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Gal Haspel Ph.D.

Education

Ph.D. **Neuroscience** 1997–2003
Ben-Gurion University of the Negev, Be'er-Sheva, Israel.
Title: Biochemistry and Physiological Action of *Ampulex Compressa* Venom on Cockroach Prey. Advisor: Dr Frederic Libersat.

B.Sc. **Life Sciences (with high honors)** 1993–1996
Ben-Gurion University of the Negev Be'er-Sheva, Israel.
Major: Cell and Animal Physiology. Class Rank: First.

Research and Academic Experience:

I study the neuroethology of locomotion. My graduate research focused on the behavior-altering sting of a parasitoid wasp and its effect on her cockroach prey. As a Grass Fellow and postdoctoral fellow, I acquired skills, developed methods and approaches to study the locomotion circuit of the nematode *C. elegans*. This model animal provides a small nervous system that drives a relatively simple undulatory behavior, as well as established transgenic and microscopy methods. I developed a research program that has two explicit goals: to nurture lab members and improve as scientists; and to discover principles that underlie animal locomotion by studying locomotion in the nematode *C. elegans*.

Academic positions

Research Professor 2023-current
Department of Biological Sciences, New Jersey Institute of Technology, Newark NJ (USA).

Associate Professor 2022-2023
Department of Biomedical Sciences, Mercer University School of Medicine, Columbus GA (USA).

Assistant Professor 2013-2021
Department of Biological Sciences, New Jersey Institute of Technology, Newark NJ (USA).

Intramural Program Research Fellow 2006-2013
Postdoctoral training with Dr Michael J. O'Donovan at the National Institute of Neural Disorder and Stroke, National Institutes of Health, Bethesda MD (USA). Neuroethology of *Caenorhabditis elegans* locomotion to find fundamental rules that underlie motor systems and their neuronal networks.

Associate Director, Grass Fellowship Program (Grass Lab), 2007-2009
Marine Biological Laboratory, Woods Hole, MA

Human Frontier Science Program Research Fellow 2004-2006

Postdoctoral training with Dr Anne C. Hart at Massachusetts General Hospital and Harvard Medical School, Charlestown MA (USA). Opto-physiological methods to study the neuroethology of *C. elegans*.

Grass Foundation Research Fellow. Photoactivation of *C. elegans* neurons. Marine Biological Laboratory, Woods Hole, MA, USA (three months) 2003

Academic experience

Member of the Neuromechanics and Dynamics of Locomotion Research Coordination Network (RCN), funded by the National Science Foundation. 2010-2014

Visiting Researcher at the laboratory of Dr Alan Harvey at Strathclyde Institute for Drug Research, University of Strathclyde, UK (one month) 2002

Visiting Researcher at the laboratory of Dr Bernd Grunewald at the Institut fur Neurobiologie, FU Berlin, Germany, awarded by Deutsche Forschungsgemeinschaft, (two months) 2000

Visiting researcher at the laboratory of Dr Michael E. Adams at the Department of Entomology, University of California Riverside, USA awarded by the Journal of Experimental Biology (three months) 1998

Visiting researcher at the laboratory of Dr Pierre Myrand - CNRS, Universite Bordeaux I, France, awarded by Arc-En-Ciel (the French-Israeli Scientific and Technical Cooperation Program) (two months) 1998

Undergraduate research project in the laboratory of Dr Fred Libersat; Life Sciences Department, Ben-Gurion University, Be'er Sheva, Israel 1996

Awards Fellowship Honors

Grand Prize of the Worm Art Show of the 23rd International *C. elegans* Conference. 2021

Excellence in Teaching Award from the students of Albert Dorman Honors College at New Jersey Institute of Technology 2019

Faculty Seed Grant, New Jersey Institute of Technology 2017

Grass Imaging Award, Marine Biological Laboratory, Woods Hole, MA 2012

Human Frontier Science Program Long-term Fellowship for post-doctoral research of The International Human Frontier Science Program Organization 2004-2006

Grass Fellowship, Marine Biological Laboratory, Woods Hole, MA 2003

Kreitman Fellowship for graduate studies, Ben-Gurion University of the Negev, Beer-Sheva, Israel 1997-2002

Travel award, the Journal of Experimental Biology 1998

Arc-En-Ciel fellowship (the French-Israeli Scientific and Technical Cooperation Program) 1998

