

Dr. Avner Wallach

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Personal Data

Name Avner Wallach
Date of Birth June 15, 1976
Birthplace Jerusalem, Israel
Citizenship Israeli

Work Experience

10/2005-10/2010	Department of Electrical Engineering, Technion Teaching assistant	Haifa, Israel
08/2002-10/2004	Freescale Semiconductor Israel VLSI Design and Verification Engineer	Herzelya, Israel
07/1994-08/1997	Military Service	Israel

Post Doctoral Training

05/2017-present	Zuckerman Mind Brain Behavior Institute, Columbia University Post-Doctoral Research Scientist	New-York, USA
09/2014-05/2017	Faculties of Health Sciences and Sciences, University of Ottawa Post-Doctoral Fellow	Ottawa, Canada
09/2011-08/2014	Department of Neurobiology, Weizmann Institute of Science Post-Doctoral Fellow	Rehovot, Israel

Education

08/2008-03/2012	Faculty of Electrical Engineering, Technion- Israel Institute of Technology. Ph.D., March 2012 Dissertation Title: <i>'The response clamp: a control based approach for the study of neural systems; method and applications'</i> , under the supervision of Prof. Shimon Marom and Prof. Ron Meir	Haifa, Israel
10/2005-07/2008	Faculty of Electrical Engineering, Technion- Israel Institute of Technology M.Sc. (as part of a direct track Ph.D.)	Haifa, Israel
10/1999-10/2003	Electrical and Computer Engineering, Ben-Gurion University B.Sc., <i>summa cum laude</i>	Be'er-Sheva, Israel

Honors

Prizes, Awards and Fellowships

2016	Young Investigator Award International Society for Neuroethology
2011-2013	Dean of Faculty Post-Doctoral Fellowship Feinberg Graduate School, Weizmann Institute of Science
2007	Miriam and Aaron Gutwirth Memorial Fellowship Technion, Israel Institute of Technology
2007	Excellence in Teaching Award for outstanding teaching assistants Technion, Israel Institute of Technology
2006	Diane and Leonard Sherman Interdisciplinary Graduate School Fellowship Technion, Israel Institute of Technology
2003	Wolf Foundation Scholarship for Undergraduate Students Ben-Gurion University
2000-2002	Dean's Award, Faculty of Engineering Ben-Gurion University
1999-2003	Suzan Zlotowski Tuition Scholarship Ben-Gurion University

Invited talks

2016	12th Congress of Neuroethology Young Investigator Awards Symposium Montevideo, Uruguay
2014	9th FENS Forum of Neuroscience Milan Italy
2014	Barrels Conference Goettingen, Germany
2011	FISEB-ILANIT Congress Eilat, Israel

Professional Organizations, Societies and Service

2016-present	International Society for Neuroethology Post-doctoral member
2008-2010	Teaching Staff Organization council Faculty Representative
Ad-hoc reviewer:	Journal of Neurophysiology, Scholarpedia, Brain Research

Teaching Experience

- 3/2012-7/2013 **Weizmann Institute of Science**
Lecturer. Course taught: 'Fundamentals of Signal Processing for Neuroscientists' (40 students). Courses contributed to: 'Workshop on Data Analysis for Neuroscience' (40 students), 'Behavioral Neuroscience' (40 students).
- 3/2007-10/2010 **Technion, Israel Institute of Technology**
Lecturer. Courses taught: 'Signals and Systems' (200 students) and 'Introduction to Biological Signals and Systems' (60 students)
- 10/2005-2/2007 **Technion, Israel Institute of Technology**
Teaching Assistant. 'Signals and Systems', 'Biological Neural Networks', 'Laboratory in VLSI'.

Publications

Peer reviewed articles

- ***Wallach A**, Bagdasarian K and Ehissar E, *On-going computation of whisking phase by mechanoreceptors*. **Nature Neuroscience**, March 2016, Volume 19, Issue 3, p.487-493.
- ***Wallach A.** and Marom S, *Interactions Between Network Synchrony and the Dynamics of Neuronal Threshold*. **Journal of Neurophysiology**, March 2012, 107:2926-2936.
- Vardi R, **Wallach A**, Kopelowitz E, Abeles M, Marom S and Kanter I, *Synthetic reverberating activity patterns embedded in networks of cortical neurons*. **Europhysics Letters**, 97 (2012) 66002.
- ***Marom S.** and **Wallach A**, *Relational dynamics in perception: impacts on trial-to-trial variation*. **Frontiers in Computational Neuroscience**, April 2011, Volume 5, Article 16.
- ***Wallach A**, Eytan D, Gal A, Zrenner C, & Marom S, *Neuronal response clamp*. **Frontiers in Neuroengineering**, April 2011, Volume 4, Article 3.
- Gal A, Eytan D, **Wallach A**, Sandler M, Schiller J and Marom S, *Dynamics of excitability over extended timescales in cultured cortical neurons*, **Journal of Neuroscience**, December 2010, Volume 30, Issue 48, p.16332–16342.
- Zrenner C, Eytan D, **Wallach A**, Thier HP and Marom S, *A generic framework for real-time multi-channel neuronal signal analysis, telemetry control and sub-millisecond latency feedback generation*, **Frontiers in Neuroscience**, October 2010, Volume 4, Article 173.
- ***Wallach A**, Eytan D, Marom S and Meir R, *Selective adaptation in networks of heterogeneous populations: model, simulation and experiment*, **PLoS Computational Biology**, February 2008, Volume 4, Issue 2, e29 (16 pages).

Book chapters

- **Wallach A**, Marom S and Ehissar E, *Closing Dewey's Circuit*, in A. El Hady (Ed.), *Closed Loop Neuroscience* (in press). Amsterdam, Netherlands: Elsevier.

Reviews

- ***Wallach A**, Ebara S and Ahissar E, *What Do Sensory Organs Tell the Brain?*, **Neuron**, May 2017, Volume 94, Issue 3, p. 423-425
- ***Wallach A**, *The Response Clamp: Functional characterization of neural systems using closed-loop control*. **Frontiers in Neural Circuits**, January 2013, Volume 7, Article 5.

Conference abstracts

- ***Wallach A** and Maler L, *Representation of electrolocation related stimuli in the thalamus analog of weakly electric fish*, 12th International Congress of Neuroethology 2016.
- ***Wallach A**, Bagdasarian K and Ahissar E, *Early representations of whisker self-motion revealed using closed-loop control in anesthetized rats*, COSYNE 2014 and Barrels 2014.
- ***Wallach A**, Gal A and Marom S, *Interpreting response fluctuations in neurons, networks and behavior*. 10th International Congress of Neuroethology, 2012.
- Reinartz S, **Wallach A**, Gehring E and Marom S, *In vitro method for a stable activation of a single neuron by synaptic envelope stimulation*, Bernstein Conference 2011.
- ***Wallach A**, Eytan D, Marom S and Meir R, *A generic model for selective adaptation in networks of heterogeneous populations*, CNS2007 and the 5th Bernstein Symposium.