

**EREZ FREUD, Ph.D.**  
**Associate Professor & York Research Chair in Visual Cognitive Neuroscience**

**Summary**

Dr. Erez Freud is an expert in visual cognitive neuroscience, with extensive experience in advancing our understanding of object recognition, visuomotor control, and the neural mechanisms underlying perception and action. As an Associate Professor and York Research Chair at York University, Dr. Freud has developed a highly impactful research program, combining behavioral experiments, neuroimaging, and neuropsychological investigations. His work has not only contributed to the scientific community through numerous high-impact publications but also through his dedicated mentorship of emerging scholars.

**I. CONTACT**

Department of Psychology and the Centre for Vision Research  
Sherman Health Science Centre 1008  
York University  
Toronto, Ontario Canada M3J 1P3

**II. DEGREES:**

Ben-Gurion University of the Negev, Israel  
PhD in Psychology  
*August 2015*

Ben-Gurion University of the Negev, Israel  
MA in Psychology (*Summa Cum Laude*)  
*August 2011*

Ben-Gurion University of the Negev, Israel  
BA in Behavioral sciences (*Cum Laude*)  
*August 2009*

**III. EMPLOYMENT HISTORY:**

Associate Professor  
Department of Psychology, York University  
Toronto, ON

*July 2023- present*

**Affiliations**

Graduate Programme in Psychology, York University  
Graduate Programme in Biology, York University

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Graduate Neuroscience Diploma, York University  
Faculty Member, Centre for Vision Research, York University  
Core member, Vision-Science to Application (VISTA), York University

Assistant Professor  
Department of Psychology, York University  
Toronto, ON

July 2018- July 2023

Post-Doctoral Fellow –  
Department of Psychology and Center for the Neural Basis of Cognition, Carnegie Mellon University,  
Pittsburgh, PA, USA

Aug 2015- July 2018

#### IV. HONOURS AND AWARDS:

2024-2029: York Research Chair in Visual Cognitive Neuroscience, York University  
2017: Israel Scientific Foundation (ISF) Post-Doctoral Fellowship (\$40,000)  
2015: Rothschild Foundation Post-Doctoral Fellowship (\$60,000)  
2015: Cognitive Neuropsychology travel award for outstanding research by an early-stage researcher in the field of cognitive neuropsychology.  
2015: Ben-Gurion University Rector award for excellent PhD students  
2015: Travel grant in memory of Prof. Shlomo Bentin  
2014: Travel grant from the National Institute of Psychobiology in Israel  
2014: Recipient of the Prof. Marianne Amir award for academic achievements for PhD students  
2013: Faculty of Humanities and Social Sciences award for the best student's publication.  
2012: Zlotowski center for Neuroscience scholarship for excelled PhD students (1 year).  
2011: The Negev scholarship for outstanding PhD student (4 years).

#### V. SCHOLARLY AND PROFESSIONAL CONTRIBUTIONS:

##### PUBLICATIONS REFEREED JOURNALS

*Trainees (at the time of project) are underlined*

1. Moreau, R., Alp, N., Clarke, A. D. F., **Freud, E.**, & Kohler, P. J. (2025). Visual search efficiency is modulated by symmetry type and texture regularity. *Journal of Vision*, 25(6), 7. <https://doi.org/10.1167/jov.25.6.7>
2. **Freud E.**, Ahmad Z., Shelef E. & Hadad BS. Effective autism classification through grasping kinematics. (2025). *Autism Research* 18 (6), 1170-1181
3. Che, X., Le, A. T., Orlando, M., Krylova, S. M., Panferov, V. G., Ivanov, N. A., ...**Freud E.**, ... & Krylov, S. N. (2025). Addressing Hemolysis-Induced Loss of Sensitivity in Lateral Flow Assays

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of Blood Samples with Platinum-Coated Gold Nanoparticles and Machine Learning. *Analytical Chemistry*.

