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Gal Vishne Curriculum Vitae

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Personal site
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Education

2015-present **International PhD Program in Computational Neuroscience**, Edmond and Lily Safra Center for Brain Sciences (ELSC), the Hebrew University of Jerusalem.

Direct track, transfer to PhD status in 2019 (**Grade Average: 97.9**, 79.5 course points)

Thesis title: Visual representation in sustained viewing conditions.

Advisors: Prof. Leon Deouell (main advisor) and **Prof. Ayelet Landau.**

2008-2011 **B.Sc. Mathematics**, Bar Ilan University, Summa Cum Laude (**Grade Average: 96.4**)

Awards and Honors

2024-2025 (upcoming) **Rothschild Postdoctoral Fellowship** – Israel's most prestigious postdoctoral fellowship, awarded to fewer than 25 postdoctoral researchers across all disciplines (STEM, life sciences, social sciences and humanities). (~50,000$)

2020-present **Azrieli Fellows Program** (Graduate Studies, Life Sciences) – Esteemed scholarship program awarded based on outstanding academic and personal merit (fewer than a dozen fellows selected from among all research students in STEM and life sciences in all Israeli universities). (Total: ~105,000$ stipend + 15,000$ for academic expenses).

2022 ELSC publication prize for 2021-2022 (for publication [1], ~450$).

2019, 2022-2023 ELSC Travel Grants (1000$ each year).

2018 Jerusalem Brain Community (JBC) Travel Grant (1000$).

2016-2017 **Rector's Prize for Master Students**, Hebrew University of Jerusalem – Prize given to highest performing student in each department (1,400$).

2015-2016 ELSC Outstanding Academic Award (Equivalent to Dean's Academic Distinction list, 700$).

2015-17, 19-20 Excellence scholarship from ELSC (~45,000$).

2010-2011 Dean's Academic Distinction list, Bar Ilan University.

2009-2010 Excellence Scholarship from the Israeli Center for Promoting Mathematics Studies.

ELSC - Edmond and Lily Safra Center for Brain Science, The Hebrew University of Jerusalem

Professional Appointments

Academic Employment and Research Experience

2019-2020 **Research Assistant**, The Israel Institute for Advanced Studies (IIAS) research group: *Deconstructing and Reconstructing Consciousness: An Interdisciplinary Approach to a Perennial Puzzle* headed by Prof. Leon Deouell (Hebrew U.) and Prof. Daphna Shohamy (Columbia U.).

- Assistance with weekly group meetings and seminars and coordination with the IIAS.
- Teaching Assistant: Consciousness, Brain and Cognition (Graduate seminar). Department of Psychology, The Hebrew University of Jerusalem.
- Organization of an international conference: "Deconstructing and Reconstructing Consciousness" (3 days, >20 speakers)

2018-2020 **Research Assistant**, Israeli Science Foundation research group: *What are the physical facts on which high level facts depend?* headed by Prof. Orly Shenker (Hebrew U.) and Prof. Meir Hemmo (Haifa U.).

2017-2019 **Researcher**, Perceptual Plasticity and Cognitive Abilities Lab, Prof. Merav Ahissar (Hebrew U.). *Computational modelling of perception and sensorimotor synchronization in special populations* (publication [1]).

Teaching

2020-2021 **Lecturer and course coordinator**, *Advanced (Human) Electrophysiology Methods* (Graduate course). Edmond and Lily Safra Center for Brain Science (ELSC), The Hebrew University of Jerusalem.

- Frontal teaching: two weekly lecture hours and two weekly tutorial hours
- **Initiated the course, designed the curriculum**, and prepared all teaching material for lectures and tutorials.
- Guided a teaching assistant (helped me administer the tutorials).
- The course was requested to return on a yearly basis; on-hold due to personal time constraints.

2019-2021 **Teaching Assistant**, *Theoretical and Computational Neuroscience B* (Graduate course). Edmond and Lily Safra Center for Brain Science (ELSC), The Hebrew University of Jerusalem.

- Frontal lecture (weekly hour)
- Preparation of course assignments and writing and grading of the final exam.