Training

Excellence Award, Zlotowski Center for Neuroscience, Ben-Gurion University of the Negev, Beer-Sheva, Israel	1997
Methods in Computational Neuroscience Course, Marine Biological Laboratory at Woods Hole, MA, USA	2011
MATLAB Fundamentals and Programming Techniques and MATLAB for Image Processing (ML01), Mathworks	2007
Neurobiology Course, Marine Biological Laboratory at Woods Hole, MA, USA (with full scholarship)	2001
LabView 6I programming language basic training course, National Instruments	2001
Neural Mechanisms of Animal Behavior. An international summer lab course, Rothberg School for overseas students' program of the Hebrew University	1996
Defense mechanism of marine animals, the Inter-University Institute for Marine Sciences of Eilat, Israel	1996
Amos De Shalit foundation workshop for excellent biology students at the Weizmann Institute of Science, Rehovot, Israel	1995

Publications:

We discover principles that underlie animal locomotion by studying locomotion in the nematode *C. elegans*. We focus on developing and adapting methods (Biron and Haspel, 2015; Haspel and Hart, 2022) to study neuronal connectivity (Yu et al, 2020) and recovery from injury (Harreguy et al, 2020; Harreguy and Haspel, 2021); the role of inhibition (Deng et al, 2021); the contribution of neuronal oscillators (Anwar et al, 2021) and on common molecular mechanism for neuronal injury in *C. elegans* and mice (Antikainen et al 2017, Harreguy et al, 2022). We also published a review and a book chapter on the state of the field (Gjorgjieva et al 2014; Haspel et al 2020), an online encyclopedia chapter about central pattern generators (Bucher et al 2015), and a book chapter that relates *C. elegans* to other model systems for locomotion (Haspel et al 2020) and for the resilience of motor circuits (Haspel et al., 2021).

http://scholar.google.com/citations?user=TSEwIxUAAAAJ
https://orcid.org/0000-0001-6701-697X

Edited Books, Book Reviews, Chapters

1. **Haspel G**, Cohen N (2022). Neurodevelopment: Maintaining function during circuit reconfiguration. Current Biology, 32(21), R1226-R1228. DOI: 10.1016/j.cub.2022.09.051
2. **Haspel G**, Hart AC, editors (2022) *C. elegans* Methods and Applications. 3rd edition; Pub. Springer/Nature; New York. DOI: 10.1007/978-1-0716-2181-3. ISBN978-1-0716-2180-6.
3. Harreguy MB, Tran TS, **Haspel G** (2022) Neuronal microsurgery with an Yb-doped fiber femtosecond laser. In *C. elegans* Methods and Applications. 3rd edition; Pub. Springer/Nature; New York. DOI: 10.1007/978-1-0716-2180-6_17.
4. **Haspel G**, Deng L, Harreguy MB, Tanvir Z (2020) *C. elegans* locomotion: Elegantly. In Neural control of movement. ed.: Whelan P, Sharples SA, pub. (pp. 3-29) Academic Press/Elsevier. DOI:10.1016/B978-0-12-816477-8.00001-6
5. **Haspel G** (2016) A Gateway Book to Neurobiology. AIBS BioScience, 66(6):520–521. DOI: 10.1093/biosci/biw054.
6. Bucher D, **Haspel G**, Golowasch J, Nadim, Farzan (2015) Central Pattern Generators. In: eLS. John Wiley & Sons, Ltd: Chichester. DOI:10.1002/9780470015902.a0000032.pub2.

7. Biron D, **Haspel G**, editors (2015) *C. elegans* Methods and Applications. 2nd edition; Pub. Humana Press/ Springer Science, New York. DOI: 10.1007/978-1-4939-2842-2 ISBN: 978-1-4939-2841-5.

