1987   University of Ulm, Germany. Title: "Methods for systems analysis and database design: survey of my current research.

Mar. 1987 Tel-Aviv University; School of Management. Title: "ADDS: Automatic database design system".

Sep. 1986   University of Montreal, Canada; Dept. of Computer Science. Title: "ADISSA: architectural design of information systems based on structured analysis".

Feb. 1986   Carnegie-Mellon University, Pittsburgh, PA; Dept. of Computer Science. Title: "Expert systems for information retrieval".

B) Invited Plenary Lectures at Professional Meetings:

July 2012 ILAIS'12 – 6th Conference of the Israel Chapter of AIS. University of Haifa. Title: "Report of the CHE Committee on Programs of Study in Information Systems in the Israeli Academy".

Aug. 2007 AMCIS – American Conference on Information Systems. Keystone, Colorado. Tutorial title: "Functional and object-oriented methodology for analysis and design of information systems".

July 2006   INCOSE-IL - International Council on Systems Engineering; Israel Chapter. Herzlia. Seminar Title: "FOOM methodology for analysis and design of information systems".

Jan. 2003 The Israel Chamber of Information Systems Analysts; South Chapter. Lecture Title: "FOOM methodology for analysis and design of information systems".

May. 1999 "Info'99 - Information Week in Israel", the 14th annual conference, Tel-Aviv. Title: "A model for filtering e-mail messages that combines content-based and sociological filtering – experimental results".

Feb. 1990 "Information Week in Israel", the 5th annual conference, Tel-Aviv. Title: "Information systems development: the prototyping approach".

Sep. 1989 IBM Users' Association in Israel, Annual workshop on management of computer centers, Galil (2 lectures):
   a) "Methods for evaluation and selection of computer systems",
   b) "Prototyping approaches in information systems development".

Feb. 1989 "Information Week in Israel", 4th annual conf., Tel-Aviv. Title: "Expert systems approach to information retrieval: applications in medicine and electronics".

Oct. 1987 Air-Force Institute for Advanced Studies, Jerusalem, Software Design Seminar. Title: "Graphical based tools for database conceptual and logical design".

Jun. 1987 30th anniversary, School of Library and Information Sciences, Hebrew University, Jerusalem. Title: "Expert systems for information retrieval".

Nov. 1986 Air-Force Institute for Advanced Studies, Jerusalem, Software Design Seminar. Title: "Methodologies for systems analysis and design".

C) Professional Seminars/Tutorials:

(The list below includes whole-day seminars and tutorials given by Shoval, in which he presented his research work to professionals from industry and academia)

July 1992 Evaluation of Information Systems; The roles of users and management in systems development and operation.

Mar. 1989 ADISSA: Architectural design of information systems; methodology and tools.

Oct. 1988 Systems analysis and database design: 4-day lectures and workshop.

June 1988 Conceptual and logical database design using ADDS.

Mar. 1988 ADISSA: Architectural design of information systems.

Feb. 1988 ADISSA: Architectural design of information systems.

Apr. 1987 Logical database design based on Information Analysis method.

June 1986 Methodology for architectural design of information systems.

Nov. 1985 Logical database design based on Information Analysis method.

June 1984 From information needs to database design; the Information Analysis method.

Feb. 1983 Information Analysis methodology for database design.

Oct. 1982 Information Analysis methodology for database design.

D) Professional Functions at Conferences:

Oct. 2022 ER'22 – 41th Int'l Conference on Conceptual Modeling, Hyderabad, India (virtual). Senior Member of the Program Committee.

Oct. 2021 ER'21 – 40th Int'l Conference on Conceptual Modeling, Newfoundland, Canada (virtual). Senior Member of the Program Committee.

Oct. 2022 ER'21 – 39th Int'l Conference on Conceptual Modeling, Vienna, Austria (virtual). Senior Member of the Program Committee.

Nov. 2019 ER'19 – 38th Int'l Conference on Conceptual Modeling, Salvador, Brazil. Senior Member of the Program Committee.

Nov. 2018 ER'18 – 37th Int'l Conference on Conceptual Modeling, Xiana, China. Member of the Program Committee.

Nov. 2017 ER'17 – 36th Int'l Conference on Conceptual Modeling, Valencia, Spain. Member of the Program Committee.

Nov. 2016 ER'16 - 35nd Int'l Conference on Conceptual Modeling, Gifu, Japan. Member of the Program Committee.

Nov. 2015 ER'15 - 34nd Int'l Conference on Conceptual Modeling, Stockholm, Sweden. Member of the Program Committee.

June 2014 SwSTE-2014 - International Conference on Software Science, Technology, and Engineering, Herzlia, Israel. Member of the Program Committee.