2010-2011 **Teaching Assistant**, *Introduction to Topology* (Undergraduate course). Department of mathematics, Bar Ilan University.

- Assignment grading

Publications

Journal Articles

[3] **Vishne G.**, Gerber E. M., Knight R. T., & Deouell L. Y. (2023). Distinct ventral stream and prefrontal cortex representational dynamics during sustained conscious visual perception. *Cell Reports*, 42(7). https://doi.org/10.1016/j.celrep.2023.112752

[2] 't Hart B., Achakulvisut T., Adeyemi A., …, **Vishne G.**, …, van Viegen T. (2022). Neuromatch Academy: a 3-week, online summer school in computational neuroscience. *The journal of open source education*, 5(49), 118. https://doi.org/10.21105/jose.00118

[1] **Vishne G.***, Jacoby N.*****, Malinovitch T., Epstein T., Frenkel O., & Ahissar M. (2021). Slow update of internal representations impedes synchronization in autism. *Nature Communications* 12. https://doi.org/10.1038/s41467-021-25740-y

Edited Books

[4] Ioannidis S., **Vishne G.**, Hemmo M. & Shenker O. (Editors) (2022). Levels of Reality in Science and Philosophy: Re-Examining the Multi-Level Structure of Reality. *Springer*. https://doi.org/10.1007/978-3-030-99425-9

Conference Papers

[5] **Vishne G.**, Gerber E. M., Knight R. T., & Deouell L. Y. (2022). Multivariate Representation of Sustained Visual Content in a No-Report Paradigm. *2022 Conference on Cognitive Computational Neuroscience* pp. 130-133. https://doi.org/10.32470/CCN.2022.1290-0

Preprints

[6] Auerbach-Asch C. R., **Vishne G.**, Wertheimer O., & Deouell L. Y. (2023). Decoding object categories from EEG during free viewing reveals early information evolution compared to passive viewing. *bioRxiv*. https://doi.org/10.1101/2023.06.28.546397

[7] Hacohen O.***** & **Vishne G**.***** Neural representations are not natural representations: the case from content multiplicity. *Submitted* (preprint to be uploaded online shortly, available upon request)

In Preparation

[12] Krispil R., **Vishne G.** & Deouell L. Y. Active evidence accumulation without awareness to change. *In prep*

[11] Kusnir F.*, **Vishne G.***, Pesin S., & Landau A. N. Modelling the Interaction between bilateral tactile stimulation. *In prep*

[10] Boasson A. D., **Vishne G.**, Deouell L. Y., & Granot R. Rapid Responses to Auditory Frequency Change, Its' Magnitude and Direction – From Brain to Action. *In prep*

[9] Dobner-Ives M., Fivelzon, E., **Vishne G.**, & Ahissar M. Improved synchronization with development due to reduced timekeeping noise. *In prep*

[8] **Vishne G.** Extracting representations from intracranial recordings using decoding and representational similarity analysis. *In prep*

* Equal contribution

Conference Presentations and Academic Talks

Seminars and Invited Talks

- Vision and Consciousness Seminar at the Brain Mind Institute (BMI), hosted by Prof. Michal Herzog's group (Psychophysics laboratory). EPFL. November 2023, Lausanne, Switzerland.
- Perception and Brain Dynamics Laboratory headed by Prof. Biyu J. He, Departments of Neurology, Neuroscience and Physiology, and Radiology, New York University Langone Health. June 2023; New York, New York, United States.
- Gatsby Tri-center Computational Neuroscience Annual Meeting. June 2023; Gladstone's Library, Hawarden, United Kingdom (Wales). Centers: Columbia University, University College London and Hebrew University of Jerusalem). **Exclusive workshop, invite-only participation (fewer than 25 participants from all centers).** Travel and lodging were fully funded by the Gatsby Foundation.
- The lab of Prof. Thomas Straube, Institute of Medical Psychology and Systems Neuroscience, University of Münster, Germany. April 2023; Online presentation.
- Cognitive & Neural Computation Lab headed by Prof. Megan Peters, Department of Cognitive Sciences, University of California Irvine. April 2023; Irvine, California, United States.
- The lab of Prof. Doris Tsao at the neurobiology division of the Department of Molecular & Cell Biology and the Helen Wills Neuroscience Institute, University of California Berkeley. March 2023; Berkeley, California, United States.
- The MetaLab headed by Prof. Stephen Fleming, Department of Experimental Psychology and the Wellcome Centre for Human Neuroimaging, University College London (UCL). January 2023; London, United Kingdom.
- Brain & Cognition laboratory headed by Prof. Anna Christina (Kia) Nobre, Department of Experimental Psychology and Department of Psychiatry, Oxford University. January 2023; Oxford, United Kingdom.
- Special seminar at MRC Cognition and Brain Sciences Unit, hosted by Prof. John Duncan's group. Cambridge University. January 2023; Cambridge, United Kingdom.
- COGITATE international consortium (Collaboration On GNW and IIT: Testing Alternative Theories of Experience). October 2022; Online presentation. Presented results from publication [5].