Peer Reviewed Journal Articles

1. Harreguy MB, Tanvir Z, Shah E, Simprevil B, Tran TS, **Haspel G** (2022) Semaphorin signaling restricts neuronal regeneration in *C. elegans*. Frontiers in Cell and Developmental Biology. 10:814160. DOI: 10.3389/fcell.2022.814160
2. **Haspel G**[*], Severi KE[*], Fauci LJ, Cohen N, Tytell ED, Morgan JR (2021) Resilience of Neural Networks for Locomotion. J Physiol. ([*]Contributed equally). DOI:10.1113/JP279214; PMID: 34187088. Editor's Choice article.
3. Gershman S, Harreguy MB, Yatom S, Raitses Y, Efthimion P, **Haspel G** (2021) A low power flexible dielectric barrier discharge disinfects surfaces and improves the action of hydrogen peroxide. Sci Rep. 11(1):4626. DOI: 10.1038/s41598-021-84086-z; PMID: 33633257; PMCID: PMC7907379.
4. Deng L, Araya C, Jin L, Denham JE, Yuval O, Ranner T, Cohen N, **Haspel G** (2021) Inhibition underlies fast undulatory locomotion in *C. elegans*. eNeuro 8(2). DOI: 10.1523/ENEURO.0241-20.2020; PMID: 33361147; PMCID: PMC7986531
5. Tanvir Z, Rivera D, Severi K, **Haspel G**, Soares D (2021) Evolutionary and homeostatic changes in morphology of visual dendrites of Mauthner cells in *Astyanax* blind cavefish. J Comp Neurol 529(8):1779-1786. DOI: 10.1002/cne.25056. PMID: 33070322.
6. Yoffe M, Patel K, Palia E, Kolawole S, Streets A, **Haspel G,** Soares D (2020) Morphological malleability of the lateral line allows for surface fish (Astyanax mexicanus) adaptation to cave environments. J Exp Zool (Mol Dev Evol) 334: 511– 517. DOI:10.1002/jez.b.22953.
7. Yu CC, Barry NC, Wassie AT, Sinha A, Bhattacharya A, Asano S, Zhang C, Chen F, Hobert O, Goodman MB, **Haspel G**, Boyden ES (2020) Expansion microscopy of *C. elegans*. eLife 9:e46249. DOI: 10.7554/eLife.46249.
8. Harreguy MB, Marfil V, Gabel C, Chung S, **Haspel G** (2020) Ytterbium-doped fiber femtosecond-pulsed laser offers robust design with deep and precise axotomy. Scientific Reports 10:4545. DOI: 10.1038/s41598-020-61479-0.
9. Blivis D[*], **Haspel G**[*], Mannes PZ, O'Donovan MJ, Iadarola MJ (2017). Identification of a novel spinal nociceptive-motor gate control for Aδ pain stimuli in rats. eLife, 6, e23584. ([*]Contributed equally) PMID: 28537555.
10. Antikainen, H, Driscoll, M, **Haspel, G**, Dobrowolski, R (2017). TOR-mediated regulation of metabolism in aging. Aging Cell 16(6):1219-1233. PMID: 28971552.
11. Zhao L, Boufadel MC, Katz J, **Haspel G**, Lee K, King T, Robinson B (2017). A New Mechanism of Sediment Attachment to Oil in Turbulent Flows: Projectile Particles. Environmental Science & Technology, 51(19): 11020-11028. PMID: 28876050.
12. Gjorgjieva J, Biron D, **Haspel G** (2014) Neurobiology of *C. elegans* Locomotion: Where Do We Stand? AIBS BioScience; biu058. PMID: 26955070
13. Tabor KM, Bergeron SA, Horstick EJ, Jordan DC, Aho V, Porkka-Heiskanen T, **Haspel G**, Burgess HA (2014) Direct activation of the Mauthner cell by electric field pulses drives ultra-rapid escape responses. J Neurophysiol. jn. 00228.2014. PMID: 24848468.
14. Gal R, Kaiser M, **Haspel G**, Libersat F (2014) Sensory Arsenal on the Stinger of the Parasitoid Jewel Wasp and Its Possible Role in Identifying Cockroach Brains. PLoS ONE 9(2): e89683. PMID: 24586962. (Featured in Wired/Science, National Geographic/Phenomena)
15. **Haspel G**, Schwartz A, Streets A, Camacho DE and Soares D (2012) By the Teeth of Their Skin, Cavefish Find Their Way. Curr Biol 22(16): R629 - R630. PMID: 22917507. (Featured in Science, News Focus 337 (6093): 409 and in Faculty of 1000)

