Resume, June 2009

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AREAS OF INTEREST
Parallelism in computing: (i) Parallel algorithmics, and (ii) The interplay between parallel computer systems (low-overhead VLSI, instruction-level and thread-level parallelism) and algorithms (parallel and serial).
Design and analysis of algorithms.
Pattern matching. Theory of computing.

EDUCATION
1981 D.Sc., Computer Science, Technion, Haifa, Israel. Thesis: Synchronized Parallel Computation. Advisor: Prof. Y. Shiloach.
1975 M.Sc., Mathematics, Hebrew University, Jerusalem, Israel. Thesis: Information in Economics. Advisor: Prof. R.J. Aumann (Economics Nobel prize winner, 2005).
1974 B.Sc., Mathematics, Hebrew University, Jerusalem

ORGANIZATION
- Fellow, Association for Computing Machinery (ACM), 1996.
- Senior member, IEEE.

WORK EXPERIENCE
2002 – Present: Founder, XMTT Inc. This small company owns or controls the intellectual property related to the explicit multi-threading (XMT) venture.
1988 – Present: The University of Maryland, College Park. Present appointment: Permanent member, Institute for Advanced Computer Studies (UMIACS), Professor, Department of Electrical and Computer Engineering, and Affiliate Professor, Department of Computer Science. During 1995-1996: On leave at Tel Aviv University. During 2000-2001: On leave at the Technion.
2000 – 2001: Professor, Dept. Computer Science, Technion.
1983 – 1997: Dept. of Computer Science, School of Mathematical Sciences, Tel Aviv University. Last appointment: Professor (since 1988). During 1987-1988: Chairman. During 1985-1988: (tenured) Associate Professor. During 1983-1985: Senior Lecturer. Extended leaves since 1988.
1982 – 1988: Dept. of Computer Science, Courant Institute of Mathematical Sciences, New York University. Last appointment: Research Associate Professor. Previously: Visiting Assistant Professor and Research Assistant Professor.
1981 – 1982: Mathematical Sciences Dept. IBM T.J. Watson Research Center, Yorktown Heights, N.Y. Appointment: Post-doctoral fellow.
1979 – 1983: Dept. of Computer Science, Technion, Haifa. Last appointment: Senior Lecturer. Previously: Lecturer and Instructor.

HONORS
1973 Prize for excellence for undergraduate students, Hebrew University, Jerusalem
1974 Prize for excellence for M.Sc. students, Hebrew University, Jerusalem
1980 Gutwirt Prize for excellence for doctoral candidates, Technion, Haifa

1996 Fellow, Association for Computing Machinery (ACM). (Citation: One of the pioneers of parallel algorithms research, Dr. Vishkin's seminal contributions played a leading role in forming and shaping what "thinking in parallel" has come to mean in the fundamental theory of Computer Science.)
2003 Highly Cited Researcher, Computer Science, Thompson ISI. Rated by ISI-Thompson as Highly Cited Researcher, among the 230 most cited researchers in Computer Science, URL: isihighlycited.com.
2007 Maryland Innovator of the Year Award, the Maryland Daily Record. The title is sponsored by the State of Maryland Department of Business and Economic Development (MD-DBED). The award recognizes Uzi Vishkin's affiliation with both UMD and XMTT Inc.

