

Shimon Schocken

Education

- Ph.D. University of Pennsylvania, Wharton School, 1987.
Major: Operations and Information Management. Thesis supervisor: Paul Kleindorfer.
- M.B.A. Indiana University, 1982. Major: Operations and Systems Management
- B.A. Hebrew University of Jerusalem, 1980, Economics and Computer Science

Academic Appointments

- 1997 – present Associate Professor of Computer Science, IDB Chair of Information Technologies
Efi Arazi School of Computer Science, IDC Herzliya, Israel.
- 1996 – 2006 Dean, Efi Arazi School of Computer Science
IDC Herzliya, Israel.
- 2005/6 (fall) Visiting professor of Computer Science
Division of Engineering and Applied Sciences, Harvard University
- 1995 – 1997 Visiting Associate Professor of Computer Science,
IDC Herzliya, Israel.
- 1994 – 1997 Associate Professor of Information Systems,
New York University
- 1992 – 1995 Director, Undergraduate Program in Information Systems,
New York University
- 1986 – 1993 Assistant Professor of Information Systems,
New York University.
- 1994 (summer) Visiting Associate Professor,
Rotterdam School of Management, Erasmus University.
- 1990 – 1991 Visiting Assistant Professor,
Rikanati Graduate School of Business, Tel-Aviv University.
- 1985 – 1986 Instructor, Operations and Information Management Department,
Wharton School, University of Pennsylvania.

Awards and Grants

- *Outstanding Teacher Award*, IDC Herzliya, 2010.
- *Google grant* (2009, renewed 2010): For developing materials to support computer science education in K12 programs. Together with Benny Chor.
- *IBM Eclipse Scholar grant* (2005): For developing software engineering tools.

- *MOST (Multimedia On-Line Systems Technologies) Consortium grant* (1997-2000), from the MAGNET program of Israel's Industrial and Commerce Ministry.
- *ACM SIGMIS Doctoral Dissertation Award* (1988) for the best IT doctoral dissertation in the USA, Canada and Europe.
- *University of Pennsylvania Fellowship for Academic Excellence* (1983)
- *Hebrew University/Indiana University Exchange Program Award* (1980)
- *Dean's List, Hebrew University of Jerusalem* (1979/1980).

Professional activities

Chairman, *Computer Science Education Committee*, Israel's Ministry of Education, since 2009.

Chairman / founder, TEDxTelAviv Conference, 2009.

Member in various MALAG (Israel's Council of Higher Education) committees that evaluate proposed computer science program in (2003-2009).

Member in a committee that evaluates research grant requests from the Israel Science Foundation ("Academy Grants", 2003).

Member in a committee that selected Israel's Chief Scientist ("Madaan Rashi", 2001).

Member, executive committee of the Israeli Association of Systems Analysts, (since 2001).

Member of a Ministry of Education committee to evaluate accreditation of e-learning programs (2000).

Expert witness (to the judge), in a litigation involving contracts for IT services in Israel (1999).

Chairman and co-Founder, *JUG.il* (Israeli Chapter of Java Software Developers, 1998).

Member in a Ministry of Science committee nominated to write the report "the Israeli Economy and the Information Superhighway", invited by Israel's Prime Minister (1997).

Member in a Ministry of Science committee that allocated government grants for various Internet projects (1995).

Expert witness, in a litigation involving alleged software patent infringements (New York, 1994).

Consultant, Israeli Ministry of Education. Participated in the design of a computer science curriculum for the Israeli high school system (1991).

Consultant, Weintraub Gallery, New York. Built a gallery management and inventory control system (1989).

Consultant, ZOA New York. Built various systems to support operations management and office automation (1982-1986).

Systems engineer trainee, Wang Laboratories, Burlington, MA (1981).

Systems analyst, L.L.N. Corp., Israel. Project leader of several systems for financial applications in the public sector (1979-1980).

Company commander, Israeli paratrooper forces, rank Captain. Led an airborne unit of ninety soldiers and lower-ranked officers in peace-time and in combat situations (1972-1976). Served in a similar capacity on reserves duty.