16. **Haspel G**, O'Donovan MJ (2012) A connectivity model for the locomotor network of *Caenorhabditis elegans*. Landes Bioscience: *Worm* 1(2): 125 – 128. PMID: 24058836.
17. **Haspel G**, O'Donovan MJ (2011) A Perimotor Framework Reveals Functional Segmentation in the Motoneuronal Network Controlling Locomotion in *Caenorhabditis elegans*. J Neurosci 31, 14611 -14623. PMID: 21994377.
18. Mitchell K, Bates BD, Keller JM, Lopez M, Scholl L, Navarro J, Madian N, **Haspel G**, Nemenov MI, Iadarola MJ (2010) Ablation of rat TRPV1-expressing Adelta/C-fibers with resiniferatoxin: analysis of withdrawal behaviors, recovery of function and molecular correlates. Mol Pain 6:94. PMID: 21167052.
19. **Haspel G**, O'Donovan MJ, Hart AC (2010) Motoneurons dedicated to either forward or backward locomotion in the nematode *Caenorhabditis elegans*. J Neurosci 30(33):11151-11156. PMID: 21167052.
20. Ferkey D, Hyde R, **Haspel G**, Dionne H, Hess H, Suzuki H, Schafer W, Koelle M, Hart AC (2007) *C. elegans* G Protein Regulator RGS-3 Controls Sensitivity to Sensory Stimuli. Neuron 53(1):39-52. PMID: 17196529.
21. Moore EL, **Haspel G**, Libersat F, Adams ME (2006) Parasitoid wasp sting: a cocktail of GABA, taurine and β-alanine opens chloride channels for central synaptic block and transient paralysis of a cockroach host. J Neurobiol 66(8): 811-820. PMID: 16673394.
22. **Haspel G**, Gefen E, Ar A, Glusman JG, Libersat F (2005) Parasitoid wasp affects metabolism of cockroach host to favor food preservation for its offspring. J Comp Physiol A, 191(6):529-34. PMID: 15864597.
23. Gincel D, **Haspel G**, Libersat F (2004) Channel forming activity in the venom of the cockroach-hunting wasp, *Ampulex compressa*. Toxicon 43(6): 721-727. PMID: 15109893.
24. **Haspel G**, Libersat F (2004) Wasp Manipulates Cockroach Behavior by Injecting Venom Cocktail Into Prey Central Nervous System. Acta Biologica Hungarica, 55(1-4) 103-112. PMID: 15270223
25. **Haspel G**, Rosenberg L, Libersat F (2003) Direct injection of venom by a predatory wasp into cockroach brain. J Neurobiol 56: 287–292. PMID: 12884267.
26. **Haspel G**, Libersat F (2003) Wasp venom blocks central cholinergic synapses to induce transient paralysis in cockroach prey. J Neurobiol 54:628–637. PMID: 12555274.
27. Weisel-Eichler A, **Haspel G**, Libersat F (1999) Venom of a Parasitoid Wasp Induces Prolonged Grooming Behavior in the Cockroach. J Exp Biol, 202:957-964. PMID: 10085268. (Featured in Nature News)
28. Libersat F, **Haspel G**, Casagrand J, Fouad K (1999) Localization of the site of effect of a wasp's neurotoxin in the cockroach escape circuitry. J Comp Physiol A, 184:333-345.

Journal Articles Submitted or in Preparation

1. Anwar H, Deng L, Saghafi S, Denham JE, Ranner T, Cohen N, Diekman CO, **Haspel G** (2022) Multiple solutions for distribution of coupled-oscillators in *C. elegans* locomotion network produce forward and backward undulatory output (in-prep, to be submitted to Frontiers Neural Circuits).
2. Warholak N, Harreguy MB, Rizzo L, Nemati J, Gatley S, Gatley I, Federici JF, Clark A, Bolton C, **Haspel G** (2022) Design, Fabrication, and Sterilization of 3D Printable Throat Oropharyngeal Swabs (under revision, Rapid Prototyping Journal).

Other media

Evolve: Venoms (2008) The History channel. On screen consultant and interviewee regarding the behavior and evolution of venomous parasitoids. http://www.youtube.com/watch?v=cyd8NmLJwcM&feature=related

Chester the Manatee and the Very, Very, Terribly Bad Itch (Hebrew Edition) (2015) A children's book by Jill Heinerth. Translator.

