

Oron Shagrir

Schulman Chair in Philosophy
Professor of Philosophy and Cognitive Science
The Hebrew University of Jerusalem
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AOS: Philosophy of cognitive/brain sciences; Philosophy of computing.

AOC: Philosophy of mind; Metaphysics; Philosophy of science; Logic and computability; History of computing; Computational cognitive science.

Education

- University of California, San Diego (1995): **Ph.D.** Philosophy and Cognitive Science. Advisor: Patricia Churchland.
- Hebrew University, Jerusalem (1989): **M.A.** History and Philosophy of Science (with honors). Advisor: Itamar Pitowsky.
- Hebrew University, Jerusalem (1986): **B.Sc.** Mathematics and Computer Science (with honors).

Academic course

- Vice president (November 2017-present), Hebrew University.
- Acting rector (Fall 2017), Hebrew University.
- Vice rector (2013 – 2017), Hebrew University.
- Full professor (2013), Hebrew University.
- Associate professor (2008), Hebrew University.
- Visiting fellow (Fall 2009; Fall 2012; Fall 2016), University of Canterbury, New Zealand.
- Chairperson of Cognitive Science (2001-2004, 2005-2009), Hebrew University.
- Visiting fellow (Fall 2004), University of Pittsburgh.
- Senior lecturer (with tenure, 2003), Hebrew University.
- Lecturer, (1998), Hebrew University.
- Post-doctoral period (1995-1998), Hebrew University.

Research grants

- German-Israeli Foundation for Scientific Research and Development (2015-2018; GIF Research Grant No. G-1257-116.4/2014): *Causation and Computation in Cognitive Neuroscience* (with Jens Harbecke and Vera Hoffmann-Kolss), EURO €180,000.
- Israel Science Foundation (2011-2015; grant 1509/11): *Computation, Cognition, and the Brain: Philosophical Perspectives on Computational Neuroscience*, \$110,000.
- Israel Science Foundation (2008-2011, grant 725/08): *The Brain as A Computer*, \$60,000.

- Israel Science Foundation (2003-2007, grant 857/03): *Varieties of Computation*, \$90,000.
- Israel Science Foundation (1999-2002, grant 786/99): *Logic, Computation and Cognition*, \$24,500.

Research groups, fellowships and awards (post-graduate)

- Erskine visiting fellowship, University of Canterbury (Fall 2011; Fall 2016).
- A grant from Israel Science Foundation (2016-2017; grant 2355/16) for a research workshop on *Information in the Sciences: Physics, Biology, and the Cognitive Sciences* (\$12,500).
- Member of *Computability: Historical, Logical, and Philosophical Foundations* group, The Israeli Institute of Advances Studies, Hebrew University (Fall 2015).
- A grant from Israel Science Foundation (2011-2012, grant 1821/11) for a research workshop on *Philosophy and the Brain* (with Eli Dresner), \$25,000.
- Head (with Eli Dresner) of the *Computation and the Brain* group (including: William Bechtel, Frances Egan, Hilla Jacobson, Arnon Levy, Robert Matthews, and Gualtiero Piccinini), The Israeli Institute of Advances Studies, Hebrew University (Spring 2011).
- A grant from Yad Hanadiv Fund for Humanities (\$260,000) for the Center in Language, Logic, and Cognition at the Hebrew University (with Edit Doron, Carl Posy, and Malka Rapaport-Hovav; 2010-2012).
- The Rector's prize for excellence in research and teaching, Hebrew University (2009).
- Member of the France-Israel Laboratory of Neuroscience group (LEA) (2009-2011).
- A grant from Israel Science Foundation (2006-2007, grant 1465/06) for a research workshop on *The Origins and Nature of Computation*, \$9,000.
- Visiting fellowship, Center for Philosophy of Science, University of Pittsburgh (Fall 2004).
- Member of the *Logic and Language* group (with Carl Posy (chair), Gilead Barelli, Meir Buzaglo, Edit Doron, and Daniel Lehman); sponsored (\$40,000) by Ring Foundation, Hebrew University (2000-2002).
- Postdoctoral fellowship, Edelstein Center for History and Philosophy of Science, Hebrew University (1996-1998).
- Golda Meir postdoctoral fellowship, Hebrew University (1995-1996).