RESEARCH PROJECT
1997 - : Realizing a PRAM-On-Chip vision.
The statement "Breakthrough can come from architecture if we can somehow…truly design a machine that can look to the programmer like a PRAM" from the section on future directions of the 1999 parallel computer architecture book by Culler and Singh, captures the objective of this project.
An explicit multi-threaded (XMT) computer system architecture framework that spans applications, algorithms, programming language, compilers, hardware organization, microarchitecture and VLSI has been developed.
The current status of the project is reviewed next.
1. It first commitment to silicon was achieved in December 2006: A 75MHz 64-processor prototype based on FPGA (field-programmable gate arrays) technology. This is a license plate size board comprising 3 Xilinx FPGA chips: 2 Virtex-4 LX200 and 1 Virtex-4 FX100. FPGA is an industry standard for prototyping hardware design and is often accepted as a demonstration that "we know how to build this". A single graduate student (X. Wen) completed synthesizable Verilog description (Verilog is a popular hardware description language) and the new FPGA-based XMT computer (+ board) in slightly more than two years. He did not have prior design experience, providing extra validation to our claim that the XMT concept is simple.
2. A basic, yet robust, compiler was also developed.
3. Cycle accurate simulator. FPGA performance does not fully reflect the target implementation on a finger-nail size ASIC chip (e.g., the DRAM of an FPGA system can be as fast as for ASIC, but the general logic cannot).
4. The above system was used to validate speed-up results that were obtained previously using simulators. One notable speed-up result over serial computation is ~100X for a standard VHDL benchmark suite, in a 12/2006 paper by Gu and Vishkin that appeared in Journal of Embedded Computing. Additional experience with the FPGA computer has been as follows: It was used in a standard PRAM parallel algorithms graduate course in Spring 2007. In addition to the traditional theory component students wrote 6 significant programming assignments achieving significant speed-up over the best serial program for the same problem. For Selection(e.g., finding the median among n elements): 13X. For Sample Sort: 10X. For breadth-first-search (BFS) on graphs: 23X. For connected components on graphs: 9X. Students' feedback was very positive. In order to make the point that the only thing that people need to know is algorithms, only 30 minutes were devoted to teaching programming through the whole semester and the architecture was reviewed only in the last week after all programming assignments, but one, have already been submitted.
The FPGA computer runs ~12,000 times faster than the cycle accurate simulator. See the title "Tutorial" below for more information on how this material is being taught to high-school students.
5. A 9mm by 5mm chip in 90nm IBM technology that prototypes the interconnection network component of the architecture was taped-out and fabricated. It is being packaged by an outside vendor.

MEDIA COVERAGE

A June 25, 2007 press release on our desktop supercomputing prototype was translated to over 30 languages. More than 80 media facilities carried the story as can be seen on the upper right of the XMT home page http://www.umiacs.umd.edu/~vishkin/XMT/index.shtml and http://www.ece.umd.edu/news/news_story.php?id=2289#media

In a 24-hour period the web site carrying the press release had 11,000 hits from new users.

There are still some significant waves from the June 25 press release.

A TV interview with Voice of America (VOA) was first aired (in Persian) on October 2, 2007. According to VOA data their Persian language broadcast has 15 Million viewers. It will later be broadcast in other languages. VOA broadcasts in 45 languages.

A naming contest http://www.ece.umd.edu/supercomputer/ for FPGA 64-processor desktop supercomputer prototype that closed on September 30, 2007 attracted 5830 submissions.

HONORS - INVITED TALKS (regular colloquium talks are not listed here)

1984: Workshop on "Efficient Algorithms", Matematisches Forschunginstitut Oberwolfach, F.R. Germany. Title of talk: "An optimal parallel string matching algorithm".

1985: Invited talk, Workshop on "Trends in Parallel Computing and Architecture", (The Opening Activity of the) Leibniz Center for Fundamental Research in Computer Science, Hebrew University, Jerusalem. Title of talk: "Methods for designing efficient parallel algorithms".

1986: Invited talk, Workshop on "Parallel and Distributed Computation" Mathematical Sciences Research Institute, Berkeley, California. Title of talk: "On methods for designing parallel algorithms".

1988: Invited talk, Workshop on "Opportunities and Constraints of Parallel Computing", organized by NSF and IBM ARC, San Jose, California. Title of talk: "PRAM algorithms: teach and preach - position paper".

1989: Invited talk, Workshop on "Efficient Algorithms", Matematisches Forschunginstitut Oberwolfach, F.R. Germany. Title of talk: "Deterministic sampling for fast pattern matching".

1991: The Johns Hopkins University Theoretical Computer Science Day, "Deterministic sampling - a new technique for fast pattern matching".

1991: Invited talk, ALCOM Spring School of Parallel Algorithm, University of Warwick, United Kingdom, "Structural parallel algorithmics".

1991: Invited talk, Workshop on Parallel Algorithms, New Orleans, LA, "Structural parallel algorithmics".

1991: Invited talk, 18th Colloquium on Automata, Languages and Programming (ICALP), Barcelona, Spain, July 1991. "Structural parallel algorithmics".