http://www.amazon.com/Chester-Manatee-Very-Terribly-Itch/dp/194094418X

Professional Presentations

Invited speaker and moderator: Functional logic of neural circuits: diamonds in the rough. (San Juan, PR, USA)	2023
Invited speaker: Department of Biological Sciences, Illinois State University (Normal, IL, USA)	2023
Presenter: Society for Neuroscience Annual Meeting (San Diego, CA, USA)	2022
Presenter: Motor Systems Symposium (Salk institute, La Jolla, CA, USA)	2022
Presenter: American Physical Society, Division of Plasma Physics Meeting 2022 (DPP 2022) (virtual, Spokane, WA, USA)	2022
Invited speaker: Princeton Collaborative Low Temperature Plasma Research Facility user meeting (virtual, Princeton, NJ, USA)	2022
Presenter: Neuroethology 2022 - The International Conference for Neuroethology (Lisbon, Portugal)	2022
Presenter: Celebrating the Life & Science of Sydney Brenner. Cold Spring Harbor Laboratory (Cold Spring Harbor, NY, USA)	2022
Presenter: Neuronal Circuits. Cold Spring Harbor Laboratory (Cold Spring Harbor, NY, USA)	2022
Invited speaker: The Grass Foundation Fellowship, Marine Biological Laboratory (Woods Hole, MA, USA)	2021
Invited speaker: Departmental Seminar Series. Department of Biological Sciences, the University of Toledo (Toledo, OH, USA)	2021
Invited speaker: Departmental Seminar Series. SUNY Albany (Albany, NY, USA)	2020
Invited speaker: Departmental Colloquium. Federated Department of Biological Sciences, New Jersey Institute of Technology and Rutgers-Newark (Newark, NJ, USA)	2019
Speaker: 7th Annual Small Circuits & Behavior Meeting, University of Pennsylvania, (Philadelphia, PA, USA)	2018
Invited speaker: Tel Aviv University, Sagol School of Medicine (Tel Aviv, Israel)	2018
Invited speaker: *C. elegans* research groups, University of Leeds (Leeds, UK)	2018
Invited speaker: FHL seminar series, Friday Harbor Laboratory (Friday Harbor, WA, USA)	2017
Invited speaker: Department Seminar, Department of Molecular Biology, Rowan University SOM (Stratford, NJ, USA)	2017
Invited speaker: C. elegans laboratories Seminar, Dept. of Molecular Biology and Biochemistry Rutgers University (Piscataway, NJ, USA)	2017
Invited speaker: Advanced Program in Neurosciences Seminar Series (Ciclo De Palestras Do Programa Avançado De Neurociências), Universidade Federal do Rio de Janeiro (Rio de Janeiro, Brazil)	2016
Invited speaker: 13th Annual Conference on Frontiers in Applied and Computational Mathematics (FACM '16)	2016
Invited speaker: Department Seminar, Department of Biology and Brooklyn College and Graduate Center, The City University of New York (Brooklyn, NY, USA)	2016
Invited speaker: Department Seminar, School of Biological Sciences, Illinois State University (Normal, IL, USA)	2015
Invited speaker: NJIT Biophotonics and Biophysics Seminar series (Newark, NJ, USA)	2015
Invited speaker: Penn Worm Meeting, University of Pennsylvania (Philadelphia, PA, USA)	2015

Invited speaker: Boston University School of Medicine (Boston, MA, USA)	2015
Invited speaker: Department Seminar, Department of Physiology, Columbia University, (New York City, NY, USA)	2013
Invited speaker: Math/Bio colloquium, Mathematics Department, New Jersey Institute of Technology (Newark, NJ, USA)	2013
Invited speaker: C. elegans laboratories Seminar, Dept. Of Molecular Biology and Biochemistry Rutgers University (Piscataway, NJ, USA)	2013
Invited speaker: Department Seminar, Department of Biological Sciences, University of Maryland, Baltimore County (Baltimore, MD, USA)	2013
Invited speaker: Department Seminar, Department of Biological Sciences, New Jersey Institute of Technology (Newark, NJ, USA)	2013
Invited speaker: (Paris, France)	2013
Invited speaker: Winter Workshop on Locomotion. NSF-sponsored Research Coordination Network "Neuromechanics and dynamics of locomotion" (Princeton University, NJ, USA)	2012
Invited speaker: Unit seminar. Unit on Behavioral Neurogenetics, National Institute of Child Health and Human Development, NIH (Bethesda, MD, USA)	2011
Invited speaker: Department seminar. Division of Neurosciences, Ecole Normale Supérieure (Paris, France)	2011
Invited speaker: Department seminar. Institute of Biology, University of Southern Denmark (Odense, Denmark)	2011
Conference presentation, The Society for Integrative and Comparative Biology (Salt Lake City, UT, USA)	2011
Invited speaker: Department Seminar, Department of Zoology, Tel Aviv University (Tel Aviv, Israel)	2010
Invited speaker: Special Seminar, Department of Neuroscience, Weizmann Institute (Rehovot, Israel)	2010
Invited speaker: Department Seminar, Department of Neurobiology, Tel Aviv University (Tel Aviv, Israel)	2010
Invited speaker: Department Seminar, Life Sciences Department, Ben Gurion University (Beer Sheva, Israel)	2010
Conference presentation, Israeli Society for Neuroscience (Eilat, Israel)	2010
Invited speaker: Department seminar. Department of Neuroscience, (Albert Einstein College of Medicine, Bronx, NY)	2010
Invited speaker: Seminar. Baltimore Area Worm Meeting (University of Maryland Baltimore County, MD, USA)	2009
Invited speaker: Seminar. Baltimore Area Worm Meeting (University of Maryland Baltimore County, MD, USA)	2008
Session chair and presenter: Using In vivo Physiology to Understand Neural Circuits in Genetic Systems (Janelia Farm, HHMI, VA)	2008
Invited speaker: Seminar. NIH Worm Club (Bethesda, MD, USA)	2008
Conference presentation, Neural Circuits and Behavior in C. elegans. (Janelia Farm, HHMI, VA)	2007
Seminar. Boston Area Behavior Club Annual Symposium (Woods Hole MA, USA)	2006
Conference presentation. East Cost Nerve Net (Woods Hole MA, USA)	2005
Invited speaker: Neuroethology group. Mudd Hall, Cornell University	2002

