Department of Industrial Engineering and Management
School of Brain Sciences and Cognition
Data Science Research Center
Ben-Gurion University of the Negev
golan.neuro@bgu.ac.il
brainsandmachines.org

Tal Golan, Ph.D.

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Education

May 2018 **Ph.D., Brain Sciences: Computation and Information Processing**,
The Hebrew University of Jerusalem, Israel
Edmond and Lily Safra Center for Brain Sciences (ELSC). Thesis Advisors:
Rafael Malach (Department of Neurobiology, Weizmann Institute)
Leon Deouell (ELSC & Department of Psychology, the Hebrew University)

Jun 2014 **M.Sc., Brain Sciences: Computation and Information Processing**,
The Hebrew University of Jerusalem, Israel
Within the framework of studies toward a direct-entry Ph.D. at the Edmond and Lily Safra Center for Brain Sciences (ELSC).

Nov 2009 **BA, Cognitive Sciences and Psychology**, *The Hebrew University of Jerusalem*, Israel
Summa cum laude. Electives in mathematics and computer science.

Employment

Oct 2025-current **Senior Lecturer**, *Department of Industrial Engineering and Management, Ben-Gurion University of the Negev*, Be'er-Sheva, Israel

Jan 2023-Sep 2025 **Senior Lecturer**, *Department of Cognitive and Brain Sciences, Ben-Gurion University of the Negev*, Be'er-Sheva, Israel
(In October 2025, the department merged into the Department of Industrial Engineering and Management as part of an institutional reorganization.)

Oct 2022–Dec 2022 **Associate Research Scientist**, *Zuckerman Institute, Columbia University*, New York, United States.

May 2018–Sep 2022 **Postdoctoral Research Scientist**, *Zuckerman Institute, Columbia University*, New York, United States. Host: Nikolaus Kriegeskorte.

Oct 2017–May 2018 **Staff Associate**, *Zuckerman Institute, Columbia University*, New York, United States. Host: Nikolaus Kriegeskorte.

Publications

1. **Tal Golan**, Heiko H. Schütt, and Nikolaus Kriegeskorte. Making models disagree to learn how brains compute. *Nature Reviews Neuroscience*, **2026**. Advance online publication, August 28, 2026. `https://doi.org/10.1038/s41583-026-01070-0`.

2. Itamar Avitan and **Tal Golan**. Model-behavior alignment under flexible evaluation: When the best-fitting model isn't the right one. In *Advances in Neural Information Processing Systems*, volume 38, pages 13447–13486, **2025**. `https://doi.org/10.52202/085713-0404`.

3. Yijiang Li, Qingying Gao, Tianwei Zhao, Bingyang Wang, Haoran Sun, Haiyun Lyu, Robert D. Hawkins, Nuno Vasconcelos, **Tal Golan**, Dezhi Luo, and Hokin Deng. Core knowledge deficits in multi-modal language models. In *Proceedings of the 42nd International Conference on Machine Learning*, volume 267 of *Proceedings of Machine Learning Research*, pages 34379–34409, 2025.

4. Amirhossein Farzmahdi, Wilbert Zarco, Winrich A Freiwald, Nikolaus Kriegeskorte, and **Tal Golan**. Emergence of brain-like mirror-symmetric viewpoint tuning in convolutional neural networks. *eLife*, 13:e90256, **2024**.

5. **Tal Golan**, JohnMark Taylor, Heiko H. Schütt, Benjamin Peters, Rowan P. Sommers, Katja Seeliger, Adrien Doerig, Paul Linton, Talia Konkle, Marcel van Gerven, Konrad Kording, Blake Richards, Tim C. Kietzmann, Grace W. Lindsay, and Nikolaus Kriegeskorte. Deep neural networks are not a single hypothesis but a language for expressing computational hypotheses. *Behavioral and Brain Sciences*, 46:e392, **2023**.

6. **Tal Golan***, Matthew Siegelman*, Nikolaus Kriegeskorte, and Christopher Baldassano. Testing the limits of natural language models for predicting human language judgements. *Nature Machine Intelligence*, 5(9):952–964, **2023**.