Publications

Edited volumes

- Jack Copeland, Carl Posy and Oron Shagrir (eds.), *Computability: Turing, Gödel, Church, and Beyond*. MIT Press (2013; paperback edition 2015).
- Jack Copeland, Carl Posy, Oron Shagrir and Parker Bright (eds.) Special volume on the History of Modern Computing. *The Rutherford Journal of History and Philosophy of Science and Technology*, 3 (2010): <http://www.rutherfordjournal.org/>

Articles

- Jack Copeland and Oron Shagrir. The Church–Turing Thesis—Logical Limit or Breachable Barrier? *Communications of the ACM* (forthcoming 2018).
- Lotem Elber-Dorozko and Oron Shagrir. Levels in Computational Explanations. In *Routledge Handbook of the Computational Mind*, (eds. Matteo Colombo and Mark Sprevak). Routledge (forthcoming 2018).
- Jack Copeland, Oron Shagrir and Mark Sprevak. Zuse's Thesis, Gandy's Thesis, and Penrose's Thesis. In *Computational Perspectives on Physics, Physical Perspectives on Computation* (eds. Michael Cuffaro and Sam Fletcher). Cambridge University Press (forthcoming 2018).
- Oron Shagrir. The Brain as an Input-Output Model of the World. *Minds and Machines* (2018) 28: 53–75
- Oron Shagrir and William Bechtel. Marr's Computational-Level Theories and Delineating Phenomena. In *Integrating Psychology and Neuroscience: Prospects and Problems* (ed. David Kaplan). Oxford University Press (2017): 190-214.
- Oron Shagrir. Review Essay on *Physical Computation: A Mechanistic Account*, by Gualtiero Piccinini (Oxford University Press), *Philosophy of Science* 84 (2017): 604-612.
- Jack Copeland, Mark Sprevak and Oron Shagrir. Is the Universe Computational? In *The Turing Guide* (eds. Jonathan Bowen, Jack Copeland, Mark Sprevak and Robin Wilsons). Oxford University Press (2017): 445-462.
- Oron Shagrir. Advertisement for the Philosophy of the Computational Sciences. In *The Oxford Handbook of Philosophy of Science* (ed. Paul Humphreys). Oxford University Press (2016): 15-42.
- Jack Copeland, Eli Dresner, Diane Proudfoot and Oron Shagrir. Time to Re-inspect the Foundations? *Communications of the ACM*, 59 (2016): 34-36.
- William Bechtel and Oron Shagrir. The Non-Redundant Contributions of Marr's Three Levels of Analysis for Explaining Information Processing Mechanisms. *Topics in Cognitive Science (TopiCS)*, 7 (2015): 312-322.
- Gualtiero Piccinini and Oron Shagrir. Foundations of Computational Neuroscience. *Current Opinion in Neurobiology*, 25 (2014): 25-30.
- Oron Shagrir. Putnam and Computational Functionalism. In *Key Thinkers in Philosophy of Mind* (ed. Andrew Bailey), Continuum Press (2014): 147-168.
- Oron Shagrir. Review of Marcin Milkowski, *Explaining the Computational Mind* (MIT Press). *Notre Dame Philosophical Reviews* (January, 2014).
- Oron Shagrir. Concepts of Supervenience Revisited. *Erkenntnis*, 78 (2013): 469-485.
- Turing versus Gödel on Computability and the Mind (with Jack Copeland). In *Computability: Turing, Gödel, Church, and Beyond*. MIT Press (2013): 1-33.
- Jack Copeland, Carl Posy and Oron Shagrir. The Revolutions of the 1930s (An introduction to *Computability: Turing, Gödel, Church, and Beyond*). MIT Press (2013): vii-x.
- Oron Shagrir and Vera Hoffmann-Kolss. Supervenience (2013). In Byron Kaldis (ed.), *Encyclopedia of Philosophy and the Social Sciences*. (Vol. 18). Thousand Oaks, CA: SAGE Publications: 970-975.
- Oron Shagrir. Can a Brain Possess Two Minds? *Journal of Cognitive Science*, 13 (2012): 145-165.