4. Chamanzar, A., **Freud, E.**, Grover, P., & Behrmann, M. (2025). Lesion-network mapping in task-dependent frequencies uncovers remote consequences of focal damage. *Imaging Neuroscience*. 3, *imag\_a\_00557*
5. Ahsan, T., Wilcox, L.M. & **Freud, E.** Perceived depth modulates allocation of attention. *Sci Rep* 15, 10233 (2025). <https://doi.org/10.1038/s41598-025-93061-x>
6. Granovetter, M. C., Maallo, A. M. S., Ling, S., Robert, S., **Freud, E.**, Patterson, C., & Behrmann, M. (2024). Functional resilience of the neural visual recognition system post-pediatric occipitotemporal resection. *iScience*. <https://doi.org/10.1016/j.isci.2024.111440>
7. Luabeya, G. N., Yan, X., **Freud, E.**, & Crawford, J. D. (2024). Influence of gaze, vision, and memory on hand kinematics in a placement task. *Journal of Neurophysiology*, 132(1), 147-161.
8. Goldstein-Marcusohn, Y., Asaad, R., Asaad, L., & **Freud, E.** (2024). The large-scale organization of shape processing in the ventral and dorsal pathways is dissociable from attention. *Cerebral Cortex*, 34(6), bhae221.
9. Karsh, N., Ahmad, Z., **Freud, E.**, & Hadad, BS. (2024). An effect that counts: Temporally contiguous action effect enhances motor performance; *Psychonomic Bulletin & Review*, 31, 897-905.
10. Ahmad, Z., Kelly K., & **Freud, E.**, (2023). Reduced perception-action dissociation in children with amblyopia. *Neuropsychologia*, 191, 108738.
11. Baltaretu, B. R., Stevens, W. D., **Freud, E.**, & Crawford, J. D. (2023). Occipital and parietal cortex participate in a cortical network for transsaccadic discrimination of object shape and orientation. *Scientific Reports*, 13(1), 11628.
12. **Freud E.**, Di Giammarino D., & Camilleri C. Mask-wearing selectivity alters observers' face perception. (2022). *Cognitive Research: Principles and Implications*, 7(1), 1-10
13. **Freud, E.**, Di Giammarino D., Stajduhar, A., Rosenbaum, R. S., Avidan, G., & Ganel, T. (2022). Recognition of masked faces in the era of the pandemic: No improvement, despite extensive, natural exposure. *Psychological Science*, 33(10), 1635-1650
14. Ahmad, Z., Behrmann, M., Patterson, C., & **Freud, E.** (2022). Unilateral resection of both cortical visual pathways in a pediatric patient alters action but not perception. *Neuropsychologia*, 168, 108182.

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15. Mitchnick K.A., Ahmad Z., Mitchnick S.D., Ryan J.D., Rosenbaum R.S., **Freud E.** (2022). Damage to the human dentate gyrus impairs the perceptual discrimination of complex, novel objects. *Neuropsychologia*,108238,
16. Liu, Y., Caracoglia, J., Sen, S., **Freud, E.**, & Striem-Amit, E. (2022). Are reaching and grasping effector-independent? Similarities and differences in reaching and grasping kinematics between the hand and foot. *Experimental Brain Research*, 1-16.
17. **Freud E.** & Ahsan T. Does the dorsal pathway derive intermediate shape-centred representations? (2022). *Cognitive Neuropsychology*, 1-3 (Invited).
18. Stajduhar A., Ganel T., Rosenbaum R.S., Avidan G. & **Freud E.**, Face Masks Disrupt Holistic Processing and Face Perception in School-Age Children. (2022). *Cognitive Research: Principles and Implications*, 7(1), 1-10.
19. Ahsan, T., Bolton, K., Wilcox, L. M., & **Freud, E.** (2022). Perceived depth modulates perceptual resolution. *Psychonomic Bulletin and Review*. 29(2), 455-466.
20. **Freud E.**, Binur N., Srikanth A., Davidson E., Ganel T. & Hadad B.S. Double Dissociation Between Perception and Action in Children. (2021). *Journal of Experimental Child Psychology*, 201, 104986.
21. **Freud E.**, Stajduhar A., Rosenbaum R.S., Avidan G. & Ganel T. The COVID-19 pandemic masks the way people perceive faces (2020). *Scientific Reports*. 10.31234/osf.io/zjmr8 (The paper was included in the “Scientific Reports Top 100 2020” list (<https://www.nature.com/collections/feidhcahdd>)).
22. Maallo, A. M. S., Granovetter, M. C., **Freud, E.**, Kastner, S., Pinsk, M. A., Patterson, C., & Behrmann, M. (2020). All hands on deck: Large-scale (re) sculpting of cortical circuits in post-resection children. *Scientific Reports*.
23. **Freud, E.**, Behrmann, M., & Snow, J. C. (2020). What Does Dorsal Cortex Contribute to Perception? *Open Mind*, 1-18.
24. **Freud, E.**, & Behrmann, M. (2020). Altered large-scale organization of shape processing in visual agnosia. *Cortex*.129, 423-435
25. Maallo, A. M. S., **Freud, E.**, Liu, T. T., Patterson, C., & Behrmann, M. (2020). Effects of unilateral cortical resection of the visual cortex on bilateral human white matter. *NeuroImage*. 207, 116345
26. **Freud E.**, Plaut D. C., & Behrmann M. (2019) Protracted developmental trajectory of shape processing along the two visual pathways *Journal of Cognitive Neuroscience*, 31(10), 1589-1597