Nov. 2013 ER'13 - 32nd Int'l Conference on Conceptual Modeling, Hong Kong. Member of the Program Committee.

Sep. 2013 DiPP2013 – 3rd Int'l Conference on Digital Presentation and Presevation of Cultural and Scientific Heritage. Velico Tarnovo, Bulgaria. Member of PC.

June 2013 EMMSAD'13 - 18th CAiSE/IFIP8.1 International Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. Valencia, Spain. Member of the Program Committee.

June 2012 IEEE International Conference on Software – Science, Technology & Engineering. Herzliya, Israel. Member of the Program Committee.

June 2012 EMMSAD'12 - 17th CAiSE/IFIP8.1 International Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. Gdansk, Poland. Member of the Program Committee.

June 2011 EMMSAD'11 - 16th CAiSE/IFIP8.1 International Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. London, UK. Member of the Program Committee.

Nov. 2010 ER'10 - 29th Int'l Conference on Conceptual Modeling, Vancouver, Canada. Co-Chairman of the Program Committee.

Nov. 2009 ER'09 - 28th Int'l Conference on Conceptual Modeling, Brazil. Member of the Program Committee.

Sep. 2009 ISD2009 -18th Int'l Conference on Information Systems Development, Nanchang, China. Member of the Program Committee.

June 2009 EMMSAD'09 -14th CAiSE/IFIP8.1 International Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. Amsterdam, The Netherlands. Member of the Program Committee.

Dec. 2008 ICIS'08 - 29th International Conference on Information Systems, Paris, France, Associate Editor of the Program Committee.

Aug. 2008 ISD2008 - International Conference on Information Systems Development, Paphos, Cyprus. Member of the Program Committee.

Dec. 2007 ICIS'07 - 28th International Conference on Information Systems, Montreal, Canada, Associate Editor of the Program Committee.

June 2007 EMMSAD'05 - 11th CAiSE/IFIP8.1 International Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. Tronenheim, Norway. Member of the Program Committee.

Oct. 2006 ER'06 - 25th Int'l Conference on Conceptual Modeling, Tucson, USA. Member of the Program Committee.

June 2006 NGITS '06 - 6th Int'l Workshop on Next Generation Information Technologies and Systems. Member of Steering Committee.

Nov. 2005 ORM'05 - Int'l Workshop on Object-Role Modeling, November 3-4, 2005. Member of the Program Committee.

June 2005 EMMSAD'05 – 10th CAiSE/IFIP8.1 International Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. Porto, Portugal. Member of the Program Committee.

June 2005 CAiSE'05 - The 17th Conference on Advanced Information Systems Engineering. Porto, Portugal. Member of the Program Committee.

June 2004 EMMSAD'04 – 9th CAiSE/IFIP8.1 International Workshop on Evaluation of Modeling Methods in Systems Analysis and Design (). Riga, Latvia. Member of the Program Committee.

June 2003 EMMSAD'03 – 8th CAiSE/IFIP8.1 International Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. Velden, Austria. Member of the Program Committee.

June 2002 NGITS '02 – 5th International Workshop on Next Generation Information Technologies and Systems. Member of Program Committee.

Dec. 2001 WITS'01 - Int'l Workshop on Information Technologies and Systems, New Orleans, USA, Int'l Liaison for the Middle East.

Nov. 2001 ER'01 - 21st Int'l Conference on Conceptual Modeling, Japan. Member of the Program Committee.

June 2001 EMMSAD'01 - IFIP8.1, Int'l. Workshop on Evaluation of Modeling Methods in Systems Analysis and Design, Interlaken, Switzerland, Member of Program Committee.

June 2001 ECIS 2001 - 9th European Conference on Information Systems, Bled, Slovenia. Member of the Program Committee.

Sep. 2000 Coopis'2000 - 5th IFCIS Int'l Conference on Cooperative Information Systems, Eilat, Israel, Member of Program Committee.

July 2000 ECIS'2000 - 8th European Conference on Information Systems, Vienna, Austria. Chair of Track: Information Systems Development - Methodologies and Tools.

June 2000 EMMSAD'00 – 5th CAISE/IFIP8.1 Int'l Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. In conjunction with CAISE'2000, Conference on Advanced Information Systems Engineering, Stockholm, Sweden, Member of Program Committee.

Dec. 1999 ICIS'99 – 20th International Conference on Information Systems, Charlotte, North Carolina, USA, Member of the Program Committee.

Nov. 1999 REIS'99 - 1st Int'l Workshop on Reverse-Engineering in Information Systems. In conjunction with ER'99 - 18th Conference on Conceptual Modeling. Paris, France. Member of the Program Committee.