- Oron Shagrir. Computation, Implementation, Cognition. *Minds and Machines*, 22 (2012): 137–148.
- Oron Shagrir. Structural Representations and the Brain. *The British Journal for the Philosophy of Science*, 63 (2012): 519-545.
- Oron Shagrir. Supertasks Do Not Increase Computational Power. *Natural Computing*, 11 (2012): 51-58.
- Oron Shagrir. The Imitation Game. *Odyssey: A special issue on Alan Turing* 14 (2012): 18-21 (in Hebrew).
- Oron Shagrir. Supervenience and Anomalism are Compatible. *Dialectica*, 65 (2011): 241-266.
- Jack Copeland and Oron Shagrir. Do Accelerating Turing Machines Compute the Uncomputable? *Minds and Machines*, 21 (2011): 221-239.
- Oron Shagrir. Towards a Modeling View of Computing. In *Information and Computation: Essays on Scientific and Philosophical Understanding of Foundations of Information and Computation* (eds. Gordana Dodig-Crnkovic and Mark Burgin), World Scientific Publishing (2011): 381-391.
- Oron Shagrir. Computation, San Diego Style. *Philosophy of Science*, 77 (2010): 862-874.
- Oron Shagrir. Brains as Analog-Model Computers. *Studies in the History and Philosophy of Science*, 41 (2010): 271–279.
- Oron Shagrir. Marr on Computational-Level Theories. *Philosophy of Science*, 77 (2010): 477-500.
- Oron Shagrir. Davidson's Notion of Supervenience. In *Hues of Philosophy – Essays in Memory of Ruth Manor* (ed. Anat Biletzki), London: College Publications, (2010): 43-58.
- Oron Shagrir. Strong Global Supervenience is Valuable. *Erkenntnis*, 71 (2009): 417-423.
- Oron Shagrir. Anomalism and Supervenience: A Critical Survey. *Canadian Journal of Philosophy*, 39 (2009): 237-272.
- Oron Shagrir. Kripke's Infinity Argument. *Iyyun* 57 (2008): 3–24. Reprinted in *Naming, Necessity and More* (ed. Jonathan Berg), Palgrave Macmillan (2015): 169-190.
- Oron Shagrir. Davidson on Supervenience. In *Reduction and Elimination in Philosophy and the Sciences* (Papers of the 31st International Wittgenstein Symposium, eds. Alexander Hieke and Hannes Leitgeb), Austrian Ludwig Wittgenstein Society (2008): 318-320.
- Jack Copeland and Oron Shagrir. Physical Computation: How General are Gandy's Principles for Mechanisms? *Minds and Machines*, 17 (2007): 217-231.
- Oron Shagrir. Why We View the Brain as a Computer. *Synthese*, 153 (2006): 393-416.
- Gödel on Turing on Computability. In *Church's Thesis after 70 years* (eds. Adam Olszewski, Jan Wolenski and Robert Janusz), Ontos-Verlag (2006): 393-419.
- Oron Shagrir. The Rise and Fall of Computational Functionalism. In *Contemporary Philosophy in Focus: Hilary Putnam* (ed. Yemima Ben Menahem), Cambridge University Press, (2005): 220-250.