1991: Invited talk, Workshop on Derivation of Parallel Algorithms, New York University, Aug. 31 - Sept. 2, 1991. Organizers: R. Paige and J.H. Reif. Keynote lecture on parallel algorithmics: "An introduction and some parallel algorithms".

1992: Invited talk, Columbia University Theory Day, Department of Computer Science, Columbia University. "Pattern matching in a digitized image".

1992: Invited talk, The 17th International Symposium on Mathematical Foundations of Computer Science, Prague, Czechoslovakia, "Methods in parallel algorithmics".

1992: Invited talk, Workshop on Parallel Architectures and Their Efficient Use: State of the Art and Perspectives, First Heinz-Nixdorf Symposium, Paderborn, Germany, "A case for the PRAM as a standard programmer's model".

1992: Invited talk, The third annual International Symposium on Algorithms and Computation (ISAAC'92), Nagoya, Japan, "Methods in parallel algorithmics and who may need to know them?".
1993: Invited talks, DIMACS Workshop on Models, Architectures, and Technologies for Parallel Computation, and DIMACS Workshop on Parallel Algorithm: From solving Combinatorial Problem to Solving Grand Challenge Problems.
1994: Invited talk, The second Italian Conference on Algorithms and Complexity, Rome, Italy, "On a parallel-algorithms method for string matching problems".
1994: Invited talk, The third International Workshop on Parallel Image Analysis, University of Maryland, College Park.
1994: Invited talk, Parallel Architectures and Languages Europe (PARLE'94), Athens, Greece.
1994-6: Colloquia talks (omitted for previous years): IBM Israel Science and Technology, Intel-Israel, Johns Hopkins University, MIT, NASA Goddard, New York University, Northwestern University, Rice University, Technion and University of Toronto.
1995: Invited talk,Combinatorial Pattern Matching (CPM'95), Helsinki, Finland.
1995: Invited talk, German-Israeli Binational Symposium on Computer Science Aspects of Molecular Biology, Tel Aviv, Israel.
1995: Invited talk, International Conference on High Performance Computing, New Delhi,India.
1996: Invited talk, ACM Symposium on Parallel Algorithms and Architectures (SPAA), Padova, Italy.
1997: Distinguished Lecture Series in Computer Science, University of Texas, Austin.
1998-1999: Colloquia talks: IBM Haifa Research Laboratory, New York University, The Computer Architecture and Parallel System Laboratory, University of Delaware, The Center for Research on Parallel Computation, Rice University, IBM T.J. Watson and Technion - Israel Institute of Technology.
1999: Invited talk, Workshop on Parallel Algorithms, May 4-5, 1999, Atlanta, GA.
2000: Colloquia Talks: Technion (January) and Georgia Tech (March).
2000: Invited talk, SPIRE2000 - String Processing and Information Retrieval, September 27-29, 2000, A corua, Spain.
2001: Invited participant, ISAT study on Parallel Computing at Stanford University, Institute for Defense Analysis (reporting to DARPA Director).
2001: Colloquia Talks: Bar Ilan University (January), Technion (January) and IBM Haifa Research Laboratory (January).
2001: Invited talk, Combinatorial Pattern Matching (CPM'01), Jerusalem, Israel.
2002: Invited talk, Intel Microprocessor Research Lab, Santa Clara, CA.
2002: Invited talk, Microsoft Research, Redmond, WA.
2002: Invited talk, IBM T.J Watson Research Center, NY.
2002: Invited talk, SUN Microsystems.
2003: Invited talk, National Security Agency. 2004: Invited talk, Mathematical Foundations of Computer Science (MFCS'04), Prague.
2004: Invited talk, Computer Science Colloquium, George Mason University.
2005: Invited talk, Intel Research Pittsburgh, Pittsburgh, PA.
2005: Invited talk, Microsoft Research, Redmond, WA.
2005: Invited participant, ISAT study on Parallel Computing at MIT, Institute for Defense Analysis (reporting to DARPA Director).
2006: Invited talk, Sandia National Laboratories.
2007: Invited talk, National Security Agency, January
2007: Invited talk, Texas Instruments, February
2007: Distinguished EECS Colloquium, University of Central Florida, March.
2007: Panelist. Panel on Programming Models. Microsoft by-invitation workshop on Manycore Computing, June 20-21, Seattle, WA. Position presented: For general-purpose parallel computing: it is PRAM or never.

