

## Dov Dori

Citizenship: Israel, USA

Date and place of birth: Sept. 2, 1953, Haifa, Israel

Marital status: Married, four daughters, eight grandchildren

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Google Scholar Profile <https://scholar.google.com/citations?user=6qOGkHQAAAAJ&hl=en>

## ACADEMIC DEGREES

- 1988 Ph.D. Computer Science  
Department of Applied Mathematics and Computer Science  
Weizmann Institute of Science, Rehovot, Israel. Advisors: Prof. A. Pnueli and Prof. S. Ullman
- 1981 M.Sc. Operations Research  
The Leon Recanati Graduate School of Business Administration  
Tel Aviv University, Tel Aviv, Israel. Graduated with honors. Advisor: Prof. M. Ben Bassat
- 1975 B.Sc. Industrial Engineering and Management  
Faculty of Industrial Engineering and Management, Technion, IIT, Haifa, Israel. Graduated with honors.

## ACADEMIC APPOINTMENTS

- 2021 - date Professor Emeritus, Faculty of Industrial Engineering and Management, Technion, IIT, Haifa, Israel.
- 2020 & 2021 Visiting Professor, Department of Aeronautics and Astronautics, School of Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA
- 2016 - 2019 Lecturer, Systems Design and Management, School of Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA
- 2013 - 2014 Visiting Professor, Engineering Systems Division, School of Engineering, Massachusetts Institute of Technology, Cambridge, MA.
- 2010 - date Head, [Enterprise Systems Modeling Laboratory](#), [Technion, IIT](#), Haifa, Israel.
- 2009 - 2012 Visiting Professor, Engineering Systems Division, School of Engineering, Massachusetts Institute of Technology, Cambridge, MA.
- 2008 - date Professor, Faculty of Industrial Engineering and Management, Technion, IIT, Haifa, Israel.
- 2008 - 2009 Visiting Professor, Engineering Systems Division, School of Engineering, Massachusetts Institute of Technology, Cambridge, MA.
- 2001 - 2009 Research Affiliate, Department of Aeronautics and Astronautics, Massachusetts Institute of Technology, Cambridge, MA.
- 2000 - 2001 Visiting Associate Professor, Engineering Systems Division, School of Engineering, Massachusetts Institute of Technology, Cambridge, MA.
- 1999 - 2000 Visiting Scholar, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA.
- 1999 - 2008 Associate Professor, Faculty of Industrial Engineering and Management, Technion, IIT, Haifa, Israel.
- 1991 - 1999 Senior Lecturer, Faculty of Industrial Engineering and Management, Technion, Israel Institute of Technology, Haifa, Israel.
- 1997 - 1999 Head, Area of Information Systems Engineering, Faculty of Industrial Engineering and Management, Technion, IIT, Haifa, Israel.
- 2001 - 2008 Assistant Professor, Department of Computer Science, University of Kansas, Lawrence, Kansas, USA.

## RESEARCH INTERESTS

- Object-Process Methodology
- Systems Engineering, Conceptual Modeling, Software Engineering, Requirements Engineering
- Systems Architecture, Enterprise Systems Modeling
- Ontologies, Metamodeling
- Robotics, Systems Biology
- Document Image Understanding, Computer Vision Applications,

## HONORS, AWARDS

- 2022 INCOSE Propeller Hat Award for being “a passionate leader, mentor, and teacher.”
- 2021 Fellow, AAIA – Asia-Pacific Artificial Intelligence Association
- 2021 Life Fellow, IEEE – Institute of Electrical and Electronics Engineers "***In recognition of the many years of loyal membership and support of IEEE activities.***"
- 2018 Best Paper Award for the paper “What do we mean by ‘system’? - System Beliefs and Worldviews in the INCOSE Community.” *INCOSE 28<sup>th</sup> Annual International Symposium – IS 2018*, July 7-12, 2018, Washington DC, USA.
- 2017 Fellow, IEEE – Institute of Electrical and Electronics Engineers "***For contributions to model-based systems engineering and document analysis recognition.***"
- 2015 Honorary Member, INCOSE IL – International Council on Systems Engineering, Israel Chapter, "***For your support in advancing systems engineering infrastructures in Israel and strengthening the foundations of INCOSE IL***". March 2015.
- 2014 Best Paper Award for “Modeling Software Agent Awareness of Physical-Informatical Essence Duality” by Y. Mordecai, O. Orhof, and D. Dori, Proc. SwSTE'14, The Software Summit, Tel Aviv, Israel, June 2014.
- 2014 Member – Omega Alpha Association – International Honor Society for Systems Engineering
- 2013 Harry Lebensfeld Chair in Industrial Engineering, Technion
- 2011 Fellow, International Council on Systems Engineering (INCOSE) "***For innovative contributions to the theory and practice of model-based systems engineering through research and education.***"
- 2011 Recognition by the Israeli Chamber of Systems Analysts "***For Exceptional Contribution in Developing the Domain of Information Systems in the Academia in Israel.***"
- 2011 First Prize of INCOSE\_IL to a group of undergraduate students under my guidance for developing SleepBuster – a system for reducing the risk of accidents due to driver fatigue.
- 2009 Opossum, created jointly with Eran Toch, Iris Reinhartz Berger, and Avigdor Gal, won the 3rd International Semantic Service Selection Contest at the Third International Workshop SMR2 2009 on Service Matchmaking and Resource Retrieval in the Semantic Web as the fastest OWL-S matchmaker.
- 2007 Miriam and Ray Klein Research Award for Object-Process Methodology (May 27, 2007)
- 2006 Senior Member, ACM
- 2000 Fellow, International Association for Pattern Recognition (IAPR) "***For contributions to document analysis recognition.***"
- 1999 Senior Member, IEEE
- 1999 Dudi Ben Aharon Research Award for Document Image Understanding of Engineering Drawings
- 1997 Hershel Rich Technion Innovation Award for OPCAT – Object-Process CASE (Computer- Aided Software Engineering) Tool that supports Object-Process Methodology
- 2003 The paper ERP Modeling: A Comprehensive Approach by Pnina Soffer, Boaz Golany and Dov Dori (*Information Systems* 28, 6, September 2003, pp. 673-690) was declared *the most downloaded article for the journal Information Systems over 2003*.
- 1995 Dashed Line Detection Contest – First Place, IAPR International Workshop on Graphics Recognition – IWGR'95. Pennsylvania State University, State College, Pennsylvania.
- 1993 Alexander Goldberg Academic Lectureship in Industrial Engineering and Management, Technion, Israel Institute of Technology, Haifa, Israel.
- 1972 Israel Chemical Society Prize for the essay “Measuring Sun Radiation Strength Using a Photochemical Method”.

## PROFESSIONAL EXPERIENCE

2018 – 2019 Tadiran Batteries Ltd., Kiryat Ekron, Israel, Consultant  
2017 – 2019 Airbus Group, Toulouse, France, Consultant  
2015 – 2017 Whirlpool Corporation, St. Joseph, MI, USA, Consultant  
2014 Schilling Robotics, Davis, CA, USA, Consultant  
2010 – 2013 NGALI Holdings LTD., Kigali, Rwanda, Board Member  
2006 – 2007 Elbit Systems, Nes Zionna, Israel, consultant  
2006 – 2007 Israel Aircraft Industries, Ashdod, Israel, consultant  
2005 – 2011 OPCAT Systems LTD., Founder, President, and Chief Technology Officer  
2005 – 2010 Silverlake Group, Beijing, China; Singapore, consultant  
2001 Pratt and Whitney Canada, Toronto, Canada, consultant  
2000 – 2002 Systemantica, Inc., Founder, President, and Chief Technology Officer  
2000 – 2001 Ford Motor Company, Dearborn, Michigan, USA, consultant  
1996 – 1997 Tefen Ltd., Tel Aviv, Israel, Industrial Engineering, consultant  
1994 – 1997 ISCAR Ltd., Tefen, Israel, consultant  
1992 – 1993 IET-Intelligent Electronics, Tel Aviv, Israel - BIRD-Foundation project, consultant  
1978 – 1984 Israel Defense Forces, Electronics and Metal Industrial Concern – Head of Computer and Information Systems Unit; MERKAVA Tank Production Plant – Chief Industrial Engineer, last rank Major

