

Mordechai (Moti) Ben-Ari

Curriculum Vitae

A. Personal Details

Born: 11 December 1948. Washington, DC.
Web site: <http://stwww.weizmann.ac.il/g-cs/benari/>

B. Education

- Ph.D. Tel Aviv University, Mathematics (Computer Science), 1981.
Thesis: *Complexity of Proofs and Models in Programming Logics*.
Advisors: Amir Pnueli and Zvi Galil.
- M.Sc. Tel Aviv University, Mathematics (Computer Science), 1977.
Thesis: *New Translations of Program Schemes*.
Advisors: Amir Pnueli and Zvi Galil.
- B.Sc., Mathematics, Massachusetts Institute of Technology, 1970.

C. Employment History

- 1995–(current): Department of Science Teaching, Weizmann Institute of Science.
Associate professor from 1997, tenure from 2000.
- 2005: Department of Computer Science, Helsinki University of Technology, Finland.
Visiting professor.
- 2002: Department of Computer Science, University of Joensuu, Finland.
Visiting professor.
- 1995–96: Department of Computer Science, Tel Aviv University.
Adjunct associate professor.
- 1993–95: Mavo Software Ltd., Rehovot, Israel. Founder and general manager.
- 1981–92: Rafael, Haifa, Israel. Research scientist and software section head.
- 1988–89: Department of Computer Science, Brandeis University.
Visiting associate professor.
- 1985–92: Department of Computer Science, Technion, Adjunct senior lecturer.
- 1978–81: Department of Computer Science, Tel Aviv University.
Teaching assistant, instructor.
- 1972–78: Tel-Aviv University. Systems programmer.

D. Academic Administration

(none)

E. Other Appointments

Positions in academy

- Graduate studies committee of the Department of Science Teaching.
- ACM/IEEE Computing Curriculum 2001 Task Force.

Consulting activities

- Consultant on Israeli matriculation examinations.

Teaching experience¹

- Mathematics of Programming,
Rothschild-Weizmann Program for Excellence in Science Teaching,
Weizmann Institute of Science, 2011.
- Philosophy of Education, Teaching Certificate Program, Weizmann Institute of Science,
2009, 2011.
- Thesis Seminar, Department of Science Teaching, Weizmann Institute of Science,
2006, 2008, 2010.
- Philosophy and History of Science in Science Teaching,
Department of Science Teaching, Weizmann Institute of Science, 2002, 2004, 2006.
- Concurrent and Distributed Programming,
Department of Computer Science, Helsinki University of Technology, 2005.
- Seminar in the Theory of Computer Science Education,
Department of Computer Science, Helsinki University of Technology, 2005.
- Comparative Programming Languages,
Department of Computer Science, University of Joensuu, 2002,
Department of Computer Science, Weizmann Institute of Science, 2002.
- Mathematical Logic for Computer Science,
Department of Computer Science, Weizmann Institute of Science, 1998.
- Software Engineering in Ada, Tel Aviv University, 1995, 1996.

Editorial boards

- Editorial board or associate editor of the following journals:

¹These are the courses that I have taught since joining the Weizmann Institute of Science and do not include teacher-training courses in computer science.

- ACM Transactions on Computing Education.
- ACM Inroads.
- Computer Science Education.
- IEEE Transactions on Learning Technologies.
- Journal of Computing Teachers.
- Program committee of the following conferences:
 - Finnish/Baltic Sea Conference on Computer Science Education, 2002, 2005, 2008–10.
 - International Computing Education Research Workshop, 2008–2011.
 - Computer Science Education Research Conference, Heerlen, the Netherlands, 2011.
 - 10th International Symposium on Computers in Education, Salamanca, Spain, 2008.
 - Program Visualization Workshop, 2000–2011.
 - 7th Annual Conference on Innovation and Technology in Computer Science Education, Århus, Denmark, 2002.
 - Chais Conference on Instructional Technologies Research, Raanana, Israel, 2007.
- Referee for ACM Special Interest Group in Computer Science Education: SIGCSE Symposium, ITiCSE Conference, ICER Workshop (every year).
- Referee for the journal *Science & Education*.

F. International Recognition

Prizes and awards

- Best paper award at the *ACM 6th International Computing Education Research Conference*, Århus, Denmark, 2010.
- Distinguished Member of the ACM, 2009.
- Interviewed for the Computing Educators Oral History Project, 2008, <http://www.ceohp.org/>.
- Finalist for the Premier Award for Excellence in Engineering Education Courseware, 2007.
- **ACM SIGCSE Award for Outstanding Contributions to Computer Science Education, 2004.**
- Docent (honorary faculty member) of the University of Joensuu, Finland, 2001.