- The lab of Prof. Robert T. Knight at the Helen Wills Neuroscience Institute and Department of Psychology, University of California Berkeley. August 2022; Berkeley, California, United States. Presented results from publication [5].
- Sensory Processing Interest Group (SPIG) at King's College London, United Kingdom. March 2022; Online presentation. Presented results from publication [1].

Conference Oral Presentations

Neuroscience

- **Vishne G.**, Gerber, E. M., Knight R. T., Deouell L. Y. Representation of sustained passive visual experience across different frequency ranges. 26th Meeting of the Association for the Scientific Study of Consciousness (ASSC). June 2023; New York, United States.‡
- **Vishne G.**, Gerber, E. M., Knight R. T., Deouell L. Y. Linking the temporal resolution of experience to the anatomy of consciousness. 10th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2023; Acre, Israel.
- **Vishne G.**, Gerber, E. M., Knight R. T., Deouell L. Y. Multivariate Representation of Sustained Visual Content in a No-Report Paradigm. Conference on Cognitive Computational Neuroscience (CCN). San Francisco, United States; August, 2022. DOI: 10.32470/CCN.2022.1290-0. **Oral presentations selected by peer review ratings, top 6% of accepted submissions.**†‡
- **Vishne G.**, Gerber, E. M., Knight R. T., Deouell L. Y. Representation of Content in Sustained Viewing Conditions: A Case Study for Consciousness Theories. 25th Meeting of the Association for the Scientific Study of Consciousness (ASSC). July 2022; Amsterdam, Netherlands.‡
- Boasson A. D., **Vishne G.**, Deouell L. Y., Granot R. Rapid Responses to Auditory Frequency Change, Its' Magnitude and Direction – From Brain to Action. Frequency Following Response (FFR) Workshop. June 2022; Barcelona, Spain.
- Boasson A. D., **Vishne G.**, Deouell L. Y., Granot R. Rapid Responses to Auditory Frequency Change, Its' Magnitude and Direction – From Brain to Action. 16th International Conference on Music Perception and Cognition jointly organized with the 11th Triennial Conference of ESCOM. July 2021; virtual.
- **Vishne G.**, Knight R. T., Deouell L. Y. Rhythmic Influences on Visual Perception are Associated with Changes in Representation in the Ventral Stream. 7th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2020; Acre, Israel.
- **Vishne G.**, Jacoby N., Ahissar M. Impaired Sensorimotor Synchronization in Autism Reveals Slow Updating of Internal Priors. Edmond and Lily Safra Center for Brain Sciences (ELSC) Annual Retreat. February 2019; Ein Gedi, Israel.
- **Vishne G.**, Jacoby N., Ahissar M. Reduced Use of Recent Stimuli in Autistics' Priors. 5th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2018; Acre, Israel.