## PROFESSIONAL ACTIVITIES

### *International Journals – Associate Editor or Member of the Editorial Board*

2013 – date Guide to the Systems Engineering Body of Knowledge (SEBoK) and Graduate Reference Curriculum for Systems Engineering (GRCSE), Associate Editor  
2009 – date Journal of Enterprise Transformation, Member of the Academic Advisory Board  
2008 – date The Open Cybernetics and Systemics Journal, Member of the Editorial Board  
2006 – date Enterprise Information Systems (EIS), Member of the Editorial Board  
2007 – 2017 Systems Engineering, Associate Editor  
2003 – 2012 International Journal of Web Engineering Technologies (IJWET), Associate Editor  
1995 – 2010 International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI), Member of the Editorial Board  
1998 – 2001 IEEE Transaction on Pattern Analysis and Machine Intelligence (T-PAMI), Associate Editor  
1997 – 2003 International Journal of Document Analysis and Recognition (IJDAR), Associate Editor

### *International Journals – Guest Editor*

2020-2021 [Applied Science - Special Issue "Model-Based Systems Engineering: Rigorous Foundations for Digital Transformations"](#) with Yaniv Mordecai - Section Board Member  
2011 [Innovations in Systems and Software Engineering – Special issue on "Model-based approaches and frameworks for embedded software systems"](#), Dec. 2011 issue; Co-guest editor with João M. Fernandes  
2003 Communications of the ACM – Special Section on Conceptual Modeling and System Architecting  
2000 International Journal of Document Analysis and Recognition (IJDAR), Special Issue on Graphics Recognition  
1999 Data and Knowledge Engineering – Special Issue on Formal Ontology and Conceptual Modeling

### *Membership in International Professional Societies*

- Institute of Electrical and Electronics Engineering (IEEE) – Life Fellow ('21)
- Asia-Pacific Artificial Intelligence Association (AAIA) – Fellow (2021)
- Institute of Electrical and Electronics Engineering (IEEE) – Fellow ('17)
- International Council on Systems Engineering (INCOSE) – Fellow
- International Association for Pattern Recognition (IAPR) – Fellow

- Association for Computer Machinery (ACM) – Senior Member

#### ***International Technical or Award Committees***

2021 – 2024	Convenor, ISO TC184/SC5 WG 15 – Model-Based Standards Authoring
2019 – 2022	IEEE Simon Ramo Medal Committee
2018 – 2020	IEEE Systems, Man, and Cybernetics Society Fellow Evaluation Committee
2014 – 2018	Chinese national engineering research center HK branch on enterprise informatization, International expert member of the Engineering Technical Committee
2013 – 2018	Founding Co-Chair, IEEE Society on Systems, Man, and Cybernetics (SMC) <a href="#"><u>Technical Committee on Model-Based Systems Engineering</u></a>
2013	INCOSE HandbookV4 Review program committee member
2013 – 2014	Artifact-Centric Service Interoperability (ACSI) EU project Special Advisory Board member
2011 – 2014	INCOSE Fellows Selection Committee
2010 – date	Representative of Israel in ISO TC184/SC5 on behalf of Israel Institute of Standards as Technion Expert for ISO TC184/SC5 – Architecture, communications and integration frameworks
2009 – 2010	Purdue University Strategic Planning – Global Engagement Committee
2009 – 2010	Co-Convenor, ISO TC 184/WG5 – Study Group to Explore OPM for Modeling Standards
1996 – 1998	Chairperson, International Association for Pattern Recognition (IAPR) TC-2 – Technical Committee on Syntactic and Structural Pattern Recognition (SSPR)

#### ***Technion Activities***

2012 – 2013	Member of the Technion Research Committee
2012 – 2013	Member of the Technion Development Committee
2010 – 2012	Member of the Technion Senate Preparatory Committee
2010 – 2011	Member of the Technion Academic Degrees Committee
2009 – date	Head of the Enterprise Systems Modeling Laboratory, Faculty of IE&M
2007 – 2010	Member of the Technion Inter-Departmental Committee on Systems Engineering
2002 – 2019	Member of the Technion Steering Committee on Information & Communication Technology (intermittently)

#### ***Organizing International Conferences***

##### ***Chairperson/Co-Chairperson***

1. MBSE'10 – International Conference on Model-Based Systems Engineering, Fairfax, VA, USA, October 2010. Sponsored by IEEE and by INCOSE – International Council on Systems Engineering
2. MBSE'09 – International Conference on Model-Based Systems Engineering, Herzliya and Haifa, Israel, March 2-5, 2009. Sponsored by IEEE and by INCOSE
3. ICSEM'07 – International Conference on Systems Engineering and Modeling, Herzliya and Haifa, Israel, March 20-23, 2007. Sponsored by IEEE and by INCOSE
4. INFOSCALE'07 – International Conference on Scalable Information Systems, Suzhou, China, June 6-8, 2007. Sponsored by ACM.
5. ICDAR'01 – International Conference on Document Analysis and Recognition, Seattle, Washington, USA, September 9-13, 2001. Sponsored by IAPR.
6. GREC'99 – International Workshop on Graphics Recognition, Jaipur, India, September 26-27, 1999. Sponsored by IAPR.
7. SSPR'98 – International Workshop on Syntactic Structural Pattern Recognition, Sydney, Australia, August 11-13, 1998. Sponsored by IAPR.
8. SSPR'94 – International Workshop on Syntactic Structural Pattern Recognition, Nahariyya, Israel, October 4-6, 1994. Sponsored by IAPR.

##### ***Member of the International Advisory, Program, or Organizing Committee***

IEEE SMC – SMC 2016, Budapest, Hungary, Oct. 9-12, 2016. Track Chair – Model-based Systems Engineering; Member of the Program Committee.

Mod4Sim13 – Third International Workshop on Model-driven Approaches for Simulation Engineering

(*Mod4Sim13*) part of the Symposium on Theory of Modeling and Simulation SCS (SpringSim 2013).

*CSER 2012 – Conference on Systems Engineering Research*, St. Louis, Missouri, March 19-22, 2012. *Design Society – First International Conference on Modelling and Management of Engineering Processes (MMEP 2010)*, Cambridge, United Kingdom, 19-20 July, 2010.

*CAiSE – International Conference on Advanced Information Systems Engineering*

20<sup>th</sup> CAiSE'08, Montpellier, France, 16-20 June 2008; 19<sup>th</sup> CAiSE'07, Trondheim, Norway, 11-15 June, 2007; 17<sup>th</sup> CAiSE'05, Porto, Portugal, 13-17 June, 2005.

*ACM-SAC – Symposium on Applied Computing*

22<sup>nd</sup> ACM-SAC'2007, Seoul, Korea, 11-15 March, 2007; 21<sup>st</sup> ACM-SAC'2006, Dijon, France, 23-27 April, 2006; 20<sup>th</sup> ACM-SAC'2005, Santa Fe, New Mexico, 13-17 March, 2005.

*SwSTE – International IEEE Conferences on Software - Science, Technology and Engineering, Herzeliya, Israel*

SwSTE'12, June 12-13, 2012; 4<sup>th</sup> SwSTE'10, 15-16 June, 2010; 3<sup>rd</sup> SwSTE'07, 30-31 October, 2007; 2<sup>nd</sup> SwSTE'05, 20-21 February, 2005; 1<sup>st</sup> SwSTE'03, 4-5 November, 2003.

*MOMPES – IEEE Workshop on Model-based Methodologies for Pervasive and Embedded Software*

MOMPES Series Steering Committee member, starting 2010.

MOMPES 2010, within the 25<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering, Antwerp, Belgium, 20-24 September 2010.

5<sup>th</sup> MOMPES, Vancouver, Canada, May 16, 2009, 4<sup>th</sup> MOMPES 2007, Braga, Portugal, 31 March, 2007. 3<sup>rd</sup> MOMPES 2006, Potsdam, Germany, 27-30 March, 2006; 1<sup>st</sup> MOMPES 2004, Hamilton, Toronto, Canada, 16-18 June, 2004.

*ICPR – International Conference on Pattern Recognition*

17<sup>th</sup> ICPR'04, England, August 23-26, 2004; 16<sup>th</sup> ICPR'02, Quebec City, Canada, August 11-15, 2002; 13<sup>th</sup> ICPR'98, Brisbane, Queensland, Australia, August 17-20, 1998.