- Oron Shagrir. Accelerating Turing Machines. In *Time and History* (Papers of the 28th International Wittgenstein Symposium, eds. Friedrich Stadler and Michael Stöltzner), Austrian Ludwig Wittgenstein Society, (2005): 276-278.
- Oron Shagrir. Super-Tasks, Accelerating Turing Machines and Uncomputability. *Theoretical Computer Science*, 317 (2004): 105-114.
- Oron Shagrir and Itamar Pitowsky. Physical Hypercomputation and the Church–Turing Thesis. *Minds and Machines*, 13 (2003): 87-101.
- Oron Shagrir. Global Supervenience, Coincident Entities and Anti-Individualism. *Philosophical Studies*, 109 (2002): 171-195.
- Oron Shagrir. Effective Computation by Humans and Machines. *Minds and Machines*, 12 (2002): 221-240.
- Oron Shagrir. Content, Computation and Externalism. *Mind*, 110 (2001): 369-400.
- Oron Shagrir. Productivity and the Classical–Connectionist Debate. *Conceptus-Studien*, 14 (2000): 37-50.
- Oron Shagrir. What is Computer Science About? *Monist*, 82 (1999): 131-149.
- More on Global Supervenience. *Philosophy and Phenomenological Research*, 59 (1999): 691-701.
- Oron Shagrir. Multiple Realization, Computation and the Taxonomy of Psychological States. *Synthese*, 114 (1998): 445-461.
- Oron Shagrir. Two Dogmas of Computationalism. *Minds and Machines*, 7 (1997): 321-344.
- Oron Shagrir. Review of *On the Origin of Objects*, by Brian Cantwell Smith (MIT Press). *Trends in Cognitive Sciences*, 1 (1997): 239.
- Oron Shagrir. Review essay on *Readings in Philosophy and Cognitive Science*, by Alvin Goldman (editor) (MIT Press). *Pragmatics and Cognition*, 3 (1995): 377-385.
- Oron Shagrir. A Neural Net with Self-Inhibiting Units for the N-Queens Problem. *International Journal of Neural Systems*, 3 (1992): 249-252.
- Bruce Glymour, Rick Grush, Valerie Gray Hardcastle, Brian Keeley, Joe Ramsey, Oron Shagrir and Ellen Watson. The Cartesian Theater Stance; (Commentary on Dennett and Kinsbourne). *Behavioral and Brain Sciences*, 15 (1992): 209-210.
- Oron Shagrir. Classical vs. PDP Models in Describing the Tic-Tac-Toe Game (in Hebrew). *Iyyun*, 38 (1989): 265-286.

Work in progress

- Lotem Elber-Dorozko and Oron Shagrir. Computation and the Mechanistic Hierarchy (to be published in a special issue of *Synthese*).
- Oron Shagrir. In a Defense of the Semantic View of Computation (revise and resubmit in *Synthese*).
- Jens Harbecke and Oron Shagrir. The Role of the Contextual Level in Computational Explanations (submitted).
- Jack Copeland and Oron Shagrir. Physical Computability Theses. In a volume for Itamar Pitowsky (eds. Meir Hemmo and Orly Shenker). Springer.
- Oron Shagrir. Justifying the Church-Turing thesis.

- Jack Copeland, Gualtiero Piccinini, Diane Proudfoot and Oron Shagrir. *Philosophy of Computing*. A free-access web-designed textbook based on our published work. *The Turing Archive* for the History of Computing.
- Oron Shagrir. *Computation and the Brain* (book manuscript).
- Jack Copeland and Oron Shagrir. *A Very Short Introduction to Computability* (book manuscript). Oxford University Press.

Conferences and workshops

- Physical Computability Theses (with Jack Copeland), keynote lecture, *Workshop on Physics and Computation* (a satellite event of the conference on Unconventional Computing Natural Computation (UCNC2018)), Fontainebleau, June 2018.
- Physical Computability Theses (with Jack Copeland), *International Association for Computing and Philosophy (IACAP)*, Warsaw, June 2018.
- Computation and the Mechanistic Hierarchy (with Lotem Elber), *Explanation and Reduction in the Sciences (The Third Jerusalem-MCMP Workshop in the Philosophy of Science)*, Jerusalem, February 2018.
- The Role of the Contextual Level in Computational Explanations (with Jens Harbecke), *Causation and Computation in Cognitive Neuroscience*, Jerusalem, December 2017.
- Computation and the Mechanistic Hierarchy (with Lotem Elber), *17th Meeting of the European Philosophy of Science Association (EPSA17)*, Exeter, September 2017.
- Computation and the Mechanistic Hierarchy (with Lotem Elber), *International Association for Computing and Philosophy (IACAP)*, Stanford University, June 2017.
- In Defense of a Semantic View of Computation (invited), *The 8th Quadrennial Fellows Conference* (Pittsburgh Center for Philosophy of Science), Lund, July 2016.
- In Defense of a Semantic View of Computation (invited), *International Association for Computing and Philosophy (IACAP)*, Ferrara, June 2016.
- No Computation without Representation (invited), *International Association for Computing and Philosophy (IACAP)*, Ferrara, June 2016.
- No Computation without Representation (invited), *Information in the Sciences: physics, biology, and the cognitive sciences*, Jerusalem and Tel-Aviv, May 2016.
- Computations, Mechanisms, and the Role of the Environment (invited), *15th Meeting of the European Philosophy of Science Association (EPSA15)*, Düsseldorf, September 2015.
- The Church-Turing Theses (invited), *15th Congress on Logic, Methodology, and Philosophy of Science (CLMPS)*, Helsinki, August 2015.
- The Brain as a Model of the World (invited), *The Aims of Brain Research: Scientific and Philosophical Perspectives (The 28th Annual International Workshop on the History and Philosophy of Science)*, Jerusalem, December 2014.

