CURRICULUM VITAE

Yossi Yovel
Tel-Aviv University
School of Zoology
Sagol School for Neuroscience
School of Mechanical Engineering
Steinhardt natural history museum

Education

2006 - 2008 PhD Neuroscience University of Tuebingen and Max Planck Institute for Biological Cybernetics, Germany
Summa cum laude
Thesis topic: Algorithms for echo classification.

2004 - 2006 MSc Neuroscience Tel-Aviv University, Israel
Summa cum laude
Thesis topic: Multi-contrast MRI based brain classification.

2002 - 2005 BSc Physics Tel-Aviv University, Israel

2001 - 2004 BSc Biology Tel-Aviv University, Israel
Summa cum laude
Special program for outstanding students

Employment history

2020 - Current Position- Tel-Aviv University (TAU)
Full Professor School of Zoology
Head of the Sagol school of Neuroscience

2016 - 2020 Associate Professor Department of Zoology TAU

2011 - 2016 Senior Lecturer Department of Zoology TAU

2010 - 2011 Post-Doctoral Fellow Physics Department University of Chicago

2009 - 2010 Post-Doctoral Fellow Neurobiology Department Weizmann Institute of Science & University of Maryland

Awards and Honors

2021 The **Blavatnik Award** by the Israeli Academy for Sciences and Humanities

2021 The **Kadar** award for excellent research in Tel-Aviv University

2020 **Humboldt** Research Fellowship for Experienced Researchers

2020 **WIKO** Research Fellowship Institute for Advanced Studies, Berlin

2019 Member of the **Israeli Young Academy of Sciences** (4 years)

2017 Faculty of Life-Sciences, Tel-Aviv University, Teaching excellence award

2016 Faculty of Life-Sciences, Tel-Aviv University, Teaching excellence award

2016 **Krill Prize** for Excellence in Scientific Research by the Wolf Foundation

2012 The **Alon Scholarship** for excellent scientist by the higher Council for Academic Studies in Israel

2011 The **Sieratzki prize** in neuroscience

2010 University of Heidelberg - 2-year fellowship (awarded and declined)

2010 **EMBO** 2-year fellowship

2008 – 2010 Weizmann Institute postdoctoral fellowship

2009 The-Reinhold-and-Maria-Teufel-foundation prize for best Ph.D thesis, University of Tuebingen

2005 – 2008 **Marie Curie PhD Fellowship**, University of Tuebingen

2001 – 2005 Tel-Aviv University program for outstanding students

2001 – 2004 The biology research program for outstanding students TAU

2001 - 2003 Dean's honor list for academic achievements

Research Grants

In 10 years, I have raised more than 9M $ from various research grants not including my startup money.

This includes two **ERC** grants (young and Cog), two **ISF** grants, a 'Bikura' grant, an HFSP grant and grants from the following agencies (partial list), young GIF, BSF, NSF-BSF (computational neuroscience), Office of naval research, Department of defense (US), National Geographic, and various governmental grants including the Ministry of defense, Ministry of agriculture, Ministry of energy, Ministry of science and multiple institutional grants.
The money was raised for a range of topics from basic animal behavior to applicative sonar applications.

Patents

1) US Patent Application Nr. 62/105,763 G. Kosa, A. Bechar, Y. Yovel and R. Finkelstein, "Agriculture Robot", January 2105
2) US provisional patent Nr. 62/544,830 Y. Yovel, I. Khait, R. Sharon and L. Hadany, "Plant Monitor", October 2017

Graduate students

I have supervised 12 PhD students, 23 MSc students and 9 foreign post-docs (some of which have not yet completed their studies).

Additional scientific activities

I served as a Reviewer for: Science, Nature intelligent machines, Current Biology, PLoS Biology, Physical Review Letters (PRL), Proceedings of the Royal Society B, PLoS Computational Biology, Nature Scientific Reports, Journal of the Royal Society Interface, Biological Cybernetics, PLoS One, Animal Behavior, Molecular Biology and Evolution, IEEE Trans. on Geoscience and Remote Sensing and others.

I am a Permanent Editor of: Movement Ecology and served as an **Invited Editor** for: PLoS computational Biology

I have been involved in organizing several international meetings including: TAU animal models (2013); International Bat Meeting (2016, SA); Sleep across taxa (2019, ISR); Active Sensing (2020, postponed, ISR); International society for Neuroethology (2020, postponed, Portugal); Individual to group decision making (2020, postponed, ISR).