Teaching experience:

I teach my dream courses: Neural Basis of Behavior for undergraduate students, and Imaging and microscopy for graduate students. These combine my enthusiasm for Neuroethology, and my expertise and interest in imaging methods. Both courses are based on students' curiosity and exploration of the subject and require them to present their knowledge in short talks and

posters. I was honored to be awarded for Excellence in Teaching by the senior students of Albert Dorman Honors College of New Jersey Institute of Technology in 2019.

Teaching

Neural Basis of Behavior (NJIT: BIOL 383). An undergraduate level course that exposes students to seminal and current studies of neuroethology with emphasis on the scientific method and curiosity. Developed and teaching new syllabus to an existing course.	2013-current
Biological Imaging Techniques (NJIT: BIOL 645). A graduate level course that focuses on fundamental principles and technical aspects of imaging, and on composing publishable figures. Developed syllabus for a new course, approved with institutional committee for graduate teaching.	2014-current
Evolution (NJIT: BIOL 222). An undergraduate level course that introduces students to Evolution – from genetics and molecular biology to ecology and conservation biology to disease and medicine. Indeed, as the T. Dobzhansky observed, “Nothing in biology makes sense except in the light of evolution.”	2019-current
Genetics (NJIT: BIOL 352): An undergraduate level course that surveys the basic concepts of Genetics. From classical genetics experiments through DNA structure and manipulation to molecular genetics, developmental genetics, and population genetics. In Fall 2020 we incorporated SARS-cov2 throughout the course material.	2020-current
Principles of Neurobiology (NJIT: BIOL315): An undergraduate level introductory-level course that reviews the basic principles of how the nervous system is organized, and how neurons, synapses, and neuronal circuits function to produce behavior, including development, sleep, memory, and neurological disorders.	2021-current
Faculty: Neural Systems and Behavior (NS&B) course at the Marine Biological Laboratory (MBL) Woods Hole	2012
Invited lectures: Introduction to neural systems course (BSCI446) and Neural systems for graduate students course (NACS641), Biology Department University of Maryland	2007 - 2012
Associate Director of the Grass Fellowship Program at Marine Biological Laboratory in Woods Hole, MA, USA. (Directors: 2007-2008 with Dr Catherine E. Carr, 2009 with Dr Felix Schweizer and Dr Stephanie White)	2007-2009
Coordinator of the student’s seminar series of the Zlotowski Center for Neuroscience, Ben-Gurion University of the Negev, Beer-Sheva, Israel	2001 - 2003
Laboratory director, laboratory of animal physiology course. Department of Life Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel	2002 - 2003
Initiated and conducted teaching feedback for courses given by the Department of Life Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel	2000 - 2001

Teaching Assistant, laboratory of animal physiology course. Department of Life Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel		1998 - 2001
Teaching Assistant, Biochemistry I. Department of Life Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel		1997