27. Liu, T. T.\*, **Freud, E\***, Patterson, C., & Behrmann, M. (2019). Perceptual function and category-selective neural organization in children with resections of visual cortex. *Journal of Neuroscience*, 39(32), 6299-6314. (\*The authors have contributed equally to this work)
28. Collins E., **Freud E.**, Kainerstorfer J. M., Cao J. & Behrmann M. (2019) Temporal dynamics of shape processing differentiate contributions of dorsal and ventral visual pathways. *Journal of Cognitive Neuroscience*, 31(6), 821-836
29. **Freud E.**, Culham J. C., Namdar G., & Behrmann M. (2019) Object complexity modulates the association between action and perception in childhood. *Journal of Experimental Child Psychology*, 179, 56-72.
30. Liu, T. T., Nestor, A., Vida, M. D., Pyles, J. A., Patterson, C., Yang, Y., Yang, F. N., **Freud, E.**, & Behrmann, M. (2018). Successful Reorganization of Category-Selective Visual Cortex following Occipito-temporal Lobectomy in Childhood. *Cell reports*, 24(5), 1113-1122.
31. **Freud, E.**, Robinson A. K., & Behrmann, M. (2018) More than Action: The Dorsal Pathway Contributes to the Perception of 3-D Structure. *Journal of cognitive neuroscience*, 30(7), 1047-1058.
32. **Freud, E.**, Macdonald, S. N., Chen, J., Quinlan, D. J., Goodale, M. A., & Culham, J. C. (2018). Getting a grip on reality: Grasping movements directed to real objects and images rely on dissociable neural representations. *Cortex*, 98, 34-48.
33. **Freud E.**, Culham J. C., Plaut D. C. & Behrmann M. (2017) The large-scale organization of shape processing in the ventral and dorsal pathways. *eLIFE*, DOI: 10.7554/eLife.27576
34. **Freud E.**, & Behrmann, M. (2017). The life-span trajectory of visual perception of 3D objects. *Scientific Reports*, 7(1), 11034. DOI: 10.1038/s41598-017-11406-7
35. **Freud E.**, Ganel T., Shelef I., Hammer M. D., Avidan G. & Behrmann M. (2017). Three-dimensional representations of objects in dorsal cortex are dissociable from those in ventral cortex. *Cerebral Cortex*. 27 (1), 422-434. DOI: 10.1093/cercor/bhv229
36. **Freud, E.**, Plaut, D. C. & Behrmann, M. (2016). "What" is happening in the dorsal visual pathway. *Trends in Cognitive Sciences* 20(10), 773-784. DOI: 10.1016/j.tics.2016.08.003
37. **Freud E.**, Ganel T., Avidan G. & Gilaie-Dotan S., (2016). Functional dissociation between action and perception in developmental object agnosia. *Cortex*, 76,17-27. DOI: 10.1016/j.cortex.2015.12.006