- The Brain as a Model of the World (invited), *Conference of the International Association for Computing and Philosophy (IACAP 14)*, Thessaloniki, July 2014.
- The Brain as a Model of the World (refereed), *The 7th AISB Symposium on Computing and Philosophy: Is computation observer-relative? (AISB 2014)*, London, April 2014.
- Commentary on Meir Hemmo and Orly Shenker, *Meeting of the Israeli Society for Philosophy*, Tel Aviv, February 2014.
- On the Role of the Environment in Computational Analysis of Cognition (invited), *Inter-Level Relations in Cognitive Neuroscience*, Cologne, September 2013.
- Isomorphism and Mental Representation (invited lecture), *Logic, Mind, Language*, Jerusalem, May 2013.
- Marr's Computational-Level Theories and Delineating Phenomena (invited), *Between Biology and Physics: Reduction, Emergence and Complexity*, Jerusalem, December 2012.
- It's Not All about Mechanisms (invited), *Supervenience, Mechanistic Constitution, and Proportionality*, Witten, Germany, July 2012.
- Who is the Human Computer? (refereed), *Turing Centenary Conference: CiE 2012 - How the World Computes*, Cambridge, June 2012.
- Turing's analysis of Computation (invited), *Philosophy and Computation*, Lund, Sweden, May 2012.
- Modeling the Brain that is a Model of the World (invited), *Explanatory Styles in the Life Sciences* (international conference), Jerusalem, March 2012.
- The Brain as a Model of the World (refereed), *Psycho-Ontology* (international conference), Jerusalem, December 2011.
- AI through Supertasks (invited), *Philosophy and Theory of Artificial Intelligence (PT-AI 2011)*, Thessaloniki, October 2011.
- Structural Representation and the Brain (refereed), *Seventh European Congress for Analytic Philosophy (ECAP-7)*, Milan, September 2011.
- Who is the "Human Computer" in Turing's Analysis of Computability? (invited), *Church's Thesis: Logic, Mind and Nature* (9th Trends in Logic), Cracow, June 2011.
- Computation as Simulation-Representation (invited), *Philosophy and the Brain: Computation, Realization, Representation* (international workshop), Jerusalem, May 2011.
- Supervenience and the Irrelevant Properties Problem (invited), *Meeting of the Israeli Society for Philosophy*, Jerusalem, February 2011.
- The Brain as a Model of the World (with Etye Steinberg; poster), *European Society for Philosophy and Psychology*, Bochum, August 2010.
- Representations and Simulations in the Brain (refereed), *Models and Simulations 4*, Toronto, May 2010.
- Accelerating Turing Machines Don't Compute the Uncomputable (invited), *Workshop on Physics and Computation* (a satellite event of the conference on Unconventional Computing), Ponta Delgada (Azores, Portugal), September 2009.
- On the Relations between Effective, Hyper, and Physical Computation (invited), *Computability in Europe meeting (CiE2009)* (special session in the

Philosophical and Mathematical Aspects of Hypercomputation), Heidelberg, July 2009.