*CVPR – International Conference on Computer Vision and Pattern Recognition*

CVPR'01, Hawaii, December 11-13, 2001; CVPR'99, Fort Collins, Colorado, June 23-25, 1999.

*MVA – Workshop on Machine Vision Applications*

MVA'02, Nara, Japan, December 11-13, 2002; MVA'00, University of Tokyo, Tokyo, Japan, November 8-30, 2000; MVA'98, Chiba, Japan, November 17-19, 1998; MVA'96, University of Tokyo, Tokyo, Japan, November 12-14, 1996; MVA'94, Kawasaki, Japan, December 13-15, 1994.

*GREC – International Workshop on Graphics Recognition*

GREC'01, Kingston, Ontario, Canada, September 7-8, 2001; GREC'97, Universite Nancy II, Nancy, France, August 22-23, 1997; GREC'95, Pennsylvania State University, University Park, Pennsylvania, USA, August 10-11, 1995.

*ICDAR – International Conference on Document Analysis and Recognition*

ICDAR'97, Ulm, Germany August 18-20, 1997; ICDAR'91, Saint Malo, France, September 30-Oct. 2, 1991.

*IWVF – International Workshop on Visual Form, Capri, Italy*

IWVF'01, May 28-30, 2001; IWVF'97, May 28-30, 1997.

*Other conferences and workshops*

- 5<sup>th</sup> AHFE International General Conference, IBM Symposium on Human Factors, Software, and Systems Engineering, Jagiellonian University, Krakow Poland, Member of the Scientific Advisory Board, July 2014.
- Symposium on Theory of Modeling and Simulation (TMS'12), March 26-29, part of the 2012 Spring Simulation Multiconference, Orlando, FL, USA), part of the SCS SpringSim 2012 Conference (<http://www.scs.org/springsim/2012>).
- Complex Systems Design & Management 2010, Paris, France, October 27-29, 2010.
- International Conference on Industrial Engineering and Engineering Management (IEEM2007), Singapore, December 2-5, 2007.
- 26<sup>th</sup> International Conference on Conceptual Modeling (ER 2007), New Zealand, University of Auckland, November 5-9, 2007.
- IFIP International Conference on Enterprise Information Systems (CONFENIS 2006), Vienna, Austria, April 24-26, 2006.

- 5<sup>th</sup> IAPR International Workshop on Document Analysis Systems (DAS 2002), Aug. 19-21, 2002, Princeton, New Jersey, USA.
- OMG 2<sup>nd</sup> Workshop on UML for Enterprise Applications, December 3-6, 2001, San Francisco, California, USA; 1<sup>st</sup> International Workshop on Web Document Analysis (WDA'01), Seattle, Washington USA September 8, 2001.
- ECIS – European Conference on Information Systems, Workshop on Information Systems Development: Systems, Methodologies and Tools, Vienna, Austria, July 3-5, 2000.

#### *Invited Talks and Panels in International Conferences and Webinars*

1. Dov Dori, Extending Model-Based Systems Engineering: Modeling and Operating IoT Systems with OPM ISO 19450, Third Huawei MBSE Technical Engineering Conference, 26 August China (26 Aug. EST).
2. Dov Dori, OPM ISO 19450: a top-level ontology. Top-Level and Mid-Level Ontologies Multi-Disciplinary Workshop, OntoCommons. March 25, 2021 (virtual).
3. Dov Dori, OPM ISO 19450 Update. INOCSE International Workshop Jan. 30, 2021 (virtual).
4. Dov Dori, Combined conceptual-computational modeling of energy systems for optimized dynamic performance. 33rd Umbrella Symposium on Energy Conversion and Energy Storage, Juelich, Germany, May 27-29, 2019.
5. Dov Dori, Managing Energy in a Smart World. 32<sup>nd</sup> Umbrella Symposium on Energy Conversion and Energy Storage, Technion. Haifa, Israel, April 22-25, 2018.
6. Dov Dori, The Minimal Universal Ontology of Stateful Objects and Processes that Transform Them. Ontology Summit 2018 <http://ontologforum.org/index.php/OntologySummit2018>.
7. Object-Process Methodology: Automation systems and integration, ISO/PAS 19450:2015(en). INCOSE IW, Feb. 3, 2016.
8. Object-Process Methodology – the new ISO 19450 Standard: Principles and MBSE Applications. ASSESS 2016 – Analysis, Simulation and Systems Engineering Software Strategies. Washington DC, Jan. 20-22, 2016.
9. Object-Process Methodology – the new ISO 19450 Standard: Principles and MBSE Applications. Systems Design and Management Program. MIT, Cambridge, MA, Jan. 19, 2016.
10. Object-Process Methodology – the new ISO 19450 Standard: Principles and MBSE Applications. INCOSE Webinar Series, 16 December 2015.
11. Agile System Modeling and Lifecycle Engineering with Object-Process Methodology – OPM, the New ISO/PAS 19450 standard. INCOSE Enchantment (New Mexico) Chapter Webinar, Aug. 12, 2015.
12. Design your system with object-process methodology – OPM, the new ISO 19450. SRI International, Princeton, NJ, USA, July 20, 2015. Invited Talk.
13. model-based risk-oriented systems engineering with applications to cyber-physical systems. Philadelphia Navy Yard, Philadelphia PA, USA, April 8, 2015. Invited Workshop.
14. [To model or not to model? formalizing the conceptual modeling process to benefit engineers and scientists](#). MIT Systems Design and Management Systems Thinking Webinar Series, Feb. 9, 2015.
15. conceptual modeling of the cyber-physical gap with objects and processes: the new opm iso 19450 standard. University of Texas, San Antonio, Nov. 7, 2014. Invited Talk.
16. mirror, mirror on the wall – do you see me at all? the cyber-physical gap and its implications on risks: modeling nuclear hazards mitigation. 5th International Conference on Complex Systems Design & Management, November 12-14, 2014, Paris, France – Plenary Talk.
17. The cyber-physical gap and its implications on risks: modeling nuclear hazards mitigation. Nuclear Engineering Seminar Series, co-sponsored by Department of Mechanical and Nuclear Engineering and Engineering Systems Program, Penn State University, October 23, 2014. Invited Talk.
18. From agile software development to agile systems development with OPM-based MBSE. INCOSE 2014, Las Vegas, June 30, 2014. Invited Talk.
19. [The Maturation of Model-Based Systems Engineering: OPM as the ISO Conceptual Modeling Language Standard](#), MIT Systems Design and Management Systems Thinking Webinar Series, June 2, 2014.
20. ISO Standardization of OPM as a basis for Model-based Standards Authoring. INCOSE Model-Based Systems Engineering Webinar Series, Aug. 18, 2011.