Invited talks

*Invited and Plenary talks in the past 5 years (not including invited seminars)

2022	Gordon Conference Animal Communication Plenary speaker	Maine, USA
2022	ISBE, **Plenary speaker**	Stockholm Sweden
2021	International navigation conference, **Plenary speaker**	Edinburgh, Scotland
2020	Animal Behaviour Live Conference	On-line
2019	EMBO Workshop - Beyond the standard non-model vertebrates in bio-medicine **Invited Speaker**	Berlin, Germany
2019	Movement meeting **Invited Speaker**	Trieste, Italy
2019	Comparative MRI meeting **Invited Speaker**	Dusseldorf, Germany
2019	Gordon Conference on Movement Ecology **Invited Speaker**	Pisa, Italy
2018	Bernstein Conference **Invited Speaker**	Berlin, Germany
2018	Society for Neuroethology **Plenary speaker**	Brisbane, Australia
2017	Biologing Meeting **Invited Speaker**	Konstanz, Germany
2017	Perception and philosophy symposium **Invited speaker**	Berlin, Germany
2017	Bat vocal learning symposium **Invited speaker**	Berlin, Germany
2017	Bat Biosonar meeting **Invited speaker**	Tucson, USA
2017	Language - Annual Multidisciplinary meeting **Invited speaker**	Jerusalem, Israel
2016	IBED seminar **Invited speaker**	Amsterdam, Ne
2016	Cambridge Neuroethology Seminar **Invited speaker**	Cambridge, UK
2016	International Bat Meeting **Plenary speaker**	Durban, South Africa
2016	Israeli RADAR meeting **Invited speaker**	Beer-Sheva, Israel
2015	Computatioal Acoustics Meeting **Invited speaker**	Hangzou, China
2015	Bat movment Ecology **Plenary speaker**	Berlin, Germany

TAU - Administrative roles

2020-Present	Head of the Sagol School of Neuroscience, TAU
2019-2020	Vice chair of the school of zoology, TAU
2017-Present	Head of the Arab-student assistance program (SAWA) in the faculty of life sciences, TAU
2017-Present	Curator of the bat collection in the Steinhardt Natural History Museum
2017-2019	Head of the teaching committee, Sagol School of Neuroscience, TAU
2017-2019	Head of the curriculum committee, Sagol School of Neuroscience, TAU
2016-2019	Scientific Manager of the Zoological Garden, TAU
2015-2017	Head of the Graduate Program in Ecology, Life Sciences Faculty, TAU
2014-2017	Member of the zoological garden committee, Department of Zoology, TAU
2012-2017	Organizer of the Tel-Aviv University School of Neuroscience Graduate Seminar
2012-2018	Representative of Tel-Aviv University in the Israeli committee for animal experiments
2012-2014	Member of the curriculum committee, Department of Zoology, TAU
2012-2015	Graduate Students Advisor, Department of Zoology, TAU

Teaching

I currently teach in three courses in the faculty of life sciences: Animal behavior, Biological signal processing and Basic Biology C and a Biomimicry course in mechanical engineering (where I am affiliated) My teaching grades are high (an average of ~6.5).

Public Activity and Outreach

In addition to my academic roles, I take part in several public services. I am the **chair of the high-school scientific biology committee in the ministry of education.** This committee is in charge of supervising the national high-school biology curriculum and we are currently working on developing and updated program in high-school biology (for 'Bagrut').

I am also heavily involved in public outreach and education: I give several public talks every year (to a crowd of more than 1000 people in total) in which I try to bring science to the public. I give many media interviews for the Israeli and international media. The lab takes part in multiple programs for **high-school students** including Alpha and Odyssey excellent high-school students that perform their science project in my lab, and including guiding 'Avodot Gemer' for a high-school degree. In addition, the lab hosts 2-3 **foreign intern students** every year in different international programs.