7. **Tal Golan***, Wenxuan Guo*, Heiko H. Schütt, and Nikolaus Kriegeskorte. Distinguishing representational geometries with controversial stimuli: Bayesian experimental design and its application to face dissimilarity judgments. In *4th Shared Visual Representations in Human and Machine Intelligence Workshop (SVRHM, a NeurIPS workshop)*, **2022**. `https://openreview.net/forum?id=a3YPu2-Mf2h`.

8. Kamila M. Jozwik*, Jonathan O'Keeffe*, Katherine R. Storrs*, Wenxuan Guo, **Tal Golan**, and Nikolaus Kriegeskorte. Face dissimilarity judgments are predicted by representational distance in morphable and image-computable models. *Proceedings of the National Academy of Sciences*, 119(27):e2115047119, **2022**.

9. Guy Gaziv*, Roman Beliy*, Niv Granot*, Assaf Hoogi, Francesca Strappini, **Tal Golan**, and Michal Irani. Self-supervised natural image reconstruction and large-scale semantic classification from brain activity. *NeuroImage*, 254:119121, **2022**.

10. **Tal Golan**, Prashant C. Raju, and Nikolaus Kriegeskorte. Controversial stimuli: Pitting neural networks against each other as models of human cognition. *Proceedings of the National Academy of Sciences*, 117(47):29330–29337, **2020**.

11. Roman Beliy*, Guy Gaziv*, Assaf Hoogi, Francesca Strappini, **Tal Golan**, and Michal Irani. From voxels to pixels and back: Self-supervision in natural-image reconstruction from fMRI. In *Advances in Neural Information Processing Systems 32*, pages 6514–6524, **2019**.

12. Nikolaus Kriegeskorte and **Tal Golan**. Neural network models and deep learning. *Current Biology*, 29(7):R231–R236, **2019**.

13. Francesca Strappini, Meytal Wilf, Ofer Karp, Hagar Goldberg, Michal Harel, Edna Furman-Haran, **Tal Golan**, and Rafael Malach. Resting-State Activity in High-Order Visual Areas as a Window into Natural Human Brain Activations. *Cerebral Cortex*, 29(9):3618–3635, **2019**.

14. **Tal Golan**, Ido Davidesco, Meir Meshulam, David M Groppe, Pierre Mégevand, Erin M Yeagle, Matthew S Goldfinger, Michal Harel, Lucia Melloni, Charles E Schroeder, Leon Y Deouell, Ashesh D Mehta, and Rafael Malach. Increasing suppression of saccade-related transients along the human visual hierarchy. *eLife*, 6:e27819, **2017**.

15. Edden M. Gerber, **Tal Golan**, Robert T. Knight, and Leon Y. Deouell. Cortical representation of persistent visual stimuli. *NeuroImage*, 161:67–79, **2017**.

16. Meytal Wilf, Francesca Strappini, **Tal Golan**, Avital Hahamy, Michal Harel, and Rafael Malach. Spontaneously Emerging Patterns in Human Visual Cortex Reflect Responses to Naturalistic Sensory Stimuli. *Cerebral Cortex*, 27(1):750–763, **2017**.

17. **Tal Golan**, Ido Davidesco, Meir Meshulam, David M Groppe, Pierre Mégevand, Erin M Yeagle, Matthew S Goldfinger, Michal Harel, Lucia Melloni, Charles E Schroeder, Leon Y

Deouell, Ashesh D Mehta, and Rafael Malach. Human intracranial recordings link suppressed transients rather than 'filling-in' to perceptual continuity across blinks. *eLife*, 5:e17243, **2016**.

18. Niv Noy, Stephan Bickel, Elana Zion-Golumbic, Michal Harel, **Tal Golan**, Ido Davidesco, Catherine A. Schevon, Guy M. McKhann, Robert R. Goodman, Charles E. Schroeder, Ashesh D. Mehta, and Rafael Malach. Intracranial recordings reveal transient response dynamics during information maintenance in human cerebral cortex. *Human Brain Mapping*, 36(10):3988–4003, **2015**.