- Computing as Modeling (invited), *Workshop on Nature, Mind and Computation*, Ecole Normale Supérieure (Institut Jean-Nicod and Institut des Systèmes Complexes), Paris, May 2009.
- Computation, San Diego Style (refereed symposium), *Philosophy of Science Association*, Pittsburgh, November 2008.
- Davidson on Supervenience (refereed), *The 31st International Wittgenstein Symposium*, Kirchberg am Wechsel, Austria, August 2008.
- Brains as Analog-Model Computers (invited), *Computation in Cognitive Science*, University of Cambridge, July 2008.
- Why We View the Brain as Computer (invited), *Modeling, Simulation and Computational Science: Perspectives from Different Sciences*, University of Helsinki, November 2007.
- Marr's Computational Theories Revisited (refereed symposium), *International Society for the History, Philosophy and Social Studies of Biology Meeting*, University of Exeter, July 2007.
- Gödel and Turing on Computability (invited), *Shades of Philosophy* (international workshop in memory of Ruth Manor), Tel Aviv, November 2006.
- Gödel on Turing on Computability (refereed), *ECAP-06 Trondheim*, June 2006.
- Gödel on Turing on Computability (invited), *The Origins and Nature of Computation*, Tel Aviv and Jerusalem, June 2006.
- On the Computational Power of Accelerating Turing machines (invited), *Meeting of the American Philosophical Association*, New York, December 2005.
- Gödel vs. Turing on Computability (refereed) *Fifth European Congress for Analytic Philosophy*, Lisbon University, August 2005.
- Accelerating Turing Machines (refereed), *The 28th International Wittgenstein Symposium*, Kirchberg am Wechsel, Austria, August 2005.
- The Church-Turing Theses (invited), *Computational Modeling and Explanation in Neuroscience*, Washington University, St. Louis, November 2004.
- Anomalism and Supervenience (refereed), *Society for Philosophy & Psychology & European Society for Philosophy & Psychology*, Barcelona, July 2004.
- Paradoxes of Computation (invited), *Meeting of the Israeli Society for Philosophy*, Hebrew University, February 2004.
- Anomalism and Supervenience (invited), *Reflections on Davidson* (international conference), Jerusalem and Ben Gurion University, February 2004.
- Philosophy, Cognition, and Mathematics Education (invited), *A Workshop on Mathematics Education*, The Van Leer Jerusalem Institute, December 2003.
- Computation in Pitowsky and Malament-Hogarth Spacetimes (invited), *Meeting of the American Mathematical Society*, San Francisco, May 2003.
- Does the Game of Chess Provide A Good Benchmark for Intelligence? (invited), *Man versus Machine: the Experiment* (international workshop). University of Haifa, October 2002.

- The Limits of Supervenience (refereed), *Fourth European Congress for Analytic Philosophy*, Lund University, Sweden, June 2002.
- Computation by Humans and Machines (invited), *Meeting of the Israeli Society for Philosophy*, Bar-Ilan University, February 2002.
- The Church-Turing Thesis and Physical Hypercomputation (invited), *Hypercomputation Workshop*, University College, London, May 2000.
- Are Mental Properties Epiphenomenal? (invited), *Meeting of the Israeli Society for Philosophy*, Ben-Gurion University, April 2000.
- Kripke's Infinity Argument (invited), *Naming, Necessity and More* (international conference on the Work of Saul Kripke), University of Haifa, June 1999.
- Productivity and the Program/Memory Distinction (refereed), *New Trends in Cognitive Science*, University of Vienna, May 1999.
- Toward a Semantic Conception of Computation (poster), *Society for Philosophy and Psychology*, New School, New York, June 1997.