2007: Invited talk, Toward Realizing a PRAM-On-Chip Vision. Workshop on High-Parallel Processing on a Chip (HPPC), in conjunction with Europar 2007, Rennes, France.
2007: Invited presentation, Investors Meet Technology Visionaries Series, University of Maryland, November 28, 2007.
2007: Invited talk, National Heart, Lung and Blood Institute, NIH, Bethesda, MD, December 3, 2007.
2007: Invited talk, DARPA IPTO Future Directions Panel, December 13, 2007.
2007: Invited talk, Intel.
2008: Invited talk, Statistics Seminar, University of Maryland, February 14.
2008: Guest speaker to coaches, the 18th University of Maryland High School Programming Contest, March 8, 2008.
2008: Panelist, International Parallel and Distributed Processing Symposium (IPDPS), Miami, Florida.
2008: Invited talk, The Laboratory of Computational Biology, NIH, Rockville, MD
2008: Honored faculty, Inaugural Scholarship and Research Celebration, University of Maryland
2008: Invited talk, Intel China Research Center, Beijing, China
2008: Invited talk, Booz Allen Hamilton, McLean, Virginia
2009: Invited talk, Navy Research Lab (NRL)
2009: Invited talk, Workshop on Theory and Many-Cores: What does Theory have to say about Many-Core Computing
2009: Keynote talk, CS4HS Workshop: Exploration in Computer Science for High School Educators, Carnegie-Mellon University.
2009: Invited talk, Special session on Disruptive Computer Design, 27th International Conference on Computer Design, October 2009, Lake Tahoe, California.

CONSULTING
2000 – 2001: IBM Haifa Research Lab
1989 – 1990: Supercomputing Research Center, Institute for Defense Analysis (Funded by the National Security Agency).
1984: Mathematical Foundations of Computing Department, AT&T Bell Laboratories, Murray Hill, New Jersey.

ADVISOR TO DOCTORAL THESES
- Gad M. Landau, Ph.D., 1986. Thesis: String Matching in Erroneous Input. First appointment: Visiting Assistant Professor, Dept. of Computer Science, Courant Institute, New York University. Later: Tenured Associate Professor and Head, Computer Science Department, Brooklyn Polytechnic University. Professor and Head, Computer Science Department, University of Haifa.
- Baruch Schieber, Ph.D., 1987. Thesis: Design and analysis of some parallel algorithms. First appointment: Post-doctoral fellow, Mathematical Sciences Dept., IBM T.J. Watson Research Center, NY. (Also received the Dr. Chaim Weizmann Postdoctoral Fellowship with supplementary funding from: IT, Princeton University, Stanford University and UC-Berkeley.) Later: Manager, the Theory of Computation group, Mathematical Sciences Dept., IBM T.J. Watson Research Center, NY.
- Omer Berkman, Ph.D., 1991. Thesis: Paradigms for very fast parallel algorithms. First appointment: Lecturer, Department of Computer Science, King's College, University of London, United Kingdom. Later: Tenured Senior Lecturer, Computer Science, Tel Aviv Academic College.
- Yossi Matias, Ph.D., 1993. Thesis: Highly parallel randomized algorithmics. First appointment: Member of the technical staff, Mathematical Sciences Dept., AT&T Bell Laboratories, Murray Hill, NJ. Now: Tenured Associate Professor, Computer Science, Tel Aviv University.

- Suleyman Cenk Sahinalp, Ph.D., 1997. Thesis: Locally consistent parsing for string processing. First appointment: Post-doctoral fellow, AT&T Bell Laboratories, Lucent Technologies, Murray Hill, NJ. Later: Lecturer, Department of Computer Science, University of Warwick, United Kingdom.
Later Associate Professor of Computer Science, Case Western Reserve University and Associate Professor of Computer Science, Simon Fraser University.
- Xingzhi Wen, PhD, 2008 (minor revisions to thesis still pending). Thesis: Hardware Design, prototyping and studies of the Explicit Multi-Threading (XMT) Paradigm.
- Aydin O. Balkan, PhD, 2008. Thesis: Mesh-of-trees interconnection network for an explicitly multi-threaded parallel computer architecture.
- Currently advising 4 PhD students.