19. Niv Noy, Stephan Bickel, Elana Zion-Golumbic, Michal Harel, **Tal Golan**, Ido Davidesco, Catherine A. Schevon, Guy M. McKhann, Robert R. Goodman, Charles E. Schroeder, Ashesh D. Mehta, and Rafael Malach. Ignition's glow: Ultra-fast spread of global cortical activity accompanying local "ignitions" in visual cortex during conscious visual perception. *Consciousness and Cognition*, 35:206–224, **2015**.

20. **Tal Golan**, Shlomo Bentin, Joseph M. DeGutis, Lynn C. Robertson, and Assaf Harel. Association and dissociation between detection and discrimination of objects of expertise: Evidence from visual search. *Attention, Perception, & Psychophysics*, 76(2):391–406, **2014**.

21. Orit Hershler, **Tal Golan**, Shlomo Bentin, and Shaul Hochstein. The wide window of face detection. *Journal of Vision*, 10(10):21–21, **2010**.

22. Elana Zion-Golumbic, **Tal Golan**, David Anaki, and Shlomo Bentin. Human face preference in gamma-frequency EEG activity. *NeuroImage*, 39(4):1980–1987, **2008**.

* *denotes equal contribution.*

Manuscripts and Reports

Preprints

Itay Reznik, Raz Lapid, Moshe Sipper, and **Tal Golan**. Adversarial robustness does not entail human-aligned categorization, **2026**. arXiv:2611.00715.

Ohad Sheelo, **Tal Golan***, and Ari Pakman*. Gaussian BROJA partial information decomposition in closed form, **2026**. arXiv:2610.13464.

Wenxuan Guo, Heiko H. Schütt, Kamila M. Jozwik, Katherine R. Storrs, Nikolaus Kriegeskorte*, and **Tal Golan***. Perceived face similarity reflects inverse-generative and naturalistic discriminative objectives, **2026**. arXiv:2605.12619.

Jasper J.F. van den Bosch, **Tal Golan**, Benjamin Peters, JohnMark Taylor, Mahdiyar Shahbazi, Baihan Lin, Ian Charest, Jörn Diedrichsen, Nikolaus Kriegeskorte, Marieke Mur, and Heiko H. Schütt. A Python toolbox for representational similarity analysis. *bioRxiv*, 2025. Reviewed Preprint at eLife.

Scientific open-source code

Tal Golan and Nikolaus Kriegeskorte. Synthesizing Controversial Stimuli (a tutorial with PyTorch), **2020**. `https://github.com/kriegeskorte-lab/controversial_stimuli_tutorial`.

Research Grants & Fellowships

2026 **Israel Innovation Authority Compute Voucher Grant**
Role: sole PI. 21,888 NVIDIA B200 GPU-hours.

2024-2028 **Israel Science Foundation Individual Investigator Grant**
Role: sole PI.

2024-2026 **Israel Science Foundation New Faculty Equipment Grant**
Role: sole PI.

2021–2022 **The Charles H. Revson Senior Fellowship in Biomedical Science**
Role: Postdoctoral Fellow.

2017–2018 **ELSC Brain Sciences Postdoctoral Fellowship for Training Abroad**
Role: Postdoctoral Fellow.

Blavatnik Postdoctoral Fellowship
Declined in order to follow the host PI's relocation from the University of Cambridge to Columbia University.

Honors & Awards

2026 **Innovative Lecturer Award**, *Ben-Gurion University of the Negev*

2026 **Lecturer of the Association**, *Ben-Gurion University of the Negev Student Association*
Certificate of appreciation.

2022 **Best paper award**, *Shared Visual Representations in Human and Machine Intelligence*, with Wenxuan Guo

2017 **Merit Abstract Award**, *Organization for Human Brain Mapping (OHBM 2017)*

2016 **Merit Abstract Award**, *Organization for Human Brain Mapping (OHBM 2016)*

2015 **Prof. Rahamimoff Travel Grant**, *U.S. Israel Binational Science Foundation*

2012 **Prize for outstanding academic performance**, *ICNC & ELSC, The Hebrew University*

2011 **Full travel & participation scholarship**, *FENS-IBRO imaging training center*

2008 **Einstein Scholarship, rector prize, and dean's list**, *The Hebrew University*

2007 **Dean's list**, *The Hebrew University*

Invited Talks

3/2027 **Multidisciplinary Brain Research Center, Bar-Ilan University, Ramat Gan, Israel**, Invited seminar. Forthcoming.