Professional academic services

- **Reviewer**
- **Journals:** *British Journal for the Philosophy of Science, Bulletin of Symbolic Logic, Cognitive Science, Cognitive Processes, Communications of the ACM, Complexity, Entropy, Ergo, Erkenntnis, European Journal of Analytic Philosophy, European Journal of Philosophy of Science, Inquiry, Iyyun, Journal of Applied Logic, Journal of Biological Physics, Journal of Cognitive Science, Journal of Philosophical Logic, Journal of Philosophy, Journal of Symbolic Logic, Mind, Minds and Machines, Monist, Notre Dame Journal of Formal Logic, Noûs, Oxford Bibliographies Online, Philosophers' Imprint, Philosophia, Philosophia Mathematica, Philosophical Quarterly, Philosophical Psychology, Philosophical Studies, Philosophy and Phenomenological Research, Philosophy of Science, Pragmatics and Cognition, Science in Context, Studies in the History and Philosophy of Modern Physics, Studies in the History and Philosophy of Science, Synthese, Trends in Cognitive Sciences.*
- **Publishers:** *Bloomsbury Publishing, MIT Press, Oxford University Press, Yale University Press.*
- **Grants:** German Israel Foundation (GIF), Israel Science Foundation (ISF), National Science Foundation, US (NSF), Social Sciences and Humanities Research Council of Canada (SSHRC), European Institutes for Advanced Study Fellowship Programme (EURIAS).
- **Conferences:** 5th European conference on Computing and Philosophy (2007), 7th International conference on Unconventional Computation (2008), 5th meeting of the Southern Society of Philosophy and Psychology (2009), Philosophy and Computation Workshop (2012), Society for Philosophy and Psychology (2013).
- **Programme Committees:** Philosophy & Theory of Artificial Intelligence (PT-AI 2011) Thessaloniki, October 2011; (PT-AI 2013) Oxford, September 2013; (PT-AI 2017) Leeds, November 2017; Computing & Philosophy Symposium (AISB Conference), Exeter, UK, April 2013; International

Association for Computing and Philosophy (IACAP 14), Thessaloniki, Greece, July 2014; The 6th International Workshop on Physics and Computation (PC 2015), Auckland, New Zealand, September 2015; EUCOG2015, Barcelona, September 2015; The 7th International Workshop on Physics and Computation (PC2016), Manchester, July 2016; The 17th International conference on Unconventional Computation and Natural Computation (UCNC2018); Fontainebleau, France, June 2018.

- **Editorial Board:** *The Rutherford Journal of History and Philosophy of Science and Technology* (2011 – present), *Studies in Brain and Mind* – Springer book series (2011 – present), *Jerusalem studies in the history and philosophy of science* –Springer book series (2017 – present).
- **Conference organization:** (1) *Aging in the 2000's*, May 24, 2000 (with Howie Litwin; part of the 75th anniversary events for the Hebrew University); (2) *The Origins and Nature of Computation*, Tel Aviv and Jerusalem, June 12-15, 2006 (with Jack Copeland and Carl Posy); (3) *Philosophy and the Brain: Computation, Realization, Representation*, Institute of Advanced Studies, Jerusalem, May 16-19, 2011 (with Eli Dresner); (4) *Phenomenology and Cognitive Science*, Jerusalem, January 3-4, 2013 (with Michael Roubach and Alexandra Zinck); (5) *Computation and the Brain*, Institute of Advanced Studies, Jerusalem, May 19-23, 2013 (with Eli Dresner); (6) *Logic, Mind, Language* (A joint workshop of the Hebrew University and the University of North Carolina, Chappell Hill) Jerusalem, May 30-31, 2013; (7) *Inter-Level Relations in Cognitive Neuroscience*, Cologne, September 9-11, 2013 (with Jens Harbecke and Vera Hoffmann-Kloss). (8) *Information in the Sciences: Physics, Biology, and the Cognitive Sciences* (with Nir Fresco and Orly Shenker), Jerusalem and Tel-Aviv, May 30-June 2, 2016. (9) *Causation and Computation in Cognitive Neuroscience*, Jerusalem, December 17-19, 2017 (with Jens Harbecke and Vera Hoffmann-Kloss).
- Head of Philosophy committee, Israel Science Foundation (2011-2012).
- Academic advisor for the courses in the Open University (Israel): *Introduction to Logic, Contemporary Philosophy of Mind, Foundations of Cognitive Science, Philosophy of Science, Philosophy of Psychology and Cognitive Science, Computation and Cognition, Metaphysics and Epistemology*,

Administrative academic services (at the Hebrew University)

- Vice president for global affairs (November 2017 – present)
- Acting rector (Fall 2017).
- Vice rector (2013 – 2017), in charge of the university budgetary model, the international office, and quality assessment.
- Chairperson of Cognitive Science Program (2001-2004, 2005-2009); Founding the Cognitive Science Program (1998-2001); Coordinator of Cognitive Studies (1997-2001).
- Member of the search committee for the Dean of Humanities (2009-2010).
- Member of the disciplinary committee ("vaadat sinun") in Philosophy and

Cognition, Humanities (2005-2006, 2008-2009, 2010-2011, 2014-2015; chair 2012 – 2013).