21. OPM as a basis for Model-based Standards Authoring Meta-Standard – ISO Draft International Standard (DIS). ISO/TC 184/SC 5 Meeting, North Redington Beach, Florida, USA, 9-13 May 2011.
22. OPCAT – An Object-Process CASE Tool for OPM-Based Conceptual Modelling. Design Society – First International Conference on Modelling and Management of Engineering Processes (MMEP 2010), Cambridge, United Kingdom, 19-20 July 2010.
23. How does OPM improve the consistency and clarity of ISO standards? Interim report of the ISO/SC5 OPM WG. ISO/SC5 Annual Meeting, Tokyo, Japan, March 25, 2010.
24. Aligning SysML with OPM. INCOSE International Workshop – Model-Driven Systems Design WG meeting, Phoenix, AZ, USA, Feb. 8, 2010.
25. Conceptual Modeling of Enterprise Systems: Model-Based ISO Standardization Efforts. INCOSE MBSE IW Workshop, Phoenix, AZ, USA, Feb. 5-7 2010.
26. Conceptual Modeling of Biological Processes, 24th Umbrella Symposium, Juelich, Germany, Jan 20, 2010.
27. Model-Based Systems Engineering: Conceptual modeling languages and their standardization efforts, Keynote Speech, 2009 International Conference on Web Information Systems and Mining (WISM'09) and 2009 International Conference on Artificial Intelligence and Computational Intelligence (AICI'09), Shanghai, China, November 7-8, 2009.
28. Adopting Object-Process Methodology as a standard modeling language for modeling enterprise-related standards. Plenary Meeting of ISO Technical Committee 184 WG5, Paris, April 23-24, 2009.
29. Conceptual Modeling in the Service of Systems Engineering, INCOSE\_IL, Herzeliya, Israel, May 15, 2006.
30. Soda, Not Just a Drink! From an Object-Centered to a Balanced Object-Process Model-Based Enterprise Systems Development. Joint Meeting of the 4th Workshop on Model-Based Development of Computer Based Systems (MBD) and 3rd International Workshop on Model-based Methodologies for Pervasive and Embedded Software (MOMPES 2006), within the 13th IEEE Int. Conf. on Engineering of Computer Based Systems (ECBS 2006), Potsdam, Germany, 27-30 March 2006.
31. Conceptual Modeling with OPM. Virtual Research Lab for Knowledge Community in Production (VRL KCiP – a Network of Excellence in the frame of the 6th FP of the European Commission) Third Video Conference, November 23, 2005.
32. Manufacturing Knowledge Mapping for Ontology Construction via Object-Process Methodology. CIRP Meeting, January 27, 2005, Paris, France.
33. Modeling Alzheimer patient diagnosis and treatment with Object-Process Methodology. Sixth International Conference on Alzheimer Diagnosis and Treatment, Dalhousie University, Halifax, Nova Scotia, Canada, November 28-29, 2003.
34. Ontological Evaluation of System Modeling (Moderator, with Brian Henderson-Sellers, Andreas L. Opdahl, and Oscar Pastor – Panelists). Panel in 22nd International Conference on Conceptual Modeling (ER 2003), Chicago Illinois, October 13-16, 2003.
35. Syntactic and Semantic Graphics Recognition: The Role of the Object-Process Methodology. 3rd International Workshop on Graphics Recognition (GREC'99), Jaipur, India, 1999 (Abstract).
36. Document Analysis Systems Development and Representation through the Object-Process Methodology. DAS'98 - IAPR Workshop on Document Analysis Systems, Nagano, Japan, November 4-6, 1998.
37. Semantic Content-Based Image Retrieval Using Object-Process Diagrams. SSPR'98 - International Workshop on Syntactic Structural Pattern Recognition, Sydney, Australia, August 11-13, 1998.
38. Performance Evaluation of Graphics Recognition. Keynote Speaker - Dagstuhl Seminar on Evaluation and Validation of Computer Vision Algorithms, Schloss Dagstuhl, Saarbrücken, Germany, March 16-20, 1998.
39. Engineering Drawings Recognition. ICDAR'97 - IAPR International Conference on Document Analysis and Recognition, Ulm, Germany, August 17-20, 1997.
40. Analysis and Representation of the Image Understanding Environment Using the Object-Process Methodology. MVA'94 - IAPR Workshop on Machine Vision Applications, Kawasaki, Japan, December 13-15, 1994.

#### *Massive Open Online Courses (MOOCs) and Certificate Programs*

1. 2018 – present: edX Model-Based Systems Engineering – MBSE <https://www.edx.org/professional-certificate/israelx-model-based-systems-engineering> Certificate Program

2. 2018 – present: MIT xPRO's [Architecture and Systems Engineering](#) Certificate Program

#### *Tutorials in International Conferences and Professional Courses*

3. Getting Ready for Industry 4.0 and IoT with Model-Based Systems Engineering, INCOSE International Symposium, Orlando, FL, USA, July 20-25, 2019.
4. Model-Based Systems Engineering: Methodologies, Languages, Complexity Management, and Standardization, INCOSE International Symposium, Rome, Italy, July 7-12, 2012.
5. Model-Based Systems Engineering, The 2011 IEEE International Conference on Systems, Man, and Cybernetics ([www.smc2011.org](http://www.smc2011.org)), Anchorage, Alaska, USA October 9-12, 2011 (invited).
6. Synergistic Model-Based Systems Engineering with SysML and OPM. 21<sup>st</sup> INCOSE International Symposium, Denver, CO, USA, 22 June 2011.
7. SysML and its Enhancement via Object-Process Methodology, TOOLS-EUROPE 2008 – 46th International Conference on Objects, Models, Components, Patterns, Zurich, 30 June - 4 July, 2008.
8. Object-Process Methodology a Formal, User-Oriented Graphic-Textual Requirements Engineering Platform. August 30, 2005, at RE 2005 – The 13<sup>th</sup> IEEE International Requirements Engineering Conference, Paris, France, August 29-September 2<sup>nd</sup> 2005.
9. Supporting Automated Systems Development with Object-Process Methodology. The 19th IEEE International Conference on Automated Software Engineering, Linz, Austria, September 20-21, 2004.
10. Object-Process Methodology and Its Application to the Visual Semantic Web. 16th Conference on Advanced Information Systems Engineering, CAiSE 2004, Riga, Latvia, June 7-11, 2004.
11. Object-Process Methodology and Its Application to the Visual Semantic Web. 22nd International Conference on Conceptual Modeling (ER 2003), Chicago Illinois, October 13-16, 2003.
12. Object-Process Methodology: Ontological Foundations and Internet Applications. 5th International Conference on Enterprise Information Systems, École Supérieure d'Électronique de l'Ouest, Angers, France, April 23-26, 2003.
13. Dov Dori and Edward Crawley, Systems Architecture and Lifecycle Design: Principles, Models, Tools & Applications [6.18s], Professional Education Programs, School of Engineering, MIT, July 2018, July 2017, July 2016, July 2015, July 2014, July 2013, July 2012, July 25-29, 2011, July 26-30, 2010, July 27-31, 2009, July 28 - Aug. 1, 2008, July 23-27, 2007, July 10-14, 2006, August 1-5, 2005.
14. Systems Development with UML and Object-Process Methodology. Professional Education Programs, School of Engineering, MIT, July 14-17, 2003.
15. Object-Oriented Engineering of Web Services and Semantic Net [6.40s]. Professional Education Programs, School of Engineering, MIT, July 28 - August 1, 2003.
16. Dov Dori and Liu Wenyin, Engineering Drawings Understanding and CAD Conversion (EDUCAD2001) ICDAR'01, Seattle, WA, USA, September 10, 2001.
17. Dov Dori and Liu Wenyin, Engineering Drawings Recognition. International Conference on Document Analysis and Recognition ICDAR'97, Ulm, Germany, August 18, 1997.

#### *Software Presentations in International Conferences*

1. Arnon Sturm, Dov Dori, Iris Reinhartz-Berger, Zhenya Yaroker, Valeria Bodnya, Eran Toch, and Sergey Guenender, Developing Multi Agent Systems with OPCAT—Object-Process CASE Tool. Autonomous Agents & Multi Agents Systems (AAMAS), Columbia University, New York City, July 19-23, 2004.
2. Dov Dori, Iris Reinhartz-Berger, and Arnon Sturm, Developing Complex Systems with Object-Process Methodology using OPCAT. Industrial Presentation in Proc. 22nd International Conference on Conceptual Modeling (ER 2003), Chicago Illinois, October 13-16, 2003.
3. Dov Dori and Arnon Sturm, OPCAT - Object-Process CASE Tool - an Integrated System Engineering Environment (ISEE). OOPSLA'98 - Object-Oriented Programming, Systems, Languages and Applications. Vancouver, BC, Canada, 18-22 October 1998.
4. Dov Dori and Arnon Sturm, [Integrated System Engineering Environment with OPCAT - Object-Process CASE Tool](#). In J. Dockx, Reflections on a Demonstration Chair, Proc. European Conference on Object Oriented Programming (ECOOP'98), July 1998.



### *Evaluator of Academic Programs*

- 2007 – 2009 Head, Israeli Council for Higher Education (MALAG) Committee for evaluating the application of ORT Braude College to grant M.Sc. degree without thesis in Systems Engineering.
- 2006 – 2008 Head, MALAG Committee for evaluating the application of Jerusalem College of Technology to grant M.Sc. degree without thesis in Telecommunication Systems Engineering.
- 2003 – 2005 Head, MALAG Committee for evaluating the application of Emek Hayarden College to grant a B.Sc. degree in Information Systems
- 2003 – 2005 Head, MALAG Committee for evaluating the application of Braude College, Karmiel, to grant a B.Sc. degree in Information Systems
- 2003 – 2005 Member, MALAG Committee for assessing Ben Gurion University M.Sc. Program in Information Systems
- 2002 – 2007 Member, MALAG Committee for assessing Haifa University Program in Management Information Systems; appointed by the Israeli Minister of Education
- 2002 – 2006 Member, MALAG Committee for evaluating Turo College application to open an MBA program in Israel; appointed by the Israeli Minister of Education

### *Standardization Activities*

Co-convenor of ISO Study Group to Explore OPM for Modeling Standards based on RESOLUTION 611 (PARIS 21) – OBJECT PROCESS METHODOLOGY of ISO/TC 184/SC 5 Plenary Meeting, Paris, April 23-24, 2009 (OPM Study Group initiation decision); Tokyo, March 26, 2010 (normative Draft International Standard preparation decision); North Redington Beach, FL, USA, May 12, 2011 (OPM Publicly Available Specification and DIS for Model-based standards authoring decision). Haifa, Israel, May 5-7, 2012 – Resolution 669 (HAIFA 3) – OPM PAS Publication, Frankfurt, Germany, May 12-15, 2013. Consequent activity: Drafting ISO 19450 – Object-Process Methodology Publicly Available Specification based on RESOLUTION 724 (BEIJING 3) – OPM PD-PAS SUBMISSION.