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38. **Freud E.**, Ganel T. & Avidan G., (2015). Impossible expectations: fMRI adaptation is modulated by spatial probability. *NeuroImage*. 122, 188-194. DOI: 10.1016/j.neuroimage.2015.07.085
39. **Freud, E.** & Ganel T. (2015). Visual control of action directed to two-dimensional objects relies on holistic processing of object shape. *Psychonomic Bulletin and Review*. 22(5), 1377-1382. DOI: 10.3758/s13423-015-0803-x
40. **Freud E.**, Rosenthal G., Ganel T. & Avidan G., (2015). Sensitivity to object impossibility in the human visual cortex- Evidence from functional connectivity. *Journal of Cognitive Neuroscience*.27(5), 1029-1043. DOI: 10.1162/jocn\_a\_00753
41. **Freud E.**, Hadad B-H., Avidan G.& Ganel T. (2015) Evidence for Similar Early but Not Late Representation of Possible and Impossible Objects. *Frontiers in Psychology*, 6(94). DOI: 10.3389/fpsyg.2015.00094
42. **Freud, E.**, Avidan, G. & Ganel T., (2015). The highs and lows object impossibility: Effects of spatial frequency on holistic processing of impossible objects. *Psychonomic Bulletin and Review* 22(1), 297-306. DOI: 10.3758/s13423-014-0678-2
43. Ganel T., **Freud E.** & Meiran N. (2014) Action is immune to the effects of Weber's law throughout the entire grasping trajectory. *Journal of Vision*. 14(7), 1-11. DOI: 10.1167/14.7.11
44. Tanzer, M., **Freud, E.**, Ganel, T., & Avidan, G. (2013). General holistic impairment in congenital prosopagnosia: Evidence from Garner's speeded-classification task. *Cognitive Neuropsychology*, 30(6), 429-445. DOI: 10.1080/02643294.2013.873715
45. **Freud E.**, Aisenberg D., Salzer Y., Henik A. & Ganel T. (2013) Simon in Action: The Effect of Spatial Congruency on Grasping Trajectories. *Psychological Research*, 79(1), 134-142. DOI: 10.1007/s00426-013-0533-5
46. **Freud, E.**, Avidan, G., & Ganel, T. (2013). Holistic processing of impossible objects: Evidence from Garner's speeded-classification task. *Vision Research*, 93, 10-18. DOI: 10.1016/j.visres.2013.10.001
47. **Freud, E.**, Ganel T., & Avidan, G. (2013). Representation of possible and impossible objects in the human visual cortex: Evidence from fMRI adaptation. *NeuroImage*, 64,685-692. DOI: 10.1016/j.neuroimage.2012.08.070
48. Ganel, T., **Freud, E.**, Chajut, E., & Algom, D. (2012). Accurate visuomotor control below the perceptual threshold of size discrimination. *PLoS ONE*, 7(4), e36253. DOI: 10.1371/journal.pone.0036253.

#### BOOK CHAPTERS:

1. **Freud, E.**, Ganel, T., & Avidan, G. (2023). Functional Specialization Across the Visual Cortex. *Oxford Research Encyclopedia of Neuroscience*.
2. Ganel, T. & **Freud, E.** (2011). Weber's law during grasping. In D. Algom, D. Zakay, E. Chajut, S. Shaki, Y. Mama, & V. Shakuf (Eds.). *Fechner Day 2011*. Raanana, Israel: International Society for Psychophysics.

#### NEWSPAPER ARTICLE

1. Freud E. & Rosenbaum R.S. (2022, February 24). Children struggle more than adults to recognize masked faces. *The Conversation*. Retrieved from <https://theconversation.com/children-struggle-more-than-adults-to-recognize-masked-faces-176750>