POST DOCS
- Ramakrishna Thurimella, Ph.D, University of Texas, Austin. Later: Tenured faculty, University of Denver.
- Samir Khuller, Ph.D., Cornell. Later: Tenured faculty, University of Maryland. Later Professor, Computer Science, UMD.
- Neal Young, Ph.D., Princeton. Later: Faculty member, Dartmouth, and now Associate Professor, UC Riverside.
- Rajeev Raman, Ph.D., Rochester. Later: Tenured faculty, Department of Computer Science, King's College, University of London, United Kingdom. Later: Professor, University of Leicester.
- Ronny Kupershtok, Ph.D, Technion.

ADVISOR TO MASTER THESES
- Yossi Azar, M.Sc., 1986. Thesis: Tight Comparison Bounds on the Complexity of Parallel Sorting. Professor of Computer Science, Tel Aviv University.
- Tali Tzoreff-Eilam, M.Sc., 1987. Thesis: Matching patterns in strings subject to multi-linear transformations.
- Ron Yachini, M.Sc., 1988. Thesis: Problems in string matching.
- Meir Yedidia, M.Sc., 1988. Thesis: On transformed pattern matching problems.
- Omer Berkman, M.Sc., 1988. Thesis: Some doubly logarithmic optimal parallel algorithms based on finding nearest smaller values.
- Shlomit Dascal, M.Sc., 1998. Thesis: Experimenting with list ranking algorithms for explicit instruction parallelism.
- Efraim Berkovich, M.Sc., 1998. Thesis: An explicit multi-threaded architecture and directed acyclic graphs.
- Dorit Naishlos, M.Sc., 2000. Co-Advisor: Prof. Chau-Wen Tseng. Thesis: Towards a first vertical prototyping of an extremely fine grained explicitly parallel programming approach.
- Tali Sapir, M.Sc., 2003. Co-Advisor: Prof. Craig Gotsman. Thesis: Parallel raytracing using the XMT paradigm.
- Joseph Nuzman, M.Sc., 2003. Thesis: Memory subsystem design for explicit multithreading architectures.
- Fang Liu, M.Sc., 2004. Thesis: Bootstrapping free-space optical networks.
- Pei Gu, M.Sc., 2005. Thesis: Prototyping the simulation of a gate level logic application programmer interface (API) on an Explicit-Multi-Threaded (XMT) computer.
- Michael N. Horak, MS, 2008. Thesis: A High-Throughput, Low-Power Asynchronous Mesh-of-Trees Interconnection Network for the Explicit-Multi-Threading (XMT) Parallel Architecture. Co-Advisor: Prof. Steve Nowick, Columbia Unviersity.

PRINCIPAL OR CO-PRINCIPAL INVESTIGATOR IN GRANTS
- NSF grant DCR-8318874. PI.
- ONR grant N00014-85-K-0046. Co-PI.
- NSF grant CCR-8615337. PI.