Philosophy

- Hacohen O.*, **Vishne G.*** Neural Representations Without Original Content: The Case from Content Multiplicity. International Society for the Philosophy of the Sciences of the Mind (ISPSM 2023). November 2023; Virtual.
- Hacohen O.*, **Vishne G.*** Neural Representations Are Not Natural Representations: The Case from Content Multiplicity. European Philosophy of Science Association (EPSA 2023). September 2023; Belgrade, Serbia.
- Hacohen O.*, **Vishne G.*** Neural Representations Are Not Natural Representations: The Case from Content Multiplicity. **Invite-only international workshop**, at the Israel Institute for Advanced Studies (IIAS): The Indeterminacy of Computation. July 2023; Jerusalem, Israel.
- Hacohen O.*, **Vishne G.*** Neural Representations Are Not Natural Representations: The Case from Content Multiplicity. The Annual Conference of the Israeli Philosophical Association. July 2023; Be'er Sheva, Israel.

- Hacohen O.*, **Vishne G.*** Neural Representations Are Not Natural Representations: The Case from Content Multiplicity. 22nd meeting of the Israeli Society for the History, Philosophy and Sociology of Science. July 2023; Tel-Aviv, Israel.

* Equal contribution

Conference Poster Presentations

- Uritsky K., **Vishne G.,** Garrido M. I., Deouell L., Y. Bayesian inference between the hemispaces – exploring the link between attentional asymmetry and Bayesian inference under uncertainty. Edmond and Lily Safra Center for Brain Sciences (ELSC) Annual Retreat. June 2023; Nahsholim, Israel.
- **Vishne G.**, Gerber, E. M., Knight R. T., Deouell L. Y. Representation of sustained visual content in different frequency ranges: an intracranial study. Cognitive Neuroscience Society 30th Anniversary Meeting (CNS 2023). March 2023; San Francisco, United States.†‡
- Guttman N., **Vishne G.**, Deouell L. Y. Processing Visual Information Over Time. Edmond and Lily Safra Center for Brain Sciences (ELSC) Annual Retreat. May 2022; Ein Gedi, Israel.
- **Vishne G.**, Gerber, E. M., Knight R. T., Deouell L. Y. Representation of Content in Sustained Viewing Conditions: A Case Study for Consciousness Theories. International Conference of Cognitive Neuroscience (ICON). May 2022; Helsinki, Finland.‡
- Auerbach-Asch C. R., **Vishne G.**, Deouell L. Y. Decoding Object Categories from Single Fixations in Natural Viewing Conditions. International Conference of Cognitive Neuroscience (ICON). May 2022; Helsinki, Finland.
- **Vishne G.**, Gerber, E. M., Knight R. T., Deouell L. Y. Representation of Content in Sustained Viewing Conditions: A Case Study for Consciousness Theories. 9th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2022; virtual.
- Auerbach-Asch C. R., **Vishne G.**, Deouell L. Y. Multivariate Single Trial Decoding of M\EEG Data in Natural Viewing Conditions: Data and Simulations. 9th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2022; virtual.
- Dobner-Ives M., Fivelzon, E., **Vishne G.**, Ahissar M. Which Mechanisms are Involved in the Development of Sensorymotor Synchronization? 9th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2022; virtual.
- Kusnir F., Pesin S., **Vishne G.**, Landau A. N. Hello from the Other Side: Robust Contralateral Interference in Tactile Detection. 9th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2022; virtual.
- **Vishne G.**, Auerbach-Asch C. R., Deouell L. Y. Methods for Multivariate Single Trial Decoding of M\EEG Data with High Overlap: Simulations. Organization for Human Brain Mapping (OHBM) Annual Meeting. June 2021; virtual.
- **Vishne G.**, Knight R. T., Deouell L. Y. Prestimulus Fronto-Parietal Modulation of Task Performance and Visual Representation. Cognitive Neuroscience Society Annual Meeting (CNS 2021). March 2021; virtual.
- Dobner M., **Vishne G.**, Kasten K., Ahissar M. Tapping in Synchrony with an External Rhythm – A Developmental Evaluation. 7th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2020; Acre, Israel.
- Kasten K., **Vishne G.**, Ahissar M. Adult Individuals with ASD Fail at Synchronization to an External Beat but Keep a Reliable Internal Tempo. 7th Conference of the Israeli Society for Cognitive Psychology (ISCOP). February 2020; Acre, Israel.
- **Vishne G.**, Gerber E. M., Knight R. T., Deouell L. Y. Distributed Representation of Temporally Persistent Visual Categories. Edmond and Lily Safra Center for Brain Sciences (ELSC) Annual Retreat. February 2020; Ein Gedi, Israel. **Awarded 2nd place in the poster blitz session.**