#### SELECTED TALK PRESENTATION OF PAPERS IN CONFERENCES (REFEREED)

*Trainees (at the time of project) are indicated with a solid underline.*

1. **Freud E.**, Ahmad Z., Ganel T., Hadad BS., Reduced dissociation between perception and action in individuals with Autism. Talk at the Psychonomic Society Annual Meeting, New York, NY, Nov 2024
2. Ahmad Z., Aziza O., Ganel T., Hadad BS., **Freud E.** Reduced dissociation between perception and action in individuals with Autism. Talk at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2024.
3. **Freud E.**, Object representations in the dorsal pathway are subject to a protracted and susceptible developmental trajectory. Symposium presentation at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2023.
4. Ahmad Z., Kelly K., **Freud E.** Reduced perception-action dissociation in children with amblyopia. Talk at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2023.
5. **Freud E.** Recognition of masked faces demonstrates the rigidity of the face processing system throughout development. Symposium at the Society for Research in Child Development (SRCD) Biennial Meeting, Salt Lake City, UT, March 2023
6. **Freud, E.**, Di Giammarino D., Stajduhar, A., Rosenbaum, R. S., Avidan, G., & Ganel, T. Recognition of masked faces in the era of the pandemic: No improvement, despite

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extensive, natural exposure. Data Blitz talk presented at the Cognitive Neuroscience Society (CNS), San Francisco, CA, March 2022

7. Ahmad Z., Behrmann M, Patterson C., **Freud E.** A Unilateral Cortical Resection of Both Visual Pathways Alters Action but not Perception. Talk presented at Neuromatch 3.0. Virtual Conference, October 2020.
8. **Freud E.** The role of the dorsal pathway in object perception. Talk presented at the Cognitive Neuroscience society (CNS). Session co-organizer and chair. Virtual Conference, May 2020
9. **Freud E.** & Behrmann M. Altered large-scale cortical organization of shape processing in visual agnosia. Talk presented at the Society for Neuroscience (SfN) Chicago, IL, October 2019
10. Behrmann M., Kastner S., Pinsk M. A. & **Freud E.** Typical functional selectivity and connectivity in category-selective visual cortex in children with unilateral ventral cortex resection. Talk presented at the Society for Neuroscience (SfN) Chicago, IL, October 2019
11. **Freud E.**, & Behrmann M. Preserved shape sensitivity in the dorsal pathway of a visual agnosia patient. Data Blitz talk presented at the Cognitive Neuroscience Society (CNS), San Francisco, CA, March 2019
12. **Freud E.**, Culham J.,& Behrmann M. Differential sensitivity to whole vs. scrambled objects in ventral and dorsal pathways. Talk at the Society for Neuroscience (SfN), San-Diego, CA, November 2016.
13. **Freud E.**, Macdonald S. N., Chen J., Quinlan D. J., Goodale M.A, Culham J. C. Getting a grip on reality :Grasping movements directed to real objects and images rely on dissociable neural representations. Talk at the CAPnet-CPS CAN-ACN SATELLITE SYMPOSIUM “Action & Perception: Cognition, Coding and Clinical Populations” Toronto, ON, May 2016
14. **Freud E.**, Ganel T., Avidan G.,& Behrmann M. Object 3D structure representations in the dorsal pathway is not dependent on the ventral pathway: Evidence from visual agnosia. Talk at the Society for Neuroscience (SfN), Chicago, IL, October 2015.
15. **Freud E.**, Ganel T., Avidan G.,& Behrmann M. Intact implicit representation of object 3D structure in object agnosia. Talk at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2015.
16. **Freud E.**, Rosenthal G., Ganel T.& Avidan G. The neural signature of spatial uncertainty. Talk at the Annual meeting of the Israel Society for Neuroscience (ISFN), Eilat, Israel, December, 2013

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17. **Freud E.**, Hadad B-H., Avidan G. & Ganel T. Evidence for Similar Early but Not Late Representation of Possible and Impossible Objects. Talk at the Annual meeting of the Israel Society for Neuroscience (ISFN), Eilat, Israel, December, 2012