July 1999 NGITS '99 – 4th Int'l Workshop on Next Generation Information Technologies and Systems, Zikhron Yaakov, member of Steering Committee.

Dec. 1998 WITS'98 - Int'l Workshop on Information Technologies and Systems, Helsinki, Finland, Member of Program Committee.

Nov. 1998 ER'98 - 17th Int'l Conference on Conceptual Modeling, Singapore, Member of the Program Committee.

Aug. 1998 CoopIS'98 - Int'l Conference on Cooperative Information Systems, New-York, USA, Member of Program Committee.

July 1998 IADT'98, Int'l Workshop on Issues and Applications of Database Technologies, Berlin, Germany, Member of Program Committee.

June 1998 EEMSAD - Int'l Workshop on Evaluation of Modeling Methods in Systems Analysis and Design. In conjunction with CAISE'98 - Conference on Advanced Information Systems Engineering, Pisa, Italy. Member of Program Committee, and Chairman of session.

June 1997 NGITS '97 – 3rd Int'l Workshop on Next Generation Information Technologies and Systems, Neve Ilan (near Jerusalem). Chairman of the Program Committee (co-chair with Avi Silberschatz).

Dec. 1996 ICIS'96 – 17th International Conference on Information Systems, Cleveland, USA, Member of the Program Committee, and Chairman of a session.

Oct. 1996 ER'96 – 15th Int'l Conference on Conceptual Modeling, Cottbus, Germany, Member of the Program Committee, and Chairman of a session.

June 1995 NGITS '95 – 2nd Int'l Workshop on Next Generation Information Technologies and Systems, Nahariya, Member of Program Comm. and Chairman of a session.

Dec. 1994 ER'94 – 13th Int'l Conference on Entity-Relationship, Manchester, England, Chairman of a session.

July 1994 ORM-1 - Int'l Conference on Object-Role Modeling, Townsville, Australia, Member the Program Committee.

Dec. 1993 ER'93 – 12th Int'l Conference on Entity-Relationship, Arlington, Texas, Member of the Program Committee.

June 1993 NGITS '93 – 1st Int'l Workshop on Next Generation Information Technologies and Systems, Technion, Haifa, Member of the Organization Committee and the Program Committee.

Oct. 1991 IPAI – 26th Conference of the Israel Society for Information Processing. Jerusalem, Chairman of the Program Committee, and Editor of the Proceedings.

Oct. 1990 IPAI – 25th Conference of the Israel Society for Information Processing. Jerusalem. Jerusalem, Chairman of a session.

Oct. 1990 ER'90 – 9th Int'l Conference on Entity-Relationship Approach, Luzzanne, Switzerland, Member of the Program Committee.

May 1990 CompEuro-90 - IEEE Int'l Conference on Computer Systems and Software Engineering, Tel-Aviv, Member of the Program Committee.

Mar. 1990 PARBASE-90 - Int'l Conference on Databases, Parallel Architectures and Applications, Miami, Florida, Member of the Program Committee.

Nov. 1989 IPAI – 24th Conference of the Israel Society for Information Processing. Jerusalem, Member of the Program Committee.

June 1989 CSSE - 4th Israel Conference on Computer Systems and Software Engineering, IEEE Computer Society, Herzliya, Member of the Program Committee.

Oct. 1988 IPAI – 23rd Conference of the Israel Society for Information Processing. Jerusalem, Member of the Program Committee.

May 1988 5th Conference on Industrial Engineering & Management, Beer-Sheva, Chairman of a session.

Oct. 1986 IPAI – 21st Conference of the Israel Society for Information Processing. Jerusalem, Member of Program Committee.

Mar. 1986 4th Conference on Industrial Engineering & Management., Tel-Aviv, Chairman of session.

Oct. 1985 IPAI – 20th Conference of the Israel Society for Information Processing. Jerusalem, Member of the Program Committee.

Mar. 1985 "Computers in Industry" Workshop, Beer-Sheva, Chairman of a session.

Oct. 1984 IPAI – 19th Conference of the Israel Society for Information Processing. Jerusalem, Chairman of a session.

- ## <u>Patents</u>

  - European Patent EP 1995669 (November 2008) and United States Patent 7844592 (November 2010): **Ontology-content-based filtering method for personalized newspapers** (with B. Shapira and V. Maidel).

  - European Patent EP 2026274 (Feb. 2009): **Commercial new E-paper system** (with B. Shapira and D. Mimran).