2/2027 **International Symposium on Brain Function and Cognition (ISBFC), Holon, Israel**, Keynote lecture. Forthcoming.

2/2027 **MeReX closing workshop: Mechanism, Computation, Representation: What Can Philosophy and Neuroscience Offer Each Other? (Athens, Greece)**, Invited talk. Forthcoming.

7/2025 **Neural Networks as Mechanistic Models Workshop (Columbia University, New York, USA)**, A Pareto-Optimality Approach to Model Comparison

11/2021 **Advances in Brain Sciences 2021: Virtual Glimpses of the future (virtual meeting)**, Bridging visual object recognition and deep neural network models by means of model-driven experimentation

12/2020 **Machine Learning in Science & Engineering (virtual meeting)**, Controversial Stimuli: Pitting neural networks against each other as models of human recognition

Departmental/Campus Talks

12/2025 **Department of Industrial Engineering and Management, Ben-Gurion University, Be'er-Sheva, Israel**, Reverse-engineering human vision: Moving beyond curve fitting toward mechanism identification

4/2024 **Zelman Center Annual Retreat, Ben-Gurion University, Be'er-Sheva, Israel**, Emergence of brain-like mirror-symmetric viewpoint tuning in convolutional neural networks

5/2023 **Psychology Department, Cognition and Brain Seminar, Ben-Gurion University, Be'er-Sheva, Israel**, Utilizing deep learning to form and test teleological hypotheses about human perception

1/2020 **Zuckerman Institute Postdoctoral Seminar Series, Columbia University, New York**, Testing deep neural network models of vision with controversial stimuli

11/2019 **Student-led seminar, Department of Psychology, Columbia University, New York**, Controversial stimuli: Pitting neural networks against each other as models of human recognition

1/2017 **Edmond and Lily Safra Center for Brain Sciences (ELSC) Annual Retreat, Ein Gedi, Israel**, Why can't we see our own eye blinks? A human intracranial investigation

Teaching Experience

2025-2026 **Lecturer**, *Ben-Gurion University*
Course: Deep Learning for Brain and Cognitive Sciences

2024, 2026 **Lecturer**, *Ben-Gurion University*
Course: Computational Approaches to Neuroimaging (197.1.0125)

2024-2026 **Lecturer**, *Ben-Gurion University*
Course: Introduction to Computation & Cognition (197.1.0006)

2023-2025 **Lecturer**, *Ben-Gurion University*
Course: Advanced Data Analysis Methods for Cognitive and Brain Sciences (197.2.0063), a two-part, year-long graduate course

2021 **Guest lecturer**, *Columbia University*
Course: Behavioral Data Science (PSYC UN1930)
Lecture topic: Deep learning in Cognitive Research

2017 **Instructor**, *Hebrew University*
Course: Human Neuroscience Methods Lab (76988)

Institutional professional functions

Oct 2025–current **Member, Undergraduate Degree Teaching Committee** School of Brain Sciences and Cognition, Ben-Gurion University.

Oct 2023–Sep 2025 **Chair, Master's Degree Teaching Committee** Department of Cognitive and Brain Sciences, Ben-Gurion University.

Oct 2024–Aug 2025 **Member, Graduate Degree Teaching Committee** School of Brain Sciences and Cognition, Ben-Gurion University.

Professional functions outside universities/institutions

2026 **Ad hoc reviewer** *The National Institute for Psychobiology in Israel (NIPI)*

2026 **Ad hoc reviewer** *Israel Innovation Authority*

2024-current **Area chair** *Conference on Neural Information Processing Systems (NeurIPS)*

2025, 2026 **Ad hoc reviewer** *Israel Science Foundation (ISF)*

Peer-Review Activity

Reviewer recognition: NeurIPS – "Top Area Chair" (2026), "Top Reviewer" (2022); Journal of Vision – "Exceptionally Good Review" ($\times 3$).