Publication list (post-graduate only)

*corresponding author

1) **Y. Yovel**, B. Falk, C. F. Moss, N. Ulanovsky, (2010) Optimal localization by pointing off-axis. ***Science*** 327, 701-704,

2) **Y. Yovel**, M. Geva, *N. Ulanovsky, (2011) Click based echolocation: not so primitive after all, ***J. Comp. Physiol****.* 197: 515-530;

3) **Y. Yovel**, B. Falk, C. F. Moss, *N. Ulanovsky, (2011) Active control of acoustic field-of-view in a biosonar system, ***PLoS Biology****,* 9(9)

4) *A. Boonman, Y. Bar-On, ****Y. Yovel**, (2013) It's not black or white – on the range of vision an echolocation in echolocating bats, Front. Physiol. 2: 248;

5) *S. Greif, I. Borissov, **Y. Yovel**, R.A. Holland, (2014) A functional role of the sky's polarization pattern for orientation in the greater mouse-eared bat. ***Nature Communications*** 5:4488;

6) *A. Boonman, S. Bumrungsri, ****Y. Yovel**, (2014) Non-echolocating fruit-bats produce bio-sonar clicks with their wings. ***Current Biology***, 24: 2962- 2967;

7) N. Cvikel, K. E. Berg, E. Levin, E. Hurme, I. Borissov, A. Boonman, E. Amichai, ***Y. Yovel**, (2014) Bats aggregate to improve prey search but might be impaired when their density becomes too high. ***Current Biology*** 25:206-211;

8) N. Cvikel, E. Levin, E. Hurme, I. Borissov, A. Boonman, E. Amichai, ***Y. Yovel,** (2015) On-board recordings reveal no jamming avoidance in wild bat. ***Proc. R. Soc. B*****.** 282: 20142274;

9) *N. S. Bar, S. Skogestad, J. M. Marçal, N. Ulanovsky, ****Y. Yovel,** (2015) A sensory-motor model of animal flight explains why bats fly differently in light versus dark. ***PLoS Biology****.* 13(1) e1002046;

10) Y. Prat, M. Taub, ***Y.Yovel** (2015) Vocal learning in a social mammal demonstrated by isolation and playback experiments in bat. *Science Adv.* 1(2) e1500019

11) P. Kounitsky, J. Rydell, E. Amichai, A. Boonman, O. Eitan, A. J. Weiss, ***Y. Yovel** (2015) Bats adjust their mouth gape to zoom in their biosonar 'field of view' ***Proc. Natl. Acad. Sci.*** *USA, 112 (21), 6724-6729*

12) G. Arditi, A. J. Weiss, ***Y. Yovel** (2015) Object localization using a biosonar beam: how opening your mouth improves localization, ***R. Soc. open sci*****.** 2 150225

13) S. Danilovich, A. Krishnan, W. J. Lee, I. Borrisov, O. Eitan, G. Kosa, C. F. Moss, ***Y. Yovel** (2015) Bats regulate biosonar based on the availability of visual information ***Current Biology*** 25(23), 1107-1125

14) E. Amichai, G. Blumrosen, ***Y. Yovel** (2015) Calling Louder and Longer: How Bats Use Biosonar under Severe Acoustic Interference from Other Bats ***Proceedings of the Royal Society B*****.** 282(1821)

15) *M. Roeleke, T. Blohm, S. Kramer-Schadt, **Y. Yovel**, *C. Voigt (2016) Habitat use of bats in relation to wind turbines revealed by GPS tracking. ***Scientific. Reports*** 6; 28961

16) Y. Prat, M. Taub, ***Y. Yovel** (2016) Everyday bat vocalizations contain information about emitter, addressee, context, and behavior ***Scientific. Reports***; 9, 5275

17) Finkelshtain, RS, A. Bechar, **Y. Yovel** & *G. Kosa. (2017) Investigation and Analysis of an Ultrasonic Sensor for Specific Yield Assessment and Greenhouse Features Identification. ***Precision Agriculture***.

18) E. Amichai, ***Y. Yovel** (2017) Bats pre-adapt sensory acquisition according to target distance prior to takeoff even in the presence of closer background objects. ***Scientific Reports***. 7, 467

19) Y. Prat. L. Azoulay, ***Y. Yovel** (2017) Crowd vocal learning induces vocal dialects in bats: playback of conspecifics shapes fundamental frequency usage in pups ***PLoS Biology***;* 15(10): e2002556

20) G. Aharon, M. Sadot,* **Y. Yovel** (2017) Bats use path-integration rather than acoustic-flow to assess flight distance along flyways ***Current Biology***;* 27(23) 3650-3657

21) L. Harten, Y. Matalon, N. Galii, H. Navon, R. Dor, ***Y. Yovel** (2018) Persistent producer-scrounger relationships in bat**.** ***Science Advances***;* 4: e1603293

22) I. Elyakim, G. Kosa, Z. Cohen, ***Y. Yovel** (2018) A fully autonomous terrestrial bat-like robot ***PLoS comp. Biol***.;* 14(9): e1006406.