### *Evaluator of Grant Proposals to International and National Research Councils*

- 2017 Research Grants Council (RGC) of Hong Kong
- 2012 IWT – the research funding and innovation stimulation agency of the Flanders (Belgium)
- 2006, 2016 Israel Science Foundation, Professional Committee for evaluating proposals in Business Administration
- 2004 Norwegian Research Council, Outstanding Young Investigator
- 2003 – 2004 Swiss National Science Foundation, Division for Physical and Engineering Sciences
- 2000 USA National Science Foundation: Small Business Information Technology Research and Technology Transfer (SBIR)
- 1997 – 1998 European Commission Fourth Framework: Esprit – Information Technologies; Brite EuRam III – Manufacturing and Material Technologies
- 1995 – date Israeli Ministry of Science

### GRADUATE STUDENTS

#### *Completed Theses – Doctors*

# Designates that the former Ph.D. student is currently a faculty member at a higher education institution

1. Avigdor Gal# D.Sc. 1995. TALE – a Temporal Active Language and Execution Model. Primary Advisor: Dr. Opher Etzion. Currently: Professor, Faculty of Industrial Engineering and Management, Technion.
2. Menachem Alon-Domb# D.Sc. 1996. A Generic Framework for Definition and Implementation of Cooperative Information Systems. Currently: Assoc. Professor, Ashkelon Academic College, Ashkelon, Israel.
3. Liu Wenyin# D.Sc. 1998. Algorithms for 2D Engineering Drawings Recognition: Implementation and Evaluation. Won Special Excellence Gutwirt Award 1997. Currently: faculty, City University of Hong Kong. Guangdong University of Technology, [https://scholar.google.com/citations?view\\_op=view\\_org&hl=iw&org=6442500540992846260](https://scholar.google.com/citations?view_op=view_org&hl=iw&org=6442500540992846260) Microsoft Research China, Tsinghua.

4. Miri Weiss# D.Sc. 1998. Graph-Theoretic 3D Objects Reconstruction from 2-D Engineering Drawings. Currently: Senior Lecturer, Braude College of Engineering, Karmiel, Israel.
5. Mor Peleg# Ph.D. 1999. Modeling System Dynamics through the Object-Process Methodology. Won Wolf Prize for 1997. Currently: Professor, Haifa University, Israel.
6. Pnina Soffer# Ph.D. 2002. A Methodology for Adapting an ERP System to the Needs of an Enterprise (with Prof. Boaz Golany – Primary Advisor). Currently: Assoc. Professor, Haifa University, Israel.
7. Dagan Gilat Ph.D. 2003. Extending Object-Process Methodology for Simulation of Discrete Events. Currently: Senior Manager, Business Transformation & Optimization, IBM Haifa Research Lab.
8. Iris Reinhartz-Berger# Ph.D. 2003. Developing Web Applications with Object-Oriented Methods and Object-Process Methodology (with Prof. Shmuel Katz – Second Advisor). Currently: Senior Lecturer, Haifa University, Israel.
9. Arnon Sturm# Ph.D. 2004. Developing and Evaluating an Object-Process Methodology-Based Multi-Agent Systems Framework (with Dr. Onn Schori – Second Advisor). Currently: Senior Lecturer, Ben Gurion University at the Negev, Israel.
10. Shalom Cohen Ph.D. 2007. A multi-tier system development life cycle model for information system products with market and organizational effects. Second Advisor: Prof. Uzi de Haan. Currently: Senior Systems Engineer, Intel, Israel.
11. Dizza Beimel# Ph.D. 2008. Privacy and security mechanisms in electronic health record management. Primary Advisor: Dr. Mor Peleg, Haifa University. Currently: faculty member, Ruppin Academic Center, Emek Hefer, Israel.
12. Avi Soffer# Ph.D. 2008. Bridging information gaps in OPM-based system development. Currently: Head of Systems Eng. Dept., Ort Braude College of Engineering, Karmiel, Israel.
13. Eran Toch# Ph.D. 2008. Semantics-based autonomic implementation of information systems. Secondary Advisor: Dr. Iris Reinhartz-Berger. Won Eshkol Scholarship, 2006. Currently: Senior Lecturer, Tel Aviv University, Israel.
14. Amira Sharon Ph.D. 2010. A unifying model-based framework for Project and Product Lifecycle. Currently: Chief Technology Officer, Israel Aerospace Industries.
15. Valeria Perelman Ph.D. 2012. Operational Semantics for Object-Process Methodology. Currently: Qualcomm.
16. Judith Somekh# Ph.D. 2013. OPM-based biological systems modeling. Secondary Advisor: Dr. Mordechai Choder. Won MOS Scholarship for Women, 2010-11. Currently: Lecturer, Haifa University, Israel.
17. Alexander Blekhan Ph.D. 2013. Model-Based Documents Authoring with Object-Process Methodology. Currently: Head of Technology and Innovation Section, IDF.
18. Ori Orhof Ph.D. 2015. Critical Components Analysis – A Framework for Planning Sub-project Contingencies in Large, Complex Projects. Currently: Self-employed.
19. Yaniv Mordecai# Ph.D. 2016. Model-Based Robust Systems Engineering: Integrating Disruption into Conceptual Models of Complex Systems with Object-Process Methodology. Received “**Outstanding SMCS PhD Diploma Work on Systems Science & Engineering**” from IEEE Systems, Man, and Cybernetics Society, 2017. Currently: Postdoctoral Fellow, MIT.
20. Arieh Bibliowicz Ph.D. 2017. Object-Process Programming – A Visual Programming Language for Complex Systems Design and Implementation. Currently: Microsoft, Israel.
21. Natali Levi# Ph.D. 2021. Narrowing the Gap Between System and Software Engineering by Integrating Computations into Object-Process Methodology. Currently: Lecturer, Ort Braude Academic College, Karmiel.
22. Hanan Kohen Ph.D. 2021. OPM Model-Based IoT and Internet of Robotic Things. Currently: CEO of OPcloud LTD. and Lecturer, Technion.

*Completed Theses – Masters*

*Technion, Faculty of Industrial Engineering and Management*

24. Erez Tatcher M.Sc. 1993. Selective Multiple Inheritance in Systems Analysis.
25. Gustavo Gambach M.Sc. 1994. Edge Detection and Parameter Estimation from Spine Radiographs.