- Member of the hiring committee ("development committee") of Humanities (2003-2004, 2007-2008).
- Member of the senate (1999-2001; 2010-2011; 2013-present).
- Academic committees, boards, etc.: *Authority of Community and Youth* (2008 – 2010), *Authority for Research Students* (2010 – 2013), *Center of Language, Logic, and Cognition* (2010 – present), *Cognitive Science Program* (1998 – present; chair 2012 – 2013), *Cosell Center for Physical Education, Leisure and Health Promotion* (2007 – 2013), *Edelstein Center for History and Philosophy of Science* (2004 – present; chair 2013 – present), *Interdisciplinary Center for Neural Computation* (2004 – 2011), *Magnes Press* (2011 – 2013), *Polonsky Prize in the Humanities* (2008, 2010), *President Fellowships Program in Humanities* (2007 – 2011), *Research Institute for Innovation in Education* (2005 – 2013; chair 2012 – 2013).

Teaching

- Lecturer, Hebrew University (1998-present).
- Visiting lecturer, University of Canterbury (2012; 2016).
- Adjunct lecturer, UCSD (1994-1995), Hebrew University (1996-1998), and Tel Aviv University (1996-1998).
- Teaching assistant (1990-1994), UCSD.

Teaching awards

- List of outstanding teachers, Hebrew University (1996-1997, 1997-1998, 2004-2005; 2010-2011).

Courses (as a lecturer)

- Graduate seminars: Consciousness and Intentionality; Mind and Body; Interpretation, Causation and Anomalism; Mental Causation; Externalism and Self-Knowledge; Advanced Topics in Philosophy of Psychology: Functionalism; Topics in the History and Philosophy of Computing; Advanced Topics in Philosophy of Psychology: Mindreading; Advanced Topics in Metaphysics; Mental Representations; Between Psychology and Neuroscience.
- Advanced undergraduate courses: Philosophical themes in Cognitive Science: Minds and Machines; Computability and Logic; Advanced Logic: Metatheory; Philosophical Psychology; Mind and Body; Philosophy of Computer Science; Metaphysics and Epistemology.
- Introductory courses (undergraduate): Introduction to Logic; The Philosophical Foundations of Cognitive Science; Logic and Decision Making; Computers, Minds, Logic.

Non-academic

- High School of Arts, Jerusalem: Math teacher (1985-1989), Home school teacher (1988-1989), Vice manager (Fall 1989).
- Israeli Navy (mandatory service): Instructor (1980-1982).

Students

Post-docs

- Nir Fresco (2015-16), currently a Kreitman post-doc fellow in Ben-Gurion University.
- Alexandra Zinck (2011-13), currently a medical doctor in Germany.
- Jens Harbecke (2011), currently a professor at Witten/Herdecke University (Germany).

Ph.D

- Jonathan Najenson (co-advisor: Arnon Levy; in progress).
- Ori Hacoen, Mental representations: A pragmatic account (in progress).
- Gil Sagi (co-advisor: Stewart Shapiro, Ohio State and St. Andrews), Logical consequence: Between natural and formal language (2013), currently a lecturer (tenure-track) at Haifa University.
- Jonathan Yaari, Interactive confirmation: A theory of confirmation based on interactive proof (2012).

M.A

- Shahar Hechtlinger, Mechanistic and computational levels in cognitive neuroscience (in progress).
- Assif Ziv (co-advisor: James A. Reggia, university of Maryland, College Park), Modeling the subjective perception of time (2016).
- Doron Yashpe, The Effect of the discovery of the necessary a posteriori on the debate about modality (2016).
- Lotem Elber, Two frameworks for mechanistic explanations in cognitive sciences: Why mechanistic explanations are not causal explanations but functional analyses (2015).
- Ori Hacoen, Modelling concepts (2015).
- Yair Lakretz, State-space semantics (2011).
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