23) K. Egert-Berg, E. Hurme, S. Greif, I. Borrisov, O. Eitan, R. Medellin, G. Herera, D. Jonstone, ***Y. Yovel** (2018) Resource ephemerality drives social foraging in bats; ***Current Biology***;* 28, 1–7;

24) *O. Kolodny, *M. Weinberg, L. Reshef, L. Harten, A. Hefetz, U. Gofna, ***Y. Yovel** (2018), Coordinated change at the colony level in fruit bat fur microbiomes through time. ***Nature Ecology and Evolution;** 3*

25) E. Amichai, S. Tal, A. Boonman, ***Y. Yovel**, (2019), Ultrasound imaging reveals accelerated *In-utero* development of a sensory apparatus in echolocating bats, ***Scientific Reports***,* 9, 5975

26) E. Hurme, E. Gurarie, S. Greif, L.G. Herrera M., J. J. Flores-Martínez, G.S. Wilkinson and ***Y. Yovel** (2019) Acoustic evaluation of behavioral states predicted from GPS tracking: a case study of a marine fishing bat. **Movement Ecology**,7:21

27) L. Harten, Y. Prat, Y. Ben-Cohen R. Dor ***Y. Yovel** (2019) Food for sex in bat: producer males reproduce with scrounging females; ***Current Biology***;* 29, 1-6;

28) A. Danilovich, ***Y. Yovel** (2019) Integrating vision and echolocation for navigation and perception in bats**.** ***Science Advances***, 5: eaaw6503

29) M. Veits, I. Khait, U. Obolski, Uri, E. Zinger, A. Boonman, A Goldshtein, K. Saban, R. Seltzer, S. Krylov, D. Chamovitz, Y. Sapir~, **Y. Yovel~**, L. Hadany~ (2019) Flowers respond to pollinator sound within minutes by increasing nectar sugar concentration ***Ecology Letters***;* 22 (9) 1483- 1492 **~equal contribution**

30) O. Eitan, G. Kosa, & **Y. Yovel*** (2019) Sensory gaze stabilization in echolocating bats. ***Proceedings of the Royal Society B***, *286, 1913*

31) A. Boonman*, B. Fenton & **Y. Yovel** (2019) The benefits of insect-swarm hunting to echolocating bats and its influence on the evolution of bat echolocation signals. ***PLoS Comp. Biology,*** 15(12): e1006873.

32) M. Taub & **Y. Yovel***, (2020), Segregating signal from noise through movement in echolocating bats, ***Scientific Reports,*** 10, 382

33) Y. Assaf, A. Bouznach, O. Zomet, A. Marom & **Y. Yovel***, (2020) Conservation of Brain Connectivity and wiring across the mammalian class. ***Nature Neuroscience***;

34) A. Goldshtein, M. Handel, O. Eitan, A. Bonstein, T. Shaler, Collet Simon[3], S. Greif, R. A. Medellin, Y. Emek, A. Korman, **Y. Yovel*** (2020) Decision-Making in the Wild: Reinforcement Learning Enables Resource-Partitioning in Foraging Bats ***Current Biology***; 30, 1–7.

35) S. Currie, A. Boonman **Y. Yovel** & C. Voigt, (2020) Echolocation is not free for flying bats. ***Nature Ecology and Evolution***;

36) L. Harten*, A. Katz, A. Goldshtine, M Handel & **Y. Yovel***, (2020) The ontogeny of a mammalian cognitive map in the real world. ***Science***; 369, 194-197.

37) Danilovich, S., Shalev, G., Boonman, A., Goldshtein, A., & **Yovel, Y*,** (2020). Echolocating bats detect but misperceive a multidimensional incongruent acoustic stimulus. ***Proc. Natl. Acad. Sci. USA*** 117(45)

38) Boonman, A., Rieger, I., Amichai, E., Greif, S., Eitan, O., Goldshtein, A., & **Yovel, Y***. (2020). Echolocating bats can adjust sensory acquisition based on internal cues. ***BMC biology***, *18*(1), 1-10.

39) Krivoruchko, K., Goldshtein, A., Boonman, A., Eitan, O., Ben-Simon, J., Thong, V. D., & **Yovel, Y*.** (2021). Fireflies produce ultrasonic clicks during flight as a potential aposematic anti-bat signal. ***iScience***, 24:3.

40) Amichai, E*. & **Yovel, Y***. (2021). Echolocating bats rely on an innate speed of sound reference. ***Proc. Natl. Acad. Sci. USA***;