Review boards and juries

- Award committee for Informatics Europe 2011 Best Practices Award for Curriculum Development.
- Opponent at the public defense of PhD theses:
 - Jan Erik Möström, University of Umeå, Sweden, 2011.
 - Päivi Kinnunen, Helsinki University of Technology, Finland, 2009.
 - Markku Tukkiainen, University of Joensuu, Finland, 2001.
- Promotion committee for a foreign university.
- Numerous PhD and MSc committees at the Department of Science Teaching, Weizmann Institute of Science.

Talks at international meetings²

Keynote speeches at conferences

- *Non-myths About Programming*. 6th International Computing Education Research Conference, Århus, Denmark, 9 August 2010.
- *Objects Never: Well, Hardly Ever*. XIV Jornadas de Enseñanza Universitaria de Informática, Granada, Spain, 9 July, 2008.
- *The Effect of the Jeliot Animation System on Learning Elementary Programming*. 4th Greek Conference on the Didactics of Informatics. Patras, Greece, 29 March, 2008.
- *The Invisible Programmers*. Conference on Methods, Materials and Tools for Programming Education, Tampere, Finland, 4 May, 2006.
- *The Concorde Doesn't Fly Anymore*. Thirty-Sixth SIGCSE Technical Symposium on Computer Science Education, St. Louis, MO, 25 March 2005.
- *How Did They Get to the Moon Without Powerpoint?* Finnish Society for Computer Science Meeting, Espoo, Finland, 19 May, 2003.
- *From Theory to Experiment to Practice in CS Education*. 2nd Annual Finnish/Baltic Sea Conference on Computer Science Education, Koli, Finland, 19 October, 2002.

Invited Talks

- *Teaching Concurrency and Nondeterminism with Model Checking*. University of Warwick, Coventry, UK, 7 December 2009.
- *The Invisible Programmers*. Distinguished Guest Lecturer Series. The Lynne and William Frankel Center for Computer Science. Ben Gurion University of the Negev, Beer Sheva, Israel, 28 October 2009.
- *The Effect of the Jeliot Animation System on Learning Elementary Programming*.

²See also the conference proceedings in the list of publications.

- London Metropolitan University, London, UK, 4 December, 2009.
- The Chais Research Center, The Open University, Raanana, Israel, 19 March 2007.
- University of Strathclyde, Glasgow, UK, 28 July 2007.
- *Tools for Teaching with Spin.*
 - International Workshop on Advances in Model Checking in Honour of Gerard J. Holzmann, University of Twente, Enschede, The Netherlands, 30 November 2006.
 - University of Strathclyde, Glasgow, UK, 28 July 2007.
- *Situated Learning in This High-Technology World.* Seventh International History, Philosophy and Science Teaching Conference. Winnipeg, Canada, 31 July 2003.
- *Conceptual Models in Computer Science Education.* Helsinki University of Technology. 4 October 2002.
- *Bricolage Forever!*
 - University of Joensuu, Joensuu, Finland. 13 September 1999.
 - University of Sussex, Brighton, UK. 7 May 1999.
- *Constructivism in Computer Science Education.*
 - York University. York, UK. 4 January 1999.
 - University of Helsinki. Helsinki, Finland. 12 June 1998.
 - Uppsala University. Uppsala, Sweden. 8 June 1998.
 - The College of New Jersey. Trenton, NJ. 5 November 1998.
- *How to solve the Santa Claus problem.* University of Alabama. Tuscaloosa, AL. 24 February 1998.

Tutorials

- *Teaching Concurrency and Nondeterminism with Spin.* Twelfth SIGCSE Conference on Innovation and Technology in Computer Science Education. Dundee, UK, 24 June, 2007.
- *Object-Oriented Programming in Ada.*
 - SIGADA'98: Ada in Context, Washington, DC. 8 November 1998.
 - Twenty-Ninth SIGCSE Technical Symposium on Computer Science Education, Atlanta, GA. 28 February 1998.

Lectures to Students and the Public

- Lectures to students in the Computers, Industry and Academia Program, Davidson Institute of Science Education (every year since its inception in 2004).
- *It's Just a Theory.* Science Cafe, Weizmann Institute of Science, 2007.

G. Scientific Productivity

Competitive research grants

- Computer Science Education in Middle Schools: Effectiveness and Preparedness. Israel Science Foundation (ISF), \$88,378, 2009–2012. (29% acceptance rate.)
- MALog—Mathematical and Applied Logic. European Commission Lifelong Learning Programme, 8,500 Euro, 2009–2012.³

Development Grants from the Israeli Ministry of Education

- National Teachers Center in Computer Science, 2000–2005 (jointly with the Technion).
- Visualization tools for teaching models of computation, 2006.
- Visualization tools for teaching data structures, 2004.
- Concurrent and distributed computation, 1997–2002, 2003.
- Object-oriented programming and Java in introductory computer science, 2000.
- Foundations of computer science 1 & 2, 1995–2000.