- **Vishne G.**, Gerber E. M., Knight R. T., Deouell L. Y. Distributed Representation of Temporally Persistent Visual Categories. Society for Neuroscience (SFN) 49th Annual Meeting. October 2019; Chicago, United States.†
- **Vishne G.**, Jacoby N., Ahissar M. Impaired Sensorimotor Synchronization in Autism Reveals Slow Updating of Internal Priors. Society for Neuroscience (SFN) 49th Annual Meeting. October 2019; Chicago, United States.†
- **Vishne G.**, Gerber E. M., Knight R. T., Deouell L. Y. Rhythmic Influences on Visual Perception are Associated with Changes in Representation in the Ventral Stream. Brain Rhythms in Computation, Communication and Cognition (BryCoCo). September 2019; Ramat Gan (Bar Ilan University), Israel.
- **Vishne G.**, Jacoby N., Frenkel O., Ahissar M. Aberrant Statistical Learning Impairs Sensorimotor Synchronization in Autism Spectrum Disorders. Interdisciplinary Advances in Statistical Learning 2019, Basque Center on Cognition, Brain & Language (BCBL). June 2019; San Sebastien, Spain.
- **Vishne G.**, Gerber E. M., Knight R. T., Deouell L. Y. Network Representation of Persistent Visual Categories. Jerusalem Brain Community (JBC) 6th annual retreat. June 2019; Mitzpe Ramon, Israel.
- **Vishne G.**, Gerber E. M., Knight R. T., Deouell L. Y. Network Representation of Persistent Visual Categories. The 1st Israeli Human Neuroimaging Conference. May 2019; Jerusalem, Israel.

† Travel was supported by the Edmond and Lily Safra Center for Brain Science (ELSC). ‡ Travel was supported by the Azrieli Foundation.

Additional Academic Activity

Academic Service and Leadership

2020-present **Heading the student body of the Azrieli Fellows Program** ("Fellows Supporting Fellows"):

- Organizing volunteer days, postdoc preparation workshops, welcoming new fellows and more.
- Initiated and led the organization of the first Azrieli fellows writing retreat (Ma'ale Hahamisha, Israel, 2022), which has since been incorporated into the core program activities of the graduate, post-doc, and young faculty fellowship programs.

2019-2020 **Co-organizer of advanced study group**, *Brain-Rhythms: Cognition, Biology and Everything In-between*. Funded by the Hebrew University program for PhD study groups (Hevruta Program).

2019-2020 **Co-organizer of advanced study group**, *How to find evidence for the implementation of cognitive models in the brain*. Funded by the Edelstein Center for the History and Philosophy of Science Technology and Medicine.

- Also received funding from the Edelstein Center for organizing an international interdisciplinary conference: *Cognitive Models and the Brain – Between Neuroscience and Philosophy* (cancelled due to the COVID-19 pandemic).

Ad-hoc Reviewer

2022-2023 Attention, Perception, & Psychophysics (Journal); Conference on Cognitive Computational Neuroscience (CCN)

Invite-only Workshops

2023 **Participant and speaker**, *The Indeterminacy of Computation*, organized by Prof. Oron Shagrir (Hebrew U.) and Prof. Nir Fresco (Ben-Gurion U.). Hosted by the Israel Institute for Advanced Studies (IIAS), Jerusalem, Israel.

2023 **Participant and speaker**, *Gatsby Tri-center Computational Neuroscience Annual Meeting*. Centers: Columbia University, University College London and Hebrew University of Jerusalem (exclusive workshop, fewer than 25 participants from all centers). Gladstone's Library, Hawarden, United Kingdom (Wales). Travel and lodging were fully funded by the Gatsby Foundation.

2019 **Participant**, *The Multi-Level Structure of Reality*, organized by Prof. Orly Shenker (Hebrew U.) and Prof. Meir Hemmo (Haifa U.). Hosted by the Israel Institute for Advanced Studies (IIAS), Jerusalem, Israel. Led to co-edited book (publication [4]).