Books

- *Computer Science without Computers* (with Benny Chor), forthcoming (Hebrew).
- *The Elements of Computing Systems* (with Noam Nisan), MIT Press, 2005. International editions: Chinese (2008), Polish (2009), Indian (2010).
- *The Art of Business Programming*, McGraw-Hill, 1992.
- *If A then B... Probably*, ICIT Press, 1990.

Articles

- *Standardized Frameworks for Distributed Learning*, Journal of Asynchronous Learning Networks, July 2001.
- *Neural Networks for Decision Support* (invited article). Encyclopedia of Computer Science and Technology, Marcel Dekker Publishing: New York. With Roger Stein and Vasant Dhar, 1997.
- *Toward a Logical/Physical Theory of Spreadsheet Modeling*. With T. Isakowitz and H. Lucas. ACM Transactions on Information Systems 13(1), 1994.
- *Neural Networks for Decision Support: Problems and Opportunities*. With G. Ariav. Decision Support Systems, 11(1), 1994.
- *Reframing Decision Problems Using Graph-Grammars*. With C. Jones. Information Systems Research, 4(1), 1993.
- *On the Use of the Dempster-Shafer Model Information Indexing and Retrieval Applications*. With R.A. Hummel. International Journal of Man-Machine Studies, 39(5), 1993.
- *Multilayer Feedforward Networks With Non-Polynomial Activation Functions Can Approximate Any Continuous Function*. with M. Leshno, V. Lin, and A. Pinkus. Journal of Neural Networks, 6(3), 1993.
- *An Experimental Comparison of Two Rule-Based Belief Languages*. With Y.M. Wang. Information Systems Research, 4(4), 1993.
- *Prolog Meta-Interpreters for Rule-Based Reasoning Under Uncertainty*. With T. Finin. Decision Support Systems, 6(2), 1990.
- *Artificial Intelligence Dialects of the Bayesian Belief Revision Language*. With P. Kleindorfer. IEEE Transactions on Systems, Man and Cybernetics, 19(5), 1989.
- *On the Rational Scope of Probabilistic Rule-Based Inference Systems: In: Uncertainty in Artificial Intelligence*, Lemmer, J.F. and Kanal, L.N., (Eds.), North-Holland, 1988.

Conference Papers / Workshops

- *Taming Complexity in Large-Scale Systems Projects*. Under review, 2011.
- *Virtual Machines: Abstraction and Implementation*. SIGCSE Conference, 2009.
- *A Synthesis Course in Hardware Architecture, Compilers, and Software Engineering*. ITiCSE Conference, 2009.
- *Building a Modern Computer from First Principles*. SIGCSE Conference, St. Louis, MI, 2005.
- *From Nand to Tetris in 12 Steps*. FIE (Frontiers in Education) Conference, Savannah, GA, 2004.
- *Building a Modern Computer from First Principles*. SIGCSE Conference, Norfolk VA, 2004.
- *Multi-Group/Multi-Player Negotiation Process*. With R.A. Hummel. Proceedings of the HICSS-27 conference, 1994.
- *A Dempster-Shafer Model of Relevance*. With J. Pyun. Proceedings of the HICSS-23 conference, 1990. *The Objective, Logical and Subjective Views of Uncertainty: a Decision Support Perspective*. Proceedings of DSS-88, Boston, MA, 1988.
- *A Framework for Comparative Analysis of Belief Revision Models in Rule-Based Expert Systems*. Proceedings of the HICSS-22 conference, 1989.
- *An APL-Based Relational Data Model*. Proceedings of the 3rd Conference on Academic Computing, Purdue University, 1981.