- A grant from the Foundation for Research in Electronics, Computers and Communications, Administered by the Israeli Academy of Sciences and Humanities. PI.
- NSF-DARPA grant CCR-8906949 (for 1989-1993). Co-PI.
- NSF grant CCR-9111348 (for 1992-1995). PI.
- NSF grant CCR-9416890 (for 1995-1999). PI.
- NSF grant CCR-9820955 (for 1999-2000). PI.
- NSF grant CCR-9988256 (for 2000-2004). PI. Prof. Manoj Franklin is Co-PI.
- NSF Medium-ITR grant: PRAM-On-Chip, CCF-0325393 (750K USD for 2004-2008). PI. Profs. Rajeev Barua, Manoj Franklin, Bruce Jacob and Gang Qu are co-PIs. Profs. Chau-Wen Tseng and Don Yeung are senior personnel.
- NSF grant 0330235: SENSORS: Optical Wireless Sensor Networks for Critical Infrastructure Surveillance (1.2M USD for 2003-2006). Co-PI. PI: Prof. S. Milner. Other co-PIS: Profs. P. Tarnoff, G. Baecher, C. Davis
- NSF STTR grant: Visualization API Enablers for a High-End Fine-Grained Parallel Processor, 0339489 (100K USD for 2004). PI. Prof. Marc Olano is co-PI.
- Maryland TEDCO grant (50K USD for 2003-4). PI.
- DoD grant. Title withheld. 750K USD for 2005-7.
- Senior Personnel. The Use of Empirical Studies in the Development of High End Computing Applications. Air Force FA87500510100 3/4/05 through 3/3/07. PIs: Profs. V. Basili and M. Zelkowitz. My share 135K USD.
- Recipient of Equipment gift from the Xilinx University Program, worth 70K USD, July 2006.
- NSF grant CNS0521227: Development of Energy-Efficient Embedded Systems (400K USD for 2005-2008). Co-PI. PI: Prof. A. Ephremides. With 6 other Co-PIs and senior personnel.
- Department of Defense provided fabrication of a 10mm by 10mm chip using expensive flip chip 90nm IBM technology. Equivalent to $600,000. Taped out in March 2008. Delivered in October 2008.
- One of Dr. Vishkin's graduate student is supported directly by the Laboratory of Computational Biology, NIH, Rockville, MD for 2008-2009. Worth $55,000.
- NSF grant CCF-0811504: CPA-DA-T: Design and Tools for Easy-to-Program Massively Parallel On-Chip Systems: Deriving Scalability through Asynchrony (921,686 USD for 2008-2012). Co-PI for a subcontract of 460,999 USD. PI: Steven M. Nowick, Columbia University.
- NSF grant 0834373: CSR-PSCE,SM: Compiler-Directed System Optimization of a Highly-Parallel Fine-Grained Chip Multiprocessor (400,000 for 2008-2011). Co-PI. PI: Rajeev Barua, UMD.
- $50,000 Supplement to NSF Medium-ITR grant: PRAM-On-Chip, CCF-0325393 for monitoring teachers of PRAM-On-Chip style parallel programming in high school and middle school summer camp, August 2008.
- $44,000 NSA grant for purchase and installation of PRAM-On-Chip 64 processor machine, August 2008.
- $175,000 equipment donation from Xilinx of 20 Virtex-5 FPGA processors for the construction of a large (256- or 512-processor) FPGA prototype, October 2008.
- Intel China Research Center (ICRC), Beijing, China is supporting in September 2008 through June 2009 a person that we train, as part of an informal research collaboration for (building and) studying a system with and Intel processor and a PRAM-On-Chip co-processor using the yet to be commercialized new Intel QuickAssist technology.

OFF-LINE AND ON-LINE TUTORIALS

"How to Think Algorithmically in Parallel? Or, Parallel Programming through Parallel Algorithms", Full-day tutorial:
- June 17, 2007, Seattle, WA, in conjunction with the 21st ACM International Conference on Supercomputing (ICS)

- September 15, 2007. Attended by 12 high-school students, 10 from the Montgomery Blair Science Magnet programs, 1 from Walter Johnson (a high school in Rockville, MD), and 1 from Thomas Jefferson Science and Technology Magnet high school in Alexandria, VA. The 12 students signed up for an informal semester-long course, whose purpose is to have them remotely run non-trivial programs on the FPGA XMT 64-processor desktop supercomputer my group built at UMD. Weekly coaching sessions by a UMD undergraduate students, who took my parallel algorithms class, are provided under my supervision.
- On-line version. The September 15, 2007 tutorial along with 5 supporting documents that enable taking it on-line are available on http://www.umiacs.umd.edu/~vishkin/XMT/index.shtml#tutorial

- Software Release of the XMT Environment. The web page http://www.umiacs.umd.edu/users/vishkin/XMT/sw-release.html provides our November 2008 software release (v0.81) that allows you to use your own computer for programming the XMT platform and experimenting with it.
- The Spring 2009 parallel algorithms graduate course is available on-line. Suggestions for what to teach and how are posted on http://www.umiacs.umd.edu/users/vishkin/XMT/teaching-platform.html#The_How They include: Class notes on parallel algorithms, video recording of all lectures (30+ hours), material on XMTC programming with supporting documentation, and programming assignments.