Journals PLOS Computational Biology (×4), Nature Communications (×3), Journal of Vision (×3), Nature Neuroscience (×2), PNAS (×2), Cognition (×2), NeuroImage (×2), Communications Biology (×2), Trends in Cognitive Sciences, Psychological Science, Science Advances, Journal of Neuroscience, Imaging Neuroscience, Patterns, International Journal of Computer Vision, Cognitive Systems Research, Neuropsychologia, iScience, Acta Psychologica, Scientific Data, and PLOS ONE.
Multipliers indicate distinct manuscripts reviewed.

Conferences NeurIPS, ICLR, ICML, ACL ARR, CogSci, CCN, OHBM, and SVRHM.

Contributed Conference Presentations

Oral presentations

Tal Golan. Probing Visual Cortex Where Models Disagree. Contributed talk at the Israel Society for Neuroscience (ISFN) Annual Meeting, **2027**. Scheduled for January 2027.

Tal Golan. The computational basis of visual typicality: Evidence for exemplar-based representations. Contributed talk at the Israel Vision Science Society Annual Conference, **2026**. Bar-Ilan University, Ramat Gan, Israel.

Itamar Avitan, Maya Zach, and **Tal Golan**. System identification perspective on representational alignment. Student flash talk presented by Itamar Avitan at Neuro-AI-Talks (NEAT), September **2026**. Osnabrück, Germany.

Tal Golan. Going beyond apparent model equivalence in model–brain alignment. Presented at Cognitive Computational Neuroscience (CCN), August **2025**. Amsterdam, Netherlands.

Tal Golan. Emergence of brain-like mirror-symmetric viewpoint tuning in convolutional neural networks. Presented at the Israel Society for Neuroscience (ISFN) Annual Meeting, January **2025**. Eilat, Israel.

Tal Golan. Comparing artificial and biological networks: Are we limited by tools, hypotheses, or data? Symposium talk as part of the generative adversarial collaboration at the Conference on Cognitive Computational Neuroscience (CCN), **2023**. Oxford, United Kingdom.

Tal Golan. Utilizing deep learning to form and test teleological hypotheses about human perception. Presented at the 11th Israeli Conference on Cognition Research (ISCOP), February **2023**. Acre, Israel.

Tal Golan*, Wenxuan Guo*, Heiko H. Schütt, and Nikolaus Kriegeskorte. Distinguishing representational geometries with controversial stimuli: Bayesian experimental design and its application to face dissimilarity judgments. Presented at the 4th Shared Visual Representations in Human and Machine Intelligence Workshop, December **2022**. New Orleans, LA, USA.

Tal Golan, Ido Davidesco, Meir Meshulam, David M. Groppe, Pierre Mégevand, Matthew S. Goldfinger, Erin M. Yeagle, Michal Harel, Lucia Melloni, Charles E. Schroeder, Ashesh D. Mehta, Leon Y. Deouell, and Rafael Malach. Suppressed image-flicker signals in human visual cortex and perceived continuity across eye blinks. Presented at Organization for Human Brain Mapping (OHBM), June **2016**. Geneva, Switzerland.

Tal Golan*, Ido Davidesco*, David M Groppe, Pierre Mégevand, Lucia Melloni, Charles E. Schroeder, Ashesh D. Mehta, Leon Y. Deouell, and Rafael Malach. Neural correlates of perceptual continuity during eye blinks revealed in human ventral stream visual cortex. Presented at Conference on Cognition Research of the Israeli Society for Cognitive Psychology, February **2014**. Acre, Israel.

Tutorials

Tal Golan, Wenxuan Guo, and Nikolaus Kriegeskorte. Controversial stimuli: Optimizing experiments to adjudicate among computational hypotheses. Invited tutorial presented at the Conference on Cognitive Computational Neuroscience (CCN 2021), September **2021**. Virtual meeting.

Selected poster presentations

Ouriya Boshi Levine, Nikolaus Kriegeskorte, and **Tal Golan**. Probing CNN and Transformer Inductive Biases with Transferable Controversial Stimuli. Poster presented by Ouriya Boshi Levine at Artificial Intelligence and its Applications (Mind-IL 2026), October **2026**. Tel Aviv, Israel.