Other Selected Publications

- *Mountain Biking in Israel*, Kinneret-Zmora-Bitan (book), 2006.
- *Snails are Faster than ADSL*, *Annals of Improbable Research*, Volume 11, Issue 4, 2005. Also in <http://tinyurl.com/lng4da>
- *The Double Helix* (invited book review), in "Haaretz" (Israeli daily), July, 2004. Also in www.notes.co.il/shimon/10436.asp
- *On Compass and Straightedge*, in "Haaretz", August, 2002.
- *Education in the year 2000's*, published originally in 1997 in "Globes" (Israeli daily), reprinted subsequently in "People and Computers", "Technology Trends" and "Zombit" (Israeli trade Journals).
- *From New York to Herzliya in a Mouse Click*. In "Haaretz", December, 1995.
- *The Statistics Umbrella*. In "Haaretz", January, 1991. Published in the newspaper's front page 24 hours before the beginning of the 1991 Gulf War. Using statistical arguments, the article predicted correctly that the number of casualties suffered in Israeli cities from Iraqi missiles during war time will be less than those suffered in peace time due to a reduction in automobile accidents during the hostilities.

Talks, Seminars, Etc.

- New York University, Information Systems Colloquium, July 2011.
- University of Colorado, Computer Science Colloquium, July 2011.
- Ben Gurion University, Information Systems Colloquium, January 2009.
- Stanford University, Computer Science Colloquium, October 2008.
- Google Tech Talk, October 2007. <http://video.google.com/videoplay?docid=7654043762021156507>
- Weizmann Institute, Computer Science Education Colloquium, April 2006.
- Boston College, Computer Science Colloquium, February 2006.
- Rannsselaer Polytechnic Institute, Computer Science Colloquium, December 2005.
- Brown University, Computer Science Colloquium, December 2005.
- MIT, Computer Science Colloquium, November 2005.
- Keynote speaker, August Penguins Conference, (Israeli chapter of IGLU/Linux), Israel, August 2005.
- Tel Chai College, Computer Science Colloquium, May 2005.
- Harvard University, Computer Science Colloquium, October 2004.
- University of Pennsylvania, CS Colloquium, January 2004.
- Keynote speaker, “*Kenes Moach*” Conference, Israel, January 2003.
- Keynote speaker, *Israeli Java Users Group (IJUG)* Conference, Israel, July 2003.
- Technion, Math Education Workshop, *On Math and CS Education*, Israel, July 2003.
- Keynote Speaker, eTeacher Conference 2003, July 2003.
- Tel Aviv Yafo College, CS Colloquium, May 2003.
- Weizmann Institute, CS Colloquium, January 2003.
- Keynote speaker, *Training and Human Resources* Conference, Israel, July 2002.
- IDC Herzliya, *Memorial Talk in Honor of Amos Tversky*, December 2002.
- Israel Business Conference, *Academia and Industry*, December 2002.
- New York University, Courant Institute Colloquium, January 2002, *The Hack Project*
- Tel Aviv University, CS Colloquium, January 2002, *The Hack Project*
- Ben-Gurion University, CS Colloquium, January 2002, *The Hack Project*
- National Science Teachers Conference, *Keynote Speech*, December 2001.
- Technion, *The Digital Core project*, February 2001.
- Israel Business Conference, *On the training of computer scientists*, December 2000.
- Instructional Technologies Conference, Israel, *Asynchronous learning networks*, November 1999.
- Banking in the year 2000 Conf., *XML: the new business language*, October 1999
- Haifa University, *The future of academia in the information age*, March 1998.
- Workshop for commanders of IDF computing units, *Network-based training*, April 1998.
- Technion, CS Colloquium, *The visual computer project*, January 1998.
- Hebrew University, CS Colloquium *The visual computer project*, May 1997.