26. Elena Zilberstein (Velkovitch) M.Sc. 1995. Segmentation and Recognition of Dimensioning Text from Engineering Drawings.
  27. Moshe Goodman M.Sc. 1996. The Object-Process Paradigm as a Common Methodology for Analysis, Design and Implementation of Information Systems. *Won Special Excellence Guttwirt Award 1996.*
  28. Inessa Vigendat M.Sc. 1998. Natural Language Processing by Examples (Primary Advisor: Prof. Uzi Ornan).
  29. Uzi Avigdor M.Sc. 1998. A CAD-based Vision System for Recognition of Objects in an Automated Warehouse.
  30. Arnon Sturm M.Sc. 1999. Applying an Object-Relational Database Model to OPM Analysis and Design Results.
  31. Iris Berger M.Sc. 1999. Generating Java Code from Object-Process Language Script.
  32. Dizza Beimel M.Sc. 2004. OPCATeam: Distributed Object-Process CASE Tool.
  33. Roman Feldman M.Sc. 2006. Designing Data Warehouses with Object Process Methodology. Second Advisor: Dr. Arnon Sturm.
  34. Valeria Perelman M.Sc. 2006. Reverse Engineering of Java Code to an OPM Model.
  35. Judith Somekh M.Sc. 2007. Real time and exceptions modeling with OPM. Second Advisor: Dr. Mor Peleg.
  36. Galia Schlesinger M.Sc. 2007. Analyzing Object-Oriented Design Patterns from an Object-Process Viewpoint. Second Advisor: Dr. Iris Reinhartz-Berger.
  37. David Amid M.Sc. 2008. OPM-based Requirements Engineering. Primary Advisor: Dr. Iris Reinhartz-Berger.
  38. Yevgeny Yaroker M.Sc. 2008. Animated Simulation with Object-Process Methodology.
  39. Arieh Bibliowicz M.Sc. 2008. A Graph Grammar-Based Specification of Object-Process Methodology.
  40. Yariv Grobshtein M.Sc. 2008. Generating SysML Diagrams from an OPM Model.
  41. Sergey Kozyrev M.Sc. 2008. Developing and Assessing a Methodology for Semantic Web-Based Virtual Expeditions. Primary Advisor: Dr. Miriam Barak.
  42. Sergey Bolshchikov M.Sc. 2013. Creating a Spatio-Temporal Dynamic Model from an Object-Process Methodology Based Model
  43. Aharon Renick M.Sc. 2013. Incorporating Quantitative Aspects into OPM-based Conceptual Models with MATLAB Computational Capabilities.
  44. Shmuela Jacobs M.Sc. 2014. Integration of System Models into the Semantic Web: Representation of OPM Models in RDF Format.
  45. Inbar Zigdon M.Sc. 2017. Quantifying model informativity.
  46. Yang Gao M.Sc. 2020. Multilingual Textual Representation in Object-Process Methodology.
  47. Danny Medvedev M.Sc. 2020. OPM Model Insights – A Graph-Theoretic Querying Approach.
  48. Gil Sobol M.Sc. 2020. Incorporating Design Structure Matrix into OPM for Improved Model Analysis.
  49. Keren Or Greenberg M.Sc. 2021. Incorporating System Dynamics into OPM for Improved Model Analysis.
- University of Kansas, Department of Computer Science*
50. Ian Chai<sup>#</sup> M.S. 1990. Orthogonal Zig-Zag: an Efficient Method for Extracting Straight Lines from Engineering Drawings. *Currently: Faculty at Multimedia University, Cyberjaya Selangor, Malaysia.*
  51. Yubin Liang M.S. 1991. The Perpendicular Bisector Tracing Algorithm for Segmentation of Arcs in Engineering Drawings.
  52. Joseph Dowell M.S. 1992. Self-Supervised Pattern Recognition for Recognition of Arrowheads in Engineering Drawings.
- Massachusetts Institute of Technology, Engineering Systems Division*
53. Christine Miyachi M.S. 2001. Modeling the Capability Maturity Model with Object-Process Methodology.
  54. Benjamin Koo<sup>#</sup> M.S. 2001. Improving Product Development Capability Maturity Model (CMM) through Object Process Methodology. *Currently: Asst. Prof. at Dept. of Industrial Engineering, Tsinghua University, Beijing, China.*
  55. Nathan Soderborg M.S. 2002. Representing Systems through Object-Process Methodology and Axiomatic Design.
  56. Sergey Nemirovsky M.S. 2010. Systems View of Commercial Organizations' Evolution.

57. Somwang Thipphayathethana M.S. 2015. Model-Based Guidelines for User-Centric Satellite Control Software Development
58. Greg Wilmer M.S. 2015. OPM Model-Based Integration of Multiple Data Repositories
59. Juan Manuel Quezada M.S. 2015. Model-Based Guidelines for Automotive Electronic Systems Software Development
60. Jason Casebolt M.Sc. 2016. Model-based Quality Assurance Business Processes at Boeing.
61. Yongkai Eugene Yang M.Sc. 2017 Design, Development, and Evaluation of Electronic Procedures and Automation of Procedures for Astronaut Crews.

### Basic Sciences for Medical Doctors

62. Ilan Atlas, MD Diet Planning for Gestational Diabetic Patients: an Algorithm and its Implementation, 1993.

### *Theses in Progress*

*Technion, Faculty of Industrial Engineering and Management*

63. Liat Katzir Ph.D. Expected Graduation: 2024. Model-based testing with OPM. Currently: Project Manager, RAFAEL.
64. Yulia Tzagel'nik M.Sc. Expected Graduation: 2021. Deep-Learning-Based Conversion of Free English Text into OPL. Won the **2021 MALAG Prize** for research involving data science and another discipline. Currently: Software Architect, INTEL.

### Invited Talks, Tutorials, Webinars, and Panels in International Conferences & Committees

1. Extending Model-Based Systems Engineering: Modeling and Operating IoT Systems with OPM ISO 19450. Keynote, Third Huawei MBSE Technical Engineering Conference, Aug. 26, 2021.
2. Model-Based Systems Engineering: Beyond Conceptual Modeling with OPM ISO 19450. IDC Intel Systems Engineering Conference, Sept. 17, 2020.
3. Model-Based Systems Engineering for Industry 4.0, IoT, and Cyber-Physical Systems. IEEE SYSCON 2020
4. Aligning Model-Based Systems Engineering with the Digital Transformation. IEEE ISSE 2020.
5. Getting ready for Industry 4.0 with OPM - Object-Process Methodology ISO 19450. UBC Sauder School of Business, Sept. 6, 2019.
6. OPCloud - A collaborative Web-based modeling environment for Agile Systems Engineering. MIT Lincoln Labs, Aug. 27, 2019.
7. Getting Ready for Industry 4.0 and IoT with Model-Based Systems Engineering. INCOSE IS 2019, Orlando, FL, full-day tutorial, July 20, 2019.
8. From Machine-Readable to Machine Executable & Verifiable Standards. The Fifth Meeting of Special Advisory Group (SAG) on Machine-Readable Standards (ISO SAG MRS) C4, ISO/CS, Geneva, Switzerland, June 13, 2019 (remotely).
9. Exploding the Boundaries of Systems Engineering. Panel Co-Moderator, INCOSE IS 2018, July 7-12, 2018, Washington DC, USA.
10. Modeling Materials Ontology with Object-Process Methodology – OPM ISO 19450:2015. *Materials Ontology Workshop*, Brussels, Belgium, June 29, 2018
11. Object-Process Methodology – the new ISO 19450 Standard: Principles and MBSE Applications. INCOSE Webinar Series, December 16, 2015.
12. Conceptual Modeling of the Cyber-Physical Gap with Objects and Processes: The new OPM ISO 19450 Standard. University of Texas, San Antonio, Nov. 7, 2014.
13. Mirror, Mirror on the Wall – Do You See Me at All? The Cyber-Physical Gap and its Implications on Risks: Modeling Nuclear Hazards Mitigation. Nuclear Engineering Seminar Series, Penn State Department of Mechanical and Nuclear Engineering, Oct. 23, 2014.
14. Why Must System-of-Systems Engineering be Model-Based? The 14<sup>th</sup> International Symposium on Manufacturing and Systems Engineering, Kona, Big Island of Hawaii, August 2014 (WAC 2014), Aug. 3-7, 2014.
15. Systems Engineering and Software Engineering: A Workshop to Explore Their Interrelationship June 12-13, 2014, Hoboken, NJ. Stevens Institute of Technology, Co-sponsored by International Council on Systems Engineering (INCOSE) and Systems Engineering Research Center (SERC).