Mentoring

Marcella Viola	Post-bac technician	2023 - current
Natalie Ableson	Undergraduate researcher	2022 - 2023
Naomi Shah	Undergraduate researcher	2022 - current
Shareef Syed	Undergraduate researcher and technician	2022 - 2023
Ayman Mohammad	Undergraduate researcher	2022 - current
Joseph Soubany	Undergraduate researcher	2021 - 2022
Blandine Simprevil	Summer undergraduate researcher, City College of New York (CUNY)	2021 - 2022
Esha Shah	Undergraduate researcher	2021 - 2023
Steven Munoz	Undergraduate researcher	2019 - 2021
Ishani Patel	Undergraduate researcher	2019 - 2021
David Yi	Undergraduate researcher	2019 - 2020
Aaron Amankwaah	High school student, Newark NorthStar Academy	2019
Zainab Tanvir	PhD Candidate, co-mentored with Kristen Severi	2018-current
Muzamil Tanvir	Summer undergraduate researcher, Hunter College	2018 (Summer)
Charu Arya	Undergraduate researcher	2018 - 2020
Alysha Insinga	Post-bac volunteer	2018
Maria Belen Harreguy	PhD Candidate, co-mentored with Tracy Tran	2017-current
Ivan Skvortsov	Post-bac volunteer	2017-current
Abdelhamid Arbab	High school student, Al-Ghazaly HS	2017-2018
Isabella Tang	High school student, Livingstone HS	2017-2018
Eva Buergler	High school student, Tenafly HS	2017-2018
Carly Berdan	MS student	2017-2018
Lianhua Jin	Post-bac technician	2017-2018
Samiksha Vittalraj	Summer undergraduate researcher, University of Rochester	2017-2018
Hetal Lad	High school student, John F. Kennedy Memorial HS	2017 (Summer)
Adam Willerth	Summer undergraduate researcher (MBI), Iowa State University. Co-mentored with Horacio Rotstein.	2017 (Summer)
Jiyeon Baek	Rotation PhD student	2017
Amin Jassim	Summer undergraduate researcher. Co-mentored with Casey Diekman.	2017
Daniel Moodey	Undergraduate researcher	2017
Rawan Alhau	Undergraduate researcher	2017
Mansi Sheth	Undergraduate researcher, Biomedical Engineering	2017
Conor Doyle	High school student, Bergen County Technical HS	2016-2017
Diana Kim	High school student, Tenafly HS	2016-2017
Swanny Shi	Undergraduate researcher	2016-2017

Anekha Goyal	High school student, Biotechnology High School. Governor's STEM Scholars Program.	2016
Josh Troup	High school student, Newark NorthStar Academy	2016
Quang Long Pham	Researcher, Chemical Engineering PhD student	2016
Elizabeth M Cronin	Rotation PhD student	2016
Henri Antikainen	Rotation PhD student	2016
Vanessa Marfil-Vives	Postdoctoral fellow	2015-2017
Assma Itani	Undergraduate researcher, and Provost Summer Undergraduate Research and Innovation Fellowship	2015-2017
Jisue Park	High school student, Tenafly HS	2015-2016
Aditya Rawal	Undergraduate researcher, Electrical Engineering	2015-2016
Hardik Atulkumar Darji	Undergraduate researcher, Electrical Engineering	2015-2016
Onyx Turpin	High school student, Newark NorthStar Academy	2015
Lan Deng	PhD Candidate	2014-2020
Christopher Baldi	Postdoctoral fellow	2014-2016
Kevin Carbone	Undergraduate researcher, and post-bac volunteer	2014-2016
Dana Tsipenyuk	High school student, Tenafly HS	2014-2015
Anmol Mittal	Undergraduate researcher, and post-bac volunteer	2013-2017
Craig Schindewolf	Post-bac volunteer and technician	2013-2016
Wahab Ashraf	MS student, Rutgers University	2013-2014