- Open University, CS Colloquium *The visual computer project*, August 1996.
- Tel Aviv University, IT Colloquium *Asynchronous learning networks*, October 1996.
- GIS (Geographical Information Systems) Conference, keynote speaker, July 1996.
- Webmaster Conference: keynote speaker, June 1996.
- Brooklyn Polytechnic U., *New architectures for developing instructional software*, October 1994.
- Erasmus University (Netherlands), *Ratio-scale elicitation of degrees of belief*, July 1994.
- Georgia State University, IT Colloq. *New architectures for instructional software*, April, 1994.
- NYU, CS Colloquium, *A probabilistic analysis of the Dempster-Shafer theory*, April, 1994.
- US National Consortium of Science Teachers, *Using metaphor to teach topics in CS*, April 1994.
- University of Pennsylvania, IT Colloquium, *New architectures for instructional software*. Feb. 1994.
- Colloquium on Uses of Computers and Communications, *The visual computer Project*, Feb. 1994.
- Chairman, Panel/tutorial on academic applications of multimedia, The 25th Conf. of the decision Sciences Institute (DSI), Hawaii, 1994.
- University of California, Irvine, IT Colloquium *Ratio-scale elicitation of degrees of belief*, Nov. 1993.
- Stanford University, IT Colloquium, *On the theory of evidence*, November 1993.
- NYU, *Ratio-scale elicitation of rule-based degree of belief*, October 1993.
- MIT, *Multi-player belief calculi*, April 1993.
- CMU, *Multi-player belief calculi*, March 1993.
- Syracuse University, *Neural networks for decision support*, October 1992.
- University of Pennsylvania, *On the Theory of Evidence*, October 1992.
- NYU, *On the use of the theory of evidence*, October 1992.
- Tel-Aviv University, *Probabilistic indexing*, February 1992.
- NYU, *Reframing decision problems with graph grammars*, June 1991.
- Tel-Aviv University, *Rule-based inference under uncertainty*, June 1991.
- Tel-Aviv University, *Reframing decision problems with graph grammars*, February 1991.
- Tel-Aviv University, *Business applications of neural networks*, October 1990.
- Chairman, Panel on Applications of Neural Networks, The 11th Intl. Conf. of Information systems (ICIS), Copenhagen, Denmark, 1990.
- NYU, *Neural networks for decision support*, April 1990.
- Chairman, Session on Expert Systems, IEEE Conf. on Systems, Man, and Cybernetics, Cambridge, MA, 1989.
- Chairman, Session on Fuzzy Logic, IEEE Conf. on Systems, Man, and Cybernetics, Cambridge, MA, 1989.
- NYU, *Modeling uncertainty with Prolog meta-interpreters*, October, 1989.
- The Prolog Users Forum, *Modeling uncertainty with meta-interpreters*, March 1989.
- MIT, *Belief languages in artificial intelligence*, April 1986.
- The Navy Postgraduate Academy, *Uncertainty management in rule-based systems*, March 1986.
- Boston University, *Decision science and information systems: a synthetic view*, December, 1985.

Reviewing

Serves as member of the editorial board of the Journal of Asynchronous Learning Networks (JALN), and referee for Management Science, Decision Science, Communications of the ACM, Management Information Systems Quarterly, Information Systems Research, Journal of Strategic Information Systems, Decision Support Systems, Computers and Mathematics with Applications, IEEE Transactions on Pattern Analysis and Machine Intelligence, International Journal of Man-Machine Studies, SIGMOD International Conference on Management of Data, Journal of Accounting, Auditing and Finance International Conference of information systems, Oxford University Press, and the National Science Foundation.

Supervision of Graduate Students

- Roe Sela, M.Sc. candidate (IDC Herzliya), thesis title: *Computer Science Fundamentals for Children*, in progress.
- Sagi Schlisser, M.Sc. candidate (IDC Herzliya), thesis title: *Gesture-Based User Interface for Reading Systems*, chairman of thesis committee. Completed in 2009.
- Hanan Avidan, M.Sc. candidate (IDC Herzliya), thesis title: *CS Curriculum for Junior High Schools in Israel*, chairman of thesis committee. Completed in 2010.
- Yoni Mendles, M.Sc. candidate (IDC Herzliya, in progress), thesis title: *Teaching Mathematical Reasoning Skills with Excel* ", chairman of thesis committee. In progress.
- Shai Litvak, Ph.D. candidate (Tel-Aviv University), thesis title: *Adaptable Learning Architectures*, member of dissertation committee. In progress.
- Yossi Cohen, M.Sc. (Tel-Aviv University), thesis title: *Database Programs Analysis Using Query Graphs*, member of M.Sc. thesis committee. Completed in 2000.
- Jisurk Pyun, Ph.D. (NYU), thesis title: *An Investigation of Inexact Classification and Browsing Techniques in Hierarchical Document Retrieval System*, doctoral thesis supervisor. Completed in 1990.
- Y.M. Wang , Ph.D. (NYU), thesis title: *An Experimental Comparison of Rule-Based Belief Languages*, doctoral thesis supervisor. Completed in 1993.
- Randy Forsstrom, Ph.D. (NYU), thesis title: *An Examination of Alternative Inference Mechanisms for Reasoning Under Uncertainty in Rule-Based Systems*, doctoral thesis supervisor. Completed in 1988.
- S. Bhasker, Ph.D. candidate (NYU), 1990, chairman of qualifying examination committee.
- Shankar Bhattacharyya: Ph.D. candidate (NYU), 1990, chairman of qualifying examination committee.
- Ajay Ashtana: Ph.D. (NYU), thesis title: *LPGRAPH: An Iconic Language for Formulating Linear Programs*, member of dissertation committee. Completed in 1988.
- Yon Suk Sohn: Ph.D. candidate (NYU), 1989, member of qualifying exam. committee.
- Abraham Schwarz: Ph.D. candidate (NYU), 1992, member of qualifying examination committee.