³Israel did not join the educational programs of the EC, so I could not be an partner in this project. Officially, I am a subcontractor as the external evaluator of the project.

Graduate Students Supervised⁴

Postdoctoral Fellows

1. Orni Meerbaum-Salant (current).
2. Michal Armoni, 2007–2009.
Michal subsequently received a tenure-track appointment in the department.

Ph.D. Students

1. Fatima Kaloti-Hallak (current). Joint supervisor: Michal Armoni.
2. Rivka Taub (current). Joint supervisor: Michal Armoni.
3. Jan Lönnberg (current). Department of Computer Science and Engineering, Aalto University. Joint supervisor: Lauri Malmi.
4. Ronit Ben-Bassat Levy. *Teaching Computer Science with Animation: Attitudes and Ways of Experiencing*, 2009. Ronit was awarded the Orly Kaplan Memorial Prize.
5. Niko Myller. *Collaborative Software Visualization for Learning: Theory and Applications*. Department of Computer Science, University of Joensuu, 2009. Joint supervisor: Erkki Sutinen.
6. Noa Ragonis. *Teaching Object-Oriented Programming to Novices*, 2004. Noa was awarded the Orly Kaplan Memorial Prize.
7. Cecile Yehezkel. *A Visualization Environment for Computer Architecture*, 2004. Joint supervisor: Tommy Dreyfus.
8. Yifat Ben-David Kolikant. *Understanding Concurrency: The Process and the Product*, 2003. Yifat was awarded the Gad Reshef Memorial Prize and the Bar-Ner Prize.

M.Sc. Students

1. Mikko Vinni (current). *Use of Cognitive Dimensions in Software Development: The Case Study of a Content Editor for a Mobile Guide in a Museum*, School of Computing, University of Eastern Finland. Joint supervisor: Teemu Laine.
2. Fatima Kaloti-Hallak. *Learning Programming Concepts Using Scratch at the Middle-School Level*, 2010. Joint supervisor: Michal Armoni.
3. Rivka Taub. *CS Unplugged and Middle-School Students' Views, Attitudes, and Intentions Regarding CS*, 2010. Joint supervisor: Michal Armoni.
4. Trishank Karthik Kuppusamy. *The Pomegranate Promela Compiler*. Department of Computer Science, New York University, 2009. Joint supervisor: Edmond Schonberg.

⁴All at the Department of Science Teaching of the Weizmann Institute of Science unless otherwise noted.

5. Gil Ebel. *The Effect of Program Visualization on the Attention-Directing Characteristics of the Learner*, 2006.
6. Shmuel Schwartz. *Using State Diagrams for Understanding Correctness in Concurrent Programming*, 2006.
7. Andrés Moreno García. *The Design and Implementation of Intermediate Codes for Software Visualization*. Department of Computer Science. University of Joensuu, 2004. Joint supervisor: Erkki Sutinen.
8. Yevgeniya Kulikova. *Roles of Variables in Teaching Functional Programming*. Department of Computer Science, University of Joensuu, 2004. Joint supervisor: Jorma Sajaniemi.
9. Maxim Mozgovoy. *Concurrent Program Verifier: A Tool for Teaching Concurrent Programming*. Department of Computer Science, University of Joensuu, 2004. Joint supervisor: Erkki Sutinen.
10. Niko Myller. *The Fundamental Design Issues of Jeliot 3*. Department of Computer Science, University of Joensuu, 2004. Joint supervisor: Erkki Sutinen.
11. Tzipora Yeshno. *Teaching an Explicit Conceptual Model As a Means to Improve the Work with Computer Applications*, 2003.
12. Ronit Ben-Bassat Levy. *The Use of Animation as an Educational Tool*, 2002.
13. Yekaterina Sedletzky. *Formal Verification of Distributed Algorithms*. Department of Computer Science and Applied Mathematics, Weizmann Institute of Science, 2000. Joint supervisor: Amir Pnueli.
14. Yakov Persky. *Re-engineering a Concurrency Simulator*. Department of Computer Science, Tel-Aviv University, 1999.
15. Yoav Tsruya. *A Distributed Programming Environment in Ada95/Java*. Department of Computer Science, Tel-Aviv University, 1998.
16. Noa Ragonis. *Introduction to Expert Systems: Development and Evaluation of a Computer Science Curriculum*, 1997. Joint supervisors: Ehud Shapiro, Zehava Scherz.
17. Ophira Statman. *A Prolog Proof Checker for Temporal Logic*. Department of Computer Science, Technion, 1986.