16. The maturation of Model-Based Systems Engineering: OPM as the ISO conceptual modeling language standard. MIT SDM Webinar, June 2, 2014.
17. Model-Based Systems Engineering: Methodologies, Languages, Complexity Management, and Standardization, The 22nd Annual INCOSE International Symposium (IS 2012), Rome, Italy, 8 to 12 July 2012.
18. Managing complexity with OPM. MIT, Engineering Systems Division, Feb. 14, 2012.
19. Modeling Processes and Objects with OPM: Principles, Applications, and ISO Standardization. UMass Amherst, Feb. 6, 2012.
20. ISO Standardization of OPM as a basis for Model-based Standards Authoring. INCOSE MBSE Webinar Series, Aug. 18, 2011.
21. Model-Based Systems Engineering. The 2011 IEEE International Conference on Systems, Man, and Cybernetics, Anchorage, Alaska, USA, October 9-12, 2011.
22. Dov Dori and Judith Somekh, An OPM Framework for Model-Based Systems Biology. The 25th Umbrella Symposium & the German-Israeli forum for Science and Technology, RWTH University Aachen, Aachen, Germany, June 26-30, 2011.
23. Complexity Management via OPM Built-In Mechanism: Theory & Practice. Presentation at the Innovative Approaches & Researches for Managing Complexity, Gordon Center for Systems Engineering, Technion, Haifa, Israel, July 5, 2011.
24. OPM as a basis for the Model-based Standards Authoring Meta-standard – ISO Draft International Standard, ISO TC184/SC5 Annual Meeting, North Redington Beach, FL, USA, May 12, 2011.
25. Aligning SysML with OPM. INCOSE IW Workshop – Model-Driven Systems Design WG Meeting, Phoenix, AZ, USA, Feb. 8, 2010.
26. Conceptual Modeling of Enterprise Systems: Model-Based ISO Standardization Efforts. INCOSE MBSE International Workshop, Phoenix, AZ, USA, Feb. 5-7 2010.
27. Model-Based Systems Engineering: Conceptual modeling languages and their standardization efforts. Keynote Speech, [WISM-AICI 2009](#), the 2009 International Conference on Web Information Systems and Mining (WISM'09) and the 2009 International Conference on Artificial Intelligence and Computational Intelligence (AICI'09), Shanghai, China, 7-8 November 2009.
28. Object- and Process-Based Conceptual Modeling of Complex Systems. Quality and Innovation Research Centre, Department of Industrial & Systems Engineering, Faculty of Engineering, National University of Singapore and IEEE Engineering Management Society Singapore Chapter Joint Seminar, Singapore, July 11, 2007.
29. SODA: Not Just a Drink! From an Object-Centered to a Balanced Object-Process Model-Based Enterprise Systems Development. Workshop on Model-based Methodologies for Pervasive and Embedded Software (MOMPES 2006), within the 13th IEEE Int. Conf. on Engineering of Computer Based Systems (ECBS 2006), Potsdam, Germany, March 27-30, 2006.
30. Manufacturing Knowledge Mapping for Ontology Construction via Object-Process Methodology. CIRP Meeting, Paris, France, January 27, 2005.
31. Dov Dori (Moderator), Brian Henderson-Sellers, Andreas L. Opdahl, and Oscar Pastor (Panelists). Ontological Evaluation of System Modeling. Panel in 22<sup>nd</sup> International Conference on Conceptual Modeling (ER 2003), Chicago Illinois, October 13-16, 2003.
32. Syntactic and Semantic Graphics Recognition: The Role of the Object-Process Methodology. 3<sup>rd</sup> International Workshop on Graphics Recognition (GREC'99), Jaipur, India, 1999.
33. Document Analysis Systems Development and Representation through the Object-Process Methodology. DAS'98 – IAPR Workshop on Document Analysis Systems, Nagano, Japan, November 4-6, 1998.
34. Semantic Content-Based Image Retrieval Using Object-Process Diagrams. International Workshop on Syntactic Structural Pattern Recognition, Sydney, Australia, August 11-13, 1998.
35. Performance Evaluation of Graphics Recognition. Keynote Speaker, Dagstuhl Seminar on Evaluation and Validation of Computer Vision Algorithms, Schloss Dagstuhl, Saarbrücken, Germany, March 16-20, 1998.
36. Engineering Drawings Recognition. ICDAR'97 – IAPR International Conference on Document Analysis and Recognition, Ulm, Germany, August 17-20, 1997.
37. Analysis and Representation of the Image Understanding Environment Using the Object-Process Methodology. MVA'94 – IAPR Workshop on Machine Vision Applications, Kawasaki, Japan, December 13-15, 1994.

## SELECTED RESEARCH GRANTS

- 2020 – 2022 Israel Prime Minister Office. Boosting IoT Systems' Security through Model-Based Systems Engineering with Object-Process Methodology ISO 19450 400,000 ILS.
- 2020 – 2022 EIT Food, EU, TRACOD – Model-based Tracking of Cod and Other Fish Value Chain for Consumer Confidence Boosting and Food Engineers Education. 400,000 EUR. TRACOD is included as a Transparency Trailblazer, a group of startups & stakeholders working to increase #FoodSystem #transparency.  Learn more: <https://bit.ly/3stYP0p>
- 2019 – 2022 Food Magnet, Israel Innovation Authority, Modeling of heterogeneous food resources and food processing as a complex connected system using OPM ISO 19450:2015. \$150,000.
- 2017 – 2018 Modeling Technological Roadmaps with OPM. Airbus, France, 400,000 EUR.
- 2015 – 2017 Modeling the Next Generation of White Appliances using Model-Based Systems Engineering with OPM. Whirlpool Corporation, USA, \$457,500.
- 2015 – 2016 Integrating Object-Process Methodology with Knowledge Based Engineering. Birmingham City University, \$35,000.
- 2015 – 2016 Model-Based Interoperability Engineering Framework for Systems-of-Systems with Application to Civil Aviation. Gordon Center for Systems Engineering at the Technion. \$13,000, # 2021752 till 30.7.16.
- 2012 – 2013 Situation-based Patient Data Privacy Management for Mobile Health Technology, Technion-Cornell joint research fund. \$30,000.
- 2012 – 2013 Enhancing the Project-Product Lifecycle Management Methodology with Project Classification and Risk Management. Gordon Center for Systems Engineering at the Technion. \$20,000. #2016888, till 30.6.13.
- 2011 – 2012 Umbrella Program between Technion Haifa, RWTH Aachen University: Modeling and Visualizing the Cell as a Framework for Systems Biology Knowledge Management. \$7,000.
- 2011 – 2012 Application of Model-Based Systems Engineering to Systems Biology. Gordon Center for Systems Engineering at the Technion. \$20,000, #2015117 till 30.6.12.
- 2010 – 2013 Modeling Autonomous Robots. Israel Aerospace Industries. \$200,000, #2014927, till 30.12.14.
- 2011 – 2014 EU 7th Framework: VISIONAIR: A World-class Infrastructure for Advanced 3D Visualization-based Research. €278,828. Total project budget €6,500,000 #2014678.
- 2010 – 2011 Umbrella Program between Technion Haifa, RWTH Aachen University and Forschungszentrum Jülich: Conceptual Modeling and Simulation of a Minimal Organism. \$17,000.
- 2006 – 2008 OPCAT, Inc. – Development of algorithms and modules in OPM. \$33,450.
- 2005 – 2007 The Gordon Research Fund for Systems Engineering, Technion – Aligning System Requirements and Implementation by Bridging Information Gaps between System Development Stages. \$20,000.
- 2004 – 2007 EU 6<sup>th</sup> Framework: European Network of Excellence – Building knowledge driven and dynamically networked communities within European healthcare systems (COCOON) FP6 - IST-2002-507126. €172,000. Total project budget €11,700,000.
- 2004 – 2007 EU 6<sup>th</sup> Framework: European Network of Excellence – Impact of deployment of tele-procedures on government territorial services (TERREGOV). FP6 - IST-1-507749. €128,000. Total project budget €10,000,000.
- 2004 – 2007 EU 6<sup>th</sup> Framework: European Network of Excellence – Virtual Research Lab for Knowledge Community in Production (VRL-KCiP) FP6 – IST+ NMP 0000908003. Budget for 1/7/2004-30/6/2005 €182,195 (with Prof. M. Shpitalni)
- 1999 – 2001 Israeli Ministry of Industry and Trade, MAGNET Consortium on Autonomous Wafer FAB Cluster Management (WFCM) - Applying the Object-Process Methodology to manage Autonomous Wafer FAB Clusters. \$150,000.
- 1997 – 2000 Israeli Ministry of Science and the Arts. Content-Based Image Retrieval. \$250,000.



- 1994 – 1997 ISCAR Ltd., Metal Cutting Tools, Tefen, Israel. Tech. #191-207. Development of a Communication System for Managing Organizational Processes. \$94,000.
- 1994 ISCAR Ltd., Metal Cutting Tools, Tefen, Israel. Tech. #191-185. Defect Detection in Metal Cutting Tools Using Machine Vision Technology. \$7,440.