  - European Patent 10002569.1-2201 and Israel paten ILA 19757609 (March 2009): **Method and system for task modeling of mobile phone applications** (with A. Dayan, M. Tuby, D. Mimram, B. Shapira, M. Levi, K. Henke, G. Glass, L. Schneider)

  - European Patent 11002249.8 – 1225 (March 2011): A system for detecting usability problems of users while using their mobile devices (with B. Shapira, D. Mimram, J. Meyer, L. Rokach, G. Glass, K. Henke, L Schneider).

- # <u>Research Grants</u>

  (The amounts are in currencies of the years awarded)

  2011-2012 Deutsche Telecom Laboratories
  Title of Research: *MDSD – Model-Driven Security Development.* Co investigators: A. Sturm, E. Gudes. **$720,000**. Dates: 01/06/2011 – 31/05/2012. (My share: 40%)

  2010-2011 Deutsche Telecom Laboratories
  Title of Research: *e-Paper Productization – ePUB version.* Co investigators: B. Shapira, J. Meir. **$817,000**. Dates: 01/02/2010 – 31/03/2011. (My share: 30%)

  2009-2010 Deutsche Telecom Laboratories
  Title of Research: *Emerging Database Security Solutions (DB-SecMT).* Co investigator: E. Gudes, A. Sturm, B. Shapira. **$1,225,000**. Dates: 01/06/2009 – 31/12/2010. (My share: 22.5%).

  2008-2010 Deutche Telecom Laboratories
  Title of Research: *Smart Mobile (SMOB).* Co investigators: B. Shapira, J. Meir, L. Rokach. **$1,930,000**. Dates: 01/04/2008 – 28/02/2010. (My share: 20%).

  2008 Deutsche Telecom Laboratories
  Title of Research: *e-Paper – Pre-production*. Co investigators: B. Shapira, J. Meir. **€482,000**. Dates: 01/04/2008 – 31/12/2008. (My share: 33%).

  2006-2008 Deutsche Telecom Laboratories
  Title of Research: *e-Paper: the Mobile Newspaper*. Co investigators: B. Shapira, J. Meir, N. Tractinsky**. $1,946,000**. Dates: 01/04/2006 – 30/03/2008. (My share: 25%)

  2001-2003 BGU Research Authority (Seed Grant).
  Title of Research: *FOOM – functional and object-oriented methodology for* analysis and design of information systems. NIS 40,000+ NIS 20,000.

  1996 Magnet Fund - The Ministry of Industry and Commerce.
  Title of Research: *An information filtering system for network management;* co-investigator: U. Hanani (Bar-Ilan Univ.). NIS 93,000.

1995-1996 Israel National Council for Research & Development.
Title of Research: *Routing user requests in a network of heterogeneous information bases;* co-investigators: R. Giladi (BGU), P. Ein-Dor and I. Spiegler (Tel-Aviv University). (**NIS 253,000**).

1992 Dept. of Industrial Engineering & Management.
Title of research: *Combining FPA and ADISSA methodologies to predict* development effort and time. $ 2,500.

1991 Dept. of Industrial Engineering & Management.
Title of research: *Mapping of a relational schema to a binary-relationship* schema. $ 3,000.

1990 Israel National Council for Research & Development.
Title of research: *Comparative Experiment of Creation of Conceptual Database Schemas based on the Binary-Relationship Model: Graphical vs. Tabular*. NIS 33,000.

1987-1989 Israel National Council for Research & Development.
Title of research: *Development of Software Engineering Tools for Developing Information Systems and Software*. 3 years grant: 1987: NIS 35,400; 1988: NIS 17,600; 1989: NIS 21,670.

1987-1988 Israel Academy of Sciences; Foundation for Research in Electronics, Computers & Communications.
Title of research: *Development of an Expert System for the Convenient use of Technological Databases*; co-investigator: B. Arazi, Dept. of Electrical & Computer Engineering. 2 years grant: 1987: NIS 29,000; 1988: NIS 7,000.

1986 University of Pittsburgh, School of Medicine (Macy Foundation).
Title of research: *Medical Archives Retrieval System (MARS);* PI: J. Vries. Shoval was consultant on the expert system engine. $5,000.

• **Reviewer for Scientific Journals:**

Communications of the ACM
Data & Knowledge Engineering (DKE)
Data Base (ACM SIGMIS journal)
IEEE Transactions on Knowledge & Data Engineering (KDE)
Information & Management
Information & Software Technology
Information Systems
Information Systems Research (ISR)
Int'l J. of Cooperative Information System
International Journal of Human-Computer Studies (Man-Machine Studies)
Journal of the AIS
Journal of Database Management
Journal of Intelligent Information Systems (JIIS)
Management Science
MIS Quarterly
The Computer Journal
UMUAI – User Modeling & User-Adapted Interaction