#### INVITED TALKS AND SEMINARS

| <i>Location</i>   | <i>Date</i>    |
|---|----------------|
| Vulnerability of the perception-action dissociation in neurodevelopmental conditions (Department of Brain Sciences, Imperial Collage London, UK)  | June 2025      |
| Exploring the lifespan vulnerability of the perception-action dissociation (YU care, York University)   | November 2024  |
| Vulnerability of the perception-action dissociation in neurodevelopmental conditions (Clinical Rounds, Department of Psychology, York University) | November 2024  |
| Seeing and Acting workshop: Functional and Neural Perspective (Coimbra, Portugal)   | September 2023 |
| Applied Cognitive Neuroscience research group, Toronto Metropolitan University, Toronto, Canada   | March 2023     |
| BIU Vision Science Seminar (virtual), Tel-Aviv, Israel  | April 2022     |
| <i>Keynote speaker</i> : Association of Graduate Students in the Biological Sciences (AGSBS) Symposium, Toronto, Canada                           | April 2022     |
| Applied Face Cognition Lab talk series (virtual), Fribourg, Switzerland   | April 2021     |
| Rotman Research Institute Rounds, Baycrest (virtual), Toronto, Canada   | January 2021   |
| Quantitative methods seminar, York University, Toronto, Canada  | November 2019  |
| Hurvitz Brain Sciences Research Program, Sunnybrook Research Institute, Toronto, Canada   | June 2019      |
| Google Brain Team, Toronto, Canada  | March 2019     |
| IRTG Brain in Action program, York University, Toronto, Canada  | November 2018  |
| Tel-Aviv University, Tel-Aviv, Israel   | December 2017  |
| University of Haifa, Haifa, Israel  | December 2017  |
| Hebrew University, Jerusalem, Israel  | December 2017  |
| Ben-Gurion University of the Negev, Beer-Sheva, Israel  | December 2017  |
| University of Toronto, Toronto, Canada  | September 2016 |
| University of Western Ontario, London, Canada   | November 2014  |
| Carnegie Mellon University, Pittsburgh, USA   | July 2014      |
| New-York University, New York, USA  | July 2013      |
| Ben-Gurion University of the Negev, Beer-Sheva, Israel  | February 2013  |

#### SELECTED POSTER PRESENTATION OF PAPERS IN CONFERENCES (REFEREED)

\* *Freud Lab trainees (at the time of project) are underlined*

1. Goldstein N., Wilcox L. M., **Freud E.**, The impact of binocular depth cues and movement direction on grasping and placement behaviors. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2025

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2. Fewster E., Hadad BS, **Freud E.**, Naturalistic visuomotor behaviours reveal reduced handedness lateralization in autism. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2025
3. Tassone F., Ganel T., **Freud E.**, Reduced sensitivity to size but preserved perception-action dissociation in older adults. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2025
4. Costanatino T., Hadad BS., Vaziri-Pashkam M., **Freud E.**, Impaired Action Prediction Abilities in Autism. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2025
5. Ahsan T., .... Wilcox L. M., Culham J. C., **Freud E.**, Binocular depth information modulates object-selective activation in high-level visual cortex. Poster presented at the Seeing and Action Workshop, Coimbra, Portugal, Sep 2024
6. Ahmad Z., Aziza O., Ganel T., Hadad BS., **Freud E.** Reduced dissociation between perception and action in individuals with Autism. Poster presented at the Seeing and Action Workshop, Coimbra, Portugal, Sep 2024
7. Ahsan T., .... Wilcox L. M., Culham J. C., **Freud E.**, Binocular depth information modulates object-selective activation in high-level visual cortex. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2024
8. Goldstein Marcusohn Y. & **Freud E.**, Shape sensitivity in the dorsal pathway is dissociable from attentional processes. Poster presented at the Society for Neuroscience (SfN) Washington DC, November 2023
9. Goldstein Marcusohn Y. & **Freud E.**, The effect of attentional allocation on shape processing in the ventral and dorsal pathways. Poster presented at the 16<sup>th</sup> Canadian Neuroscience Meeting, Montreal, QC, May 2023
10. Hornsey R., **Freud E.**, Wilcox L M. No evidence for a 'close advantage' effect in virtual reality Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2023
11. Ahsan T., Wilcox L. M., **Freud E.** Perceived distance modulates attention allocation. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2023
12. Ahmad Z., Karsh N, Aziza O., ..... **Freud E.** Visual illusions modulate perception and action in autism spectrum disorder. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2022