OTHER OUTREACH ACTIVITIES
- December 2008 – January 2009: Guided a course on XMT parallel programming at the Thomas Jefferson Science and Technology Magnet high school in Alexandria, VA http://academics.tjhsst.edu/compsci/parallel/xmt/index.html
- December 2008 through May 2009: Guided a course on XMT parallel programming at the Baltimore Polytechnic Institute High School magnet program, Baltimore, MD.
- July 13-34 2009: 20 student middle-school summer camp on Computer Engineering (XMT-based parallel programming) that meets M-F 8:30-12:30 during July 13-24 at the John F. Kennedy High School in Silver Spring, MD. http://www.umiacs.umd.edu/users/vishkin/TEACHING/RegistrationForMiddleSchoolSummerCamp2009.doc

TECHNICAL MEETINGS/PROJECTS INITIATED
- The Maryland Theoretical Computer Science Day, jointly with S. Rao Kosaraju, Johns Hopkins University and with participation of the Supercomputing Research Center (SRC) and University of Maryland Baltimore County (UMBC). Also organized the first (April 17, 1989), fourth (November 16, 1990), sixth (March 20, 1992) ninth (October 8, 1993) and seventeenth (March 20, 1998) Maryland TCS days with support from UMIACS.
- Workshop on Parallel Algorithms (WOPA), jointly with Richard Cole, Zvi Kedem, and Alan Siegel, New York University.
(i) Organizer of the first WOPA, Annapolis, Maryland, May 17-18, 1990, with funds from UMIACS and NSF-DARPA (with 170 registrants).
(ii) Workshop Chair, Second Workshop on Parallel Algorithms (WOPA), New Orleans, LA, May 9-10, 1991, with funds from NSF-DARPA, NASA-CESDIS and ONR (over 100 registrants).
(iii) Workshop Chair, Third Workshop on Parallel Algorithms (WOPA), San Diego, CA, May 19-20, 1993. WOPA'93 was part of the first ACM Federated Computing Research Conference (FCRC), San Diego, CA, May 14-22, 1993 - a new umbrella meeting of seven of the main research conferences in computer science. As Chair of WOPA, I was also a member of the organizing committee for FCRC.

(iv) Workshop Chair, Fourth Workshop on Parallel Algorithms (WOPA), Philadelphia, PA, May 25-26, 1996. ACM-UMIACS WOPA'96 is part of the second ACM Federated Computing Research Conference (FCRC). As Chair of WOPA: member of the organizing committee for FCRC.
(v) Workshop Chair, Fifth Workshop on Parallel Algorithms (WOPA), 1999. ACM-UMIACS WOPA'99 is part of the third ACM Federated Computing Research Conference (FCRC). As Chair of WOPA: member of the organizing committee for FCRC.
- Organizer, Project for Suggesting Computer Science Agenda(s) for High-Performance Computing. The project included a workshop in Arlington, Virginia, on March 14, 1994, and an edited book of position papers which was published by the ACM. The project was sponsored by the NSF, UMIACS and DIMACS.
- Organizer, Workshop on Parallelism in Algorithms and Architectures, UMIACS, May 12, 2006 (94 registrants), with 9 invited speakers from industry (IBM and Intel) and academia.
- Organizer, Workshop on Theory and Many-Cores: What does Theory have to say about Many-Core Computing. Supported by UMIACS, ECE@UMD and the Center for Computational Thinking, Carnegie-Mellon University, May 29, 2009 (82 registered participants).

ADMINISTRATIVE INITIATIVES
- Initiated and led the opening of double-major programs in CS combined with any other major at Tel Aviv University. Recently nearly half of the CS at TAU undergraduates are in this program.
- As one-year CS Chair at Tel Aviv University hired 6 new faculty members, increasing the size of that department from 9 to 15.
- Initiated and led the opening of the EE undergraduate Honors program at UMD.
- Initiated the original plans (in 1991-2) towards opening a Computer Engineering program at UMD (in 1997) as a double-major between Electrical Engineering and Computer Science.
- Following participation in an ad-hoc review committee regarding the Computer Engineering undergraduate program at UMD, initiated a motion that led to installing a independent program director, separate from the Electrical Engineering program, that reports directly to the Chair of the Electrical and Computer Engineering Department.