Leadership, Service, and Membership

Co-organizer, 'Beyond EM: Optical tools to visualize ultrastructure', a workshop at the 24th *C. elegans* meeting (Glasgow, Scotland, UK)	2023
Guest editor of Methods Collection *Optical Approaches in Intact Animals to Study Neuroregeneration.* for the Journal of Visual Experiments (JoVE)	2023
Co-organizer, NSF-funded workshop, *Functional logic of neural circuits: diamonds in the rough*. Online (570 registered attended) and at San Juan, Puerto Rico (Feb 23-25, 2022; and planned for Feb 14-16, 2023, planned Feb 2024). https://sites.google.com/njit.edu/diamonds/home	2021-2024
Full member, Sigma Xi, The Scientific Research Honor Society	2021-current
Member and Award Application Reviewer, Society for Advancement of Chicanos/Hispanics, and Native Americans in Science (SACNAS)	2021-current
Associate Editor, Frontiers in Neural Circuits	2022- current
Member, Faculty for Undergraduate Neuroscience (FUN)	2015-current
Ad hoc reviewer for the National Science Foundation, Current Biology, PLoS One, Journal of Neurophysiology, Methods, PLoS Computational Biology, Journal of Neuroscience, eLife, JoVE, Trans. Royal Soc., PNAS, Journal of Applied Physics, AIP Advances, eNeuro, Oxford University Press, Elsevier Academic Press, Agence Nationale de la Recherche (France)	2007-current

Member, Genetics Society of America (GSA)	2005-current
Member, Society for Neuroscience (SfN)	2004-current
Society (Corporation) member, Marine Biological Laboratory (MBL)	2003-current
Member, International Society for Neuroethology (ISN)	1998-current
Review Editor on the Editorial Board of Frontiers in Neural Circuits	2020-2022
Co-organizer, Organizing Committee of the New York Area Worm Meeting (NYAWM) at New York University	2017-2022
Member and Chair, Graduate Admission and Recruitment Committee, Federated Department of Biological Sciences, NJIT and Rutgers University	2014-2020
Co-Director of MS program, Department of Biological Sciences, NJIT	2015-2019
Judge, International *C. elegans* Meeting, Poster sessions	2019
Member, Abstract Selection committee, *C. elegans* Topic Meeting: Neuronal Development, Synaptic Function, and Behavior	2018
Organizer and Symposium Chair, Frontiers in Applied and Computational Mathematics (FACM '16)	2016
Member, Organizing committee, *C. elegans* Neurobiology Meeting	2013-2014
Judge, NIH Neuroscience section at the GPP symposium	2011-2013
Chairperson and Member of the student council of Ben-Gurion University of the Negev, Beer-Sheva, Israel	1995 - 2000
Instructor at the Adam Institute for Peace and Democracy (http://www.adaminstitute.org.il/english/)	1995 - 1997
Israeli military service, Captain. Including commanding and teaching at the Officer School of the Israeli Army (IDF)	1987 - 1992
Volunteered for a year as a youth guide in the Gar'in Oded project (similar to City Year in the USA)	1986 - 1987

Funding

National Science Foundation, Robust Intelligence: Conference: Functional Logic of Neural Circuits: Diamonds in the Rough (FLNDR2024). PI.	USD 49,478	2023-2024
National Science Foundation, Robust Intelligence: Conference: Functional Logic of Neural Circuits: Diamonds in the Rough (FLNDR2023). Lead PI.	USD 49,500	2022-2023
National Institutes of Health, T34: Undergraduate Research Training Initiative for Student Enhancement (U-RISE). Investigator mentor (one of twenty-four).	USD 2,913,696	2023-2028
Department of Energy Office of Science, Office of Fusion Energy Sciences: Cold atmospheric plasma for promoting neural regeneration. Lead PI.	USD 113,685	2022-2024
New Jersey Institute of Technology, Faculty Seed Grant: Maladaptive Evolution in Nervous Systems. PI.	USD 10,000	2022-2023
National Institutes of Health, R15: Semaphorin signaling in dendrite response to injury. Lead PI.	USD 454,319	2021-2024

National Science Foundation, Robust Intelligence: Conference: Functional Logic of Neural Circuits: Diamonds in the Rough. Lead PI.	USD 49,500	2021-2022
New Jersey Institute of Technology, Faculty Seed Grant: Complete reconstruction of a nervous system with expansion microscopy and genomic editing. Lead PI.	USD 7,500	2017-2018
New Jersey Commission on Spinal Cord Research: A Minimal Locomotion Circuit to investigate Neuronal Regeneration. Lead PI.	USD 199,997	2014-2017
Pending: Department of Defense, DWFP: Vector Inactivating Plasma Enhanced Textile "VIPET". Lead PI.	USD 900,000 (pending)	2023-2026
Pending: National Science Foundation, NSF-BSF: Neuromodulation at every layer: network-wide monoaminergic modulation of behavior. Lead PI.	USD 1,649,898 (pending)	2023-2028
Pending: National Science Foundation, The effect of darkness on dendritic morphology at developmental and evolutionary time scales. Co-PI.	USD 838,457 (pending)	2023-2026