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13. Ahsan T., Wilcox L. M., **Freud E.** Object affordance modulates the near space advantage in 2D imagery. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2022
14. Baltaretu B., Stevens D. W. **Freud E.**, Crawford J. D. Cortical correlates of transsaccadic object orientation vs. shape change discrimination: an fMRI study. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2022
15. Luabeya G., Le A., **Freud E.**, Monaco S., Crawford J.D. Cortical Integration of Multimodal Cues for Reach / Grasp planning. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2022
16. Ahmad Z., Behrmann M, Patterson C., **Freud E.** A Unilateral Cortical Resection of Both Visual Pathways Alters Action but not Perception. Poster presented at the Vision Scientific Society Annual Meeting (VSS), Online, May 2021
17. Ahsan T., Bolton K., Chiasson L. & Wilcox L. M., **Freud E.** Perceived depth modulates the precision of visual processing. Poster presented at the Vision Scientific Society Annual Meeting (VSS), Online, May 2020
18. Ahmad Z., Hadad B.S. & **Freud E.** Reduced functional dissociation between action and perception in individuals with Autism. Poster presented at the Vision Scientific Society Annual Meeting (VSS), Online, May 2020
19. Ahsan T., Bolton K., Chiasson L. & Wilcox L. M., **Freud E.** Perceived depth modulates the precision of visual processing. Poster presented at the Lake Ontario Visionary Establishment (LOVE) Niagara Falls, ON, February 2020
20. Ahmad Z., Hadad B.S. & **Freud E.** Reduced functional dissociation between action and perception in individuals with Autism. Poster presented at the Lake Ontario Visionary Establishment (LOVE) Niagara Falls, ON, February 2020
21. Srikanth A., Davidson E., Hadad B.S., Ganel T. & **Freud E.** Functional dissociation between action and perception in early childhood. Poster presented at the Lake Ontario Visionary Establishment (LOVE) Niagara Falls, ON, February 2020
22. Ruttle J., Stajduhar A., Stevens D. & **Freud E.**, Shape sensitivity along the dorsal and ventral pathways is observed for novel and familiar objects. Poster presented at the Lake Ontario Visionary Establishment (LOVE) Niagara Falls, ON, February 2020
23. Mallo A. M. S., **Freud E.**, Patterson C. & Behrmann M. Bilateral changes to white matter structure following unilateral resection in pediatric patients. Poster presented at the Society for Neuroscience (SfN) Chicago, IL, October 2019

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24. **Freud E.**, Culham J., Plaut D. & Behrmann M. The large-scale organization of object processing in the ventral and dorsal pathways. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2017.
25. **Freud E.** & Behrmann M. Late maturation of fine-grained of object 3D structure representation. Poster presented at the Vision Scientific Society Annual Meeting (VSS), St. Pete Beach, FL, May 2016.
26. **Freud E.**, Ganel T.& Avidan G. Coarse to fine-grained representation of object 3D structure. Poster presented Society for Neuroscience (SfN), Washington D.C., November 2014.
27. **Freud E.**, Rosenthal G., Ganel T.& Avidan G. The neural signature of spatial uncertainty. The Networked Brain. Satellite event to the SfN conference, San Diego, CA, November 2013.
28. **Freud E.**, Hadad B-H., Avidan G.& Ganel T. (2013). Perceptual Representation of Impossible Objects. Poster presented at the Annual Meeting of the Vision Sciences Society (VSS), Naples, FL, May 2013.
29. **Freud E.**, Avidan G., & Ganel T. Holistic representation of impossible objects. Poster presented at the Annual Meeting of the Vision Sciences Society (VSS), Naples, FL, May 2012.

#### EDITORIAL ACTIVITIES:

##### Ad hoc guest editor:

- Neuropsychologia (special issue on single-case studies)

##### Ad hoc reviewer journals (alphabetic order):

- Animal Cognition
- Attention, Perception and Psychophysics
- Brain and Behavior
- Brain Structure and Function
- British Journal of Psychology
- Cerebral Cortex
- Cognition
- Cognitive Neuropsychology
- Cognitive Research Principles and Implications
- Cortex
- Developmental Psychology
- eLIFE
- Experimental Brain Research
- Frontiers in Psychology
- Journal of Animal Cognition
- Journal of Autism and Developmental Disorders
- Journal of Cognitive Neuroscience