- Nacshon Margaliot: Ph.D. (Tel-Aviv University), member of dissertation committee. Completed in 1991.
- Aviad Armoni: Ph.D. (Tel-Aviv University), member of dissertation committee. Completed in 1991.

Courses Taught

<i>Course Title</i>	<i>University / Program</i>	<i>Level</i>
Introduction to Computer Science	IDC / CS	UG (undergraduate)
Introduction to Programming	IDC / Economics	UG (undergraduate)
Great Explorers	IDC / General Elective	General Elective
Internet Entrepreneurship	IDC / MBA	MBA
Topics in Computer Science	IDC / IT	UG
Digital Systems Construction	IDC, Harvard / CS	UG / Graduate
Computer Science Unplugged	IDC / IT	UG
Database Management	IDC / CS	UG
Computer and Communications Fundamentals	IDC / business / law	UG
Information Systems in Management	IDC / business / law	UG
Computer-Based Sys. for Management Support	NYU / business	UG
Decision Support Systems	NYU / business	MBA
Decision Theory in Artificial Intelligence	NYU / CS / business	Ph.D.
Neural Networks	NYU / CS / business	Ph.D.
Decision Processes in Economics	TAU / business	Ph.D./ MBA

Executive Education

Initiated and led the following courses at IDC Herzliya:

- *Digital Commerce Workshop*, with the Israeli Export Institute, 2009, 2010.
- *IDC / TED Innovation Forum*, 2010, 2011. Sample of guest speakers: Aharon Barak, Ruth Harary, Daniel Zajfman, Aharon Ciechanover, Israel Aumann, Dan Ariely, Jeff Poulver, Michal Rovner, David Grossman, Amos Oz.
- *Leadership at Large*: an Executive Mountain Biking Clinic, 2010. A year long program of monthly full-day mountain biking activities for top executives, in which participants practice and analyze leadership challenges under extreme conditions. Topics include decision making under uncertainty, agile management, motivation and team bonding, planning versus improvisation, mind / body resource allocation, positive psychology, social and community outreach.

Other Projects

- HACK:** This long-term project involves the construction of a complete computer system, from the ground up, using software simulation. The project led to a new course (*Digital Systems Construction*) and a textbook (*The Elements of Computing Systems*). Joint work with Noam Nisan.
- E-DB:** Developed and taught a complete Web-based course in Database Management. The course was taken by more than 2,000 students and programmers from industry.
- VIC:** *The visual Computer*. A series of lectures and software simulations that provides a hands-on tour of fundamental ideas and concepts in computer science, in the way of a graphical analogy. Developed originally in 1993, completed a new web-based implementation in 2009. Vic is widely used by thousands of students.
- RATS:** *A Relational Algebra Teaching System*. A program that allows students to create relational tables and manipulate them using relational algebra. Developed in APL in 1980; was one of the first PC implementations of relational databases.

Affiliations

Member of ACM, Member of IEEE, Member of the *New York New Media Association*, Member of the *New York Academy of Science*, citation in *Who's Who in Science and Engineering*.

Contact information

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