Courses and Training

2022 CIFAR Neuroscience of Consciousness Winter School. Cancun, Mexico. Hosted by members of CIFAR's Brain, Mind & Consciousness program. Acceptance was **highly selective (<10% of submissions)**. Travel and lodging were fully funded by CIFAR and the Templeton Foundation.

2022 Artificial and Natural Computations for Sensory Perception: what is the link? Summer school by the Federation of European Neuroscience Societies (FENS). Bologna, Italy. Included poster presentation. Postponed from 2020 due to the COVID-19 pandemic.

2022 (declined) Neurohackademy summer institute, University of Washington eScience Institute, in Seattle, Washington, United States. Postponed from 2020 due to the COVID-19 pandemic; accepted but declined due to this change in circumstances.

2020 Neuromatch Academy Computational Neuroscience online summer school (also participated in preparing materials for the course, publication [2]).

2018 Advanced Course "Consciousness – from Theory to Practice", Neuroscience School of Advanced Studies (NSAS) in Venice, Italy. Travel was supported by the Jerusalem Brain Community (JBC).

2018 Summer School on Mathematical Philosophy for Female Students, The Munich Center for Mathematical Philosophy, Germany. Travel was supported by the Edelstein Center for the History and Philosophy of Science Technology and Medicine.

Selected Media Coverage

Publication [3] (2023):

- Podcast interview: A Conscious Exploration of Consciousness, *Honest Discussions* hosted by Dr. Randen Patterson. https://www.youtube.com/watch?v=Tx4t_Ct6g_E&t=1s
- Where does consciousness reside in the brain? Israeli-US study sheds new light. *Jerusalem Post.* https://www.jpost.com/health-and-wellness/article-750606
- Study sheds light on where conscious experience resides in brain. *Science Daily*. https://www.sciencedaily.com/releases/2023/07/230718225629.htm
- Study provides clues to the neural basis of consciousness. *News Medical*. https://www.news-medical.net/news/20230718/Study-provides-clues-to-the-neural-basis-of-consciousness.aspx
- Unraveling the Puzzle of Consciousness: Key Brain Region Discovered. *Neuroscience News*. https://neurosciencenews.com/consciousness-frontal-cortex-23663/
- Consciousness Study Shows How Brain Stores Images We Don't Even Perceive. *Technology Networks.* https://www.technologynetworks.com/neuroscience/news/consciousness-study-shows-how-brain-stores-images-we-dont-even-perceive-376502
- Study sheds light on where conscious experience resides in brain. *Medical Xpress.* https://medicalxpress.com/news/2023-07-conscious-resides-brain.html

Other Activity and Volunteer Work

Awards and Honors

2021 Honorable mention in the competition "Song of Science" ("שירת המדע", the Ofer Lieder Prize to Promote Literary Creation by Scientists; link to my short story *Hospitalization*)

Employment

2018-present National Institute for Testing and Evaluation – composing and testing problems for the Mitam (מתא"ם), the Israeli exam for advanced degrees in psychology.

2016-present	Psychiatric Clinique (*Tali's Home*, הבית של טלי) – reviewing scientific literature and preparing background material for medical reports.
2011-2015	Service in Intelligence Corpse (Unit 8200), First Lieutenant (mandatory service). Included serving as a researcher specialized in technical intelligence, command over a research team and command over training courses.
2009-2019	Private tutor in undergraduate and graduate level mathematics.

Volunteer Work

2018-present	Lectures about neuroscience in high schools as part of the "Head Start" project, whose goal is to enrich youth about brain research.
2021-2023	Frontiers for Young Minds: open-access scientific journal written by scientists, reviewed by kids and teens. I was part of the Hebrew language team (including mentoring, editing, and social media) and guided kid reviews.
2017-2020	Lectures on psychology and cognitive science in the Israel Deaf Association and other organizations.
2016-2020	Non-profit organization *Common Ground* (מכנה משותף) educating youth regarding gender stereotypes and their influences. Instructed workshops with youth and educational staff, wrote teaching material and guided new volunteers.

Skills

Software	Matlab – excellent; Python – very good; R – good
Languages	Hebrew – mother tongue; English – fluent