## PUBLICATIONS

### Theses

1. M.Sc. Optimal Nesting of Congruent Convex Figures. Advisor: Prof. Moshe Ben Bassat, Recanati School of Business Administration, Tel Aviv University, Tel Aviv, Israel, 1981.
2. Ph.D. Detection and Interpretation of Dimensions in Machine Drawings. Advisors: Prof. Amir Pnueli and Prof. Shimon Ullman, Weizmann Institute of Science, Rehovot, Israel, 1987.

### Papers in Refereed Journals

1. Joseph S. Pliskin and Dov Dori, Ranking Alternative Warehouse Area Assignments: a Multiattribute Approach. *IIE Transactions*, 14, 1, pp. 19-26, 1982.
2. Dov Dori and Moshe Ben-Bassat, Circumscribing a Convex Polygon by a Polygon of Fewer Sides with Minimal Area Addition. *Computer Vision, Graphics, and Image Processing*, 24, 2, pp. 131-159, 1983.
3. Dov Dori and Moshe Ben-Bassat, Optimal Nesting of Congruent Convex Figures. *Communications of the ACM*, 27, 3, pp. 228-230, 1984.
4. Dov Dori and Amir Pnueli, The Grammar of Dimensions in Machine Drawings. *Computer Vision, Graphics, and Image Processing*, 42, pp. 1-18, 1988.
5. Dov Dori, A Syntactic/Geometric Approach to Recognition of Dimensions in Engineering Machine Drawings. *Computer Vision, Graphics, and Image Processing*, 47, pp. 271-291, 1989.
6. Dov Dori, Syntax Enhanced Parameter Learning for Recognition of Dimensions in Engineering Machine Drawings. *International Journal of Robotics and Automation*, 5, 2, pp. 59-67, 1990.
7. Dov Dori, Intelligent Automatic Dimensioning of CAD Engineering Machine Drawings. *International Journal of Robotics and Automation*, 5, 3, pp. 124-130, 1990.
8. Yehudit J. Dori, Dov Dori and Jerome M. Yochim, Characteristics of an intelligent computer assisted instruction shell with an example in human physiology. *Journal of Computers in Mathematics and Science Teaching*, 11, 3-4, pp.289-302, 1992.
9. Dov Dori, Dimensioning Analysis: a Step towards Automatic High Level Understanding of Engineering Drawings. *Communications of the ACM*, 35, 10, pp. 92-103, 1992.
10. Yehudit J. Dori, Dov Dori, and Jerome M. Yochim, Characteristics of an intelligent computer assisted instruction shell with an example in human physiology. *Journal of Computers in Mathematics and Science Teaching* 11, (3-4), pp. 289-302, 1992.
11. Dov Dori, Yubin Liang, Joseph Dowell and Ian Chai, Sparse Pixel Recognition of Primitives in Engineering Drawings. *Machine Vision and Applications*, 6, pp. 69-82, 1993.
12. Dov Dori and Erez Tatcher, Selective Multiple Inheritance. *IEEE Software*, 11, 3, pp. 77-85, May 1994.
13. Dov Dori and Erez Tatcher, Embryonic Classes: Enabling Selective Multiple Inheritance. *Journal of Object Oriented Programming*, pp. 47-51, June 1994.
14. Dov Dori, Automated Understanding of Engineering Drawings: an Object-Oriented Analysis. *Journal of Object Oriented Programming*, pp. 35-43, Sept. 1994.
15. Opher Etzion, Dov Dori and Shimon Nof, Active Coordination of CIM Multi-database System. *International Journal of Computer Integrated Manufacturing*, 8, 2, pp. 116-125, 1995.
16. Dov Dori and Karl Tombre, From Engineering Drawings to 3-D CAD Models: Are We Ready Now? *Computer Aided Design*, 27, 4, pp. 243-254, 1995.
17. Dov Dori, Object-Process Analysis: Maintaining the Balance between System Structure and Behavior. *Journal of Logic and Computation*, 5(2), pp. [227-249](#), 1995.
18. Dov Dori, Representing Pattern Recognition-Embedded Systems through Object-Process Diagrams: the Case of the Machine Drawing Understanding System. *Pattern Recognition Letters*, 16, 4, pp. 377-384, 1995.
19. Dov Dori, Vector-Based Arc Segmentation in the Machine Drawing Understanding Environment. *IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, 17, 11, pp. 1057-1068, 1995.
20. Dov Dori and Robert M. Haralick, A Pattern Recognition Approach to Detection of Complex Edges. *Pattern Recognition Letters*, 16, 5, pp. 517-529, 1995.
21. Dov Dori and Yehudit J. Dori, Object-Process Analysis of a Hypertext Organic Chemistry Module. *Journal of Computers in Mathematics and Science Teaching*, 15(1/2), pp. 65-84, 1996.
22. Dov Dori and Miri Weiss, A Scheme for 3D Object Reconstruction from Dimensioned Orthographic

- Views. *Engineering Applications of Artificial Intelligence*, 9, 1, pp. 53-64, 1996.
23. Dov Dori, Avigdor Gal and Opher Etzion, A Temporal Database with Data Dependencies: a Key to Computer Integrated Manufacturing. *International Journal of Computer Integrated Manufacturing*, 9, 2, pp. 89-104, 1996.
  24. Dov Dori and Moshe Goodman, On Bridging the Analysis-Design and Structure-Behavior Grand Canyons with Object Paradigms. *Report on Object Analysis and Design*, 2, 5, pp. 25-35, 1996.
  25. Dov Dori, Expressing Structural Relations among Dimension-set Components Using the Object-Process Methodology. *Report on Object Analysis and Design*, 2, 6, pp. 20-24, 1996.
  26. Dov Dori, Object-Process Analysis of Computer Integrated Manufacturing Documentation and Inspection. *International Journal of Computer Integrated Manufacturing*, 9, 5, pp. 339-353, 1996.
  27. Dov Dori, Analysis and Representation of the Image Understanding Environment Using the Object-Process Methodology. *Journal of Object Oriented Programming*, 9, 4, pp. 30-38, 1996.
  28. Dov Dori, Unifying System Structure and Behavior through Object-Process Analysis. *Journal of Object-Oriented Programming*, 9, 4, pp. 66-73, 1996.
  29. Dov Dori and Moshe Goodman, From Object-Process Analysis to Object-Process Design. *Annals of Software Engineering*, 2, pp. 25-40, 1996.
  30. Dov Dori, Orthogonal Zig-Zag: an Algorithm for Vectorizing Engineering Drawings Compared with Hough Transform. *Advances in Engineering Software*, 28, 1, pp. 11-24, 1997.
  31. Doron Myersdorf and Dov Dori, The R&D Universe and Its Feedback Cycles: an Object-Process Analysis. *R&D Management*, 27, 4, pp. 333-344, 1997.
  32. Liu Wenyin and Dov Dori, A Protocol for Performance Evaluation of Line Detection Algorithms. *Machine Vision and Applications*, 9, pp. 240-250, 1997.
  33. Dov Dori and Liu Wenyin, Stepwise Recovery of Arc Segmentation in Complex Line Environments. *International Journal of Document Analysis and Recognition (IJ DAR)*, 1, 1, pp.62-71, 1998.
  34. Yehudit J. Dori, Menachem Alon and Dov Dori, Coordinating Multimedia within Groupware Applications. *International Journal of Computers and Applications*, 20, 2, 83-91, 1998.
  35. Mor Peleg and Dov Dori, Representing Control Flow Constructs in Object-Process Diagrams. *Journal of Object-Oriented Programming*, 11, 3, pp. 58-71, 1998.
  36. Dov Dori and Yelena Velkovitch, Segmentation and Recognition of Dimensioning Text in Engineering Drawings. *Computer Vision - Image Understanding (CVIU)*, 69, 2, pp.196-201, 1998.
  37. Liu Wenyin and Dov Dori, A Generic Integrated Line Detection Algorithm and its Object-Process Specification. *Computer Vision - Image Understanding (CVIU)*, 70, 3, pp. 420-437, 1998.
  38. Liu Wenyin and Dov Dori, An Incremental Arc Segmentation Algorithm and its Evaluation. *IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, 20, 4, pp. 424-431, 1998.
  39. Mor Peleg and Dov Dori, Extending the Object-Process Methodology to Handle Real-Time Systems. *Journal of Object-Oriented Programming*, 11, 8, pp. 53-58, 1999.
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