JOURNAL BOARDS
1992- Editorial Board: Parallel Processing Letters.
1992-2007 Editorial Board: Journal of Algorithms. Now: ACM Transactions on Algorithms.
1999-2005 Editorial Board: IEEE Transactions on Computers.
1999-2001 Advisory Board: New Generation Computing.

PROGRAM COMMITTEES
- 28th Annual IEEE Symp. on Foundations of Computer Science, Los Angeles, Oct. 12-14, 1987.
- AWOC88: Third International Workshop on Parallel Computation and VLSI Theory, Corfu Island, Greece, June 28 - July 1, 1988.
- 3rd Symposium on Frontiers of Massively Parallel Computation, College Park, Maryland, October 8-10, 1990.
- 18th Colloquium on Automata, Languages and Programming (ICALP), Barcelona, Spain, July 1991.
- 2nd SIAM-ACM Symposium on Discrete Algorithms (SODA), Orlando, Florida, January 1991.
- CONPAR 92 - VAPP V, Ecole Normale Superieure de Lyon, France, Sept. 1-4, 1992.
- 20th Colloquium on Automata, Languages and Programming (ICALP), Lund, Sweden, July 1993.

- 22nd Colloquium on Automata, Languages and Programming (ICALP), Hungary, July 1995.
- Frontiers'95, the 5th Symposium on the Frontiers of Massively Parallel Computation, February 6-9, 1995.
- 9th IEEE International Parallel Processing Symposium (IPPS), 1995.
- 11th IEEE International Parallel Processing Symposium (IPPS), 1997.
- SPIRE2000 - String Processing and Information Retrieval, September 22-24, 2000, A corua, Spain.
- 7th International Conference on High Performance Computing (HiPC2000), Bangalore, India, 2000.
- 13th Annual Symp. on Combinatorial Pattern Matching (CPM'02), Fukuoka, Japan, July 3--5, 2002
- 14th Annual ACM Symp. on Parallel Algorithms and Architecture, August 11-13, 2002, Winnipeg, Manitoba, Canada.
- The 2005 International Conference on Parallel Processing (ICPP-05), June 14-17, 2005, Oslo, Norway.
- The 2006 International Parallel and Distributed Processing Symposium (IPDPS06), April 26-29, 2006, Rhodes, Greece.
- Program Chair, 18th Annual ACM Symp. on Parallelism in Algorithms and Architecture (SPAA'06), July 31-August 2, 2006, Cambridge, MA.
- 32nd International Symposium on Mathematical Foundations of Computer Science (MFCS’07), August 27-31, 2007, Czech Republic.
- Workshop on Highly Parallel Processing on a Chip (HPPC), August 28, 2007, IRISA, Rennes, France
- 2nd Workshop on Highly Parallel Processing on a Chip (HPPC), August, 2008.

OTHER TECHNICAL COMMITTEES
- Selection committee for the annual prizes of the Information Processing Association of Israel (ILA), 1986.
- Organizing committee for the workshop on "VLSI Systems: Design and Implementation", Tiberias, Israel, May 25-27, 1987. Supported by the US-NSF and the Israeli National Council for Research and Development.
- Four times: technical organizer of the Israeli National Computer Science Seminar, 1984-1988.
- Conference co-chair, 3rd Israel Symposium on Theory of Computing and Systems (ISTCS'95), Tel Aviv, Israel, January 4-6, 1995.
- Member, Steering Committee, 4th Israel Symposium on Theory of Computing and Systems (ISTCS'96), Tel Aviv, Israel, 1996. Again, Member, Steering Committee, 5th Israel Symposium on Theory of Computing and Systems (ISTCS'97), Tel Aviv, Israel, 1997.
- Member, Steering Committee, ACM Symposium on Parallel Algorithms and Architectures (SPAA), since Spring 2001.

REVIEWING
For journals: JACM, JCSS, SIAM J. on Computing, J. of Algorithms, IPL, Math. Programming, Advances in Computing Research, Algorithmica, ACM-TOPLAS, Computing Surveys, and Computer Vision, Graphics, and Image Processing (CVGIP).
For NSF: reviewing proposals and serving on several reviewing panels.