Itamar Avitan and **Tal Golan**. Model-behavior alignment under flexible evaluation: When the best-fitting model isn't the right one. Poster presented at NeurIPS 2025, **2025**. San Diego, CA, USA.

Itay Inbar and **Tal Golan**. From pixels to human typicality judgments: Disentangling category structure and neural network representations. Poster presented at the 4th Annual Israel Vision Sciences Society meeting, **2025**. Tel Aviv, Israel.

Itamar Avitan and **Tal Golan**. Rethinking representational alignment: Linear probing fails to identify the ground-truth model. Poster presented at Cognitive Computational Neuroscience (CCN), August **2025**. Selected for oral presentation (among 41 talks out of 550 accepted posters).

Itay Inbar and **Tal Golan**. From pixels to human typicality judgments: Disentangling category structure and neural network representations. Poster presented at Cognitive Computational Neuroscience (CCN), August **2025**.

Itamar Avitan and **Tal Golan**. Controversial THINGS: optimized experimental design for discriminating among neural network models of human similarity judgment. Poster presented at the Israeli Vision Science Conference (IVSS), September **2024**.

Wenxuan Guo*, **Tal Golan***, Heiko H. Schütt, and Nikolaus Kriegeskorte. Face-off: Pitting computational models of the fusiform face area against each other with controversial face stimuli. Poster presented at the Conference on Cognitive Computational Neuroscience (CCN), **2023**. Oxford, United Kingdom.

Wenxuan Guo*, **Tal Golan***, Heiko H. Schütt, and Nikolaus Kriegeskorte. Disentangling computational hypotheses of the fusiform face area using controversial face stimuli. Poster presented at the Organization for Human Brain Mapping (OHBM), July **2023**.

Amirhossein Farzmahdi, **Tal Golan**, Reza Ebrahimpour, and Winrich Freiwald. Mirror-symmetric viewpoint selectivity in deep neural networks. Poster presented at Cosyne 2021, February **2021**. Virtual meeting.

Tal Golan, Prashant C. Raju, and Nikolaus Kriegeskorte. Controversial stimuli: adjudicating between deep neural network models of biological vision with synthetic images. Poster presented at the twentieth Annual Meeting of the Vision Sciences Society, June **2020**. Virtual meeting.

Tal Golan, Prashant C. Raju, and Nikolaus Kriegeskorte. Adjudicating between deep neural network models of biological vision with controversial stimuli. Poster presented at Cosyne 2020, February **2020**. Denver, CO, USA.

Tal Golan. Selection bias due to massive evaluation of classifiers in (f)MRI searchlight classification. Poster presented at the Organization for Human Brain Mapping (OHBM), June **2017**. Vancouver, Canada.

Tal Golan, Ido Davidesco, Meir Meshulam, David M. Groppe, Pierre Mégevand, Matthew S. Goldfinger, Erin M. Yeagle, Lucia Melloni, Charles E. Schroeder, Ashesh D. Mehta, Leon Y. Deouell, and Rafael Malach. Human iEEG indicates increasing suppression of saccade-related transients along the visual hierarchy. Poster presented at the Organization for Human Brain Mapping (OHBM), June **2017**. Vancouver, Canada.

Tal Golan. Decoding averaged observations: Aggregation bias and the interpretability of MVPA classification. Poster presented at the Organization for Human Brain Mapping (OHBM), June **2016**. Geneva, Switzerland.

Tal Golan, Ido Davidesco, Meir Meshulam, David M. Groppe, Pierre Mégevand, Matthew S. Goldfinger, Erin M. Yeagle, Lucia Melloni, Charles E. Schroeder, Ashesh D. Mehta, Leon Y. Deouell, and Rafael Malach. Why can't we see our own eyeblinks? An ECoG study. Poster presented at Neuroscience 2015 (SFN), October **2015**. Chicago, IL, United States.

Tal Golan, Uri Hertz, Noa Zeharia, and Amir Amedi. Computationally efficient non-parametric inference from fMRI searchlight classification. Poster presented at the FENS-IBRO imaging training center, August **2011**. Lausanne, Switzerland.