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- Journal of Neuropsychology
- Journal of Neuroscience
- NeuroImage
- Neuropsychologia
- PLoS One
- PNAS
- Psychological Science
- Scientific Reports

#### Ad hoc reviewer of research grant applications:

- Israel Science Foundation (ISF)
- Natural Sciences and Engineering Research Council Discovery Grant (NSERC)
- The Netherlands Brain Foundation (Hersenstichting)

#### RESEARCH IMPACT AND KNOWLEDGE MOBILIZATION:

- Freud et al. (2025) (non-exhaustive list, coverage from over 10 news outlets):
  -
- Freud et al. (2022) (non-exhaustive list, coverage from over 10 news outlets):
  - Psychology Today (2022) - <https://www.psychologytoday.com/us/blog/illusions-delusions-and-reality/202211/study-masks-impair-the-wearers-ability-recognize-faces>
  - City News (2022)- <https://toronto.citynews.ca/2022/12/17/york-university-study-masks-perception/>
- Freud et al. (2022) (non-exhaustive list, coverage from over 15 news outlets):
  - Fresh Air with Nicole Martin – CBC Radio (2022)
  - Toronto Telegraph (2022) - <https://www.torontotelegraph.com/news/272756170/adults-dont-become-better-at-recognizing-masked-faces-over-time-study>
- Stajduhar et al. (2022) (non-exhaustive list, coverage from over 20 news outlets):
  - *The National* – CBC (2021) - [www.cbc.ca/news/technology/children-masks-language-speech-faces-1.5948037](http://www.cbc.ca/news/technology/children-masks-language-speech-faces-1.5948037)
  - City News (2022) - <https://toronto.citynews.ca/video/2022/02/08/york-u-study-finds-kids-have-trouble-recognizing-faces-behind-masks/>
  - Fox News (2022) - <https://www.foxnews.com/us/children-arent-as-good-at-recognizing-masked-faces-as-adults-study-finds>
- Freud et al. (2020) (non-exhaustive list, coverage from over 70 news outlets):
  - The Nature of Things – CBC (2022) - <https://www.cbc.ca/natureofthings/episodes/in-your-face>
  - *The National* – CBC (2021) (<https://www.cbc.ca/player/play/1858682947761/>)
  - *The New-York Times* (2020) (<https://www.nytimes.com/2020/08/31/health/covid-masks-face-blindness.html>)

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- *The Cut* (2020) (<https://www.thecut.com/2020/09/covid-masks-make-facial-recognition-difficult.html>)
- *US news* (2020) (<https://www.usnews.com/news/health-news/articles/2020-12-30/masks-do-make-faces-harder-to-recognize-study-shows>)
- *Reshet 13 TV News* (2020) (<https://13news.co.il/item/news/domestic/health/hug-during-corona-1136650/>) (Hebrew)
- Interview in *Popular Science* magazine (2020) - This staircase goes on forever. Or does it? (<https://www.popsci.com/story/science/head-trip-stairs-illusion/>)
- Liu, Freud et al. (2019):
  - *CTV news* (2019) (<https://www.ctvnews.ca/video?clipId=1703271> )
  - *Technology Network* (2019) (<https://www.technologynetworks.com/neuroscience/news/childrens-brains-dramatically-rewire-to-retain-perception-after-epilepsy-surgery-320228>)
- Biomedical Picture of the Day (<http://bpod.mrc.ac.uk/archive/2018/2/4#.WnclBwXujaw.twitter>)

## VI. FUNDING

### CURRENT:

| <i>Date</i> | <i>Title</i>  | <i>Source</i>  | <i>Total</i>                          | <i>Role</i>     |
|-------------|---|--|---------------------------------------|-----------------|
| 2023-       | From 2D to 3D: The importance of depth for neural processing of natural stimuli   | CIHR (Canadian Institutes of Health Research) - Project Grant      | C\$761,175                            | Co-investigator |
| 2022        | REIL: Realistic Environment Interaction Logistics                                 | Canada Foundation for Innovation (CFI), John R. Evans Leaders Fund | C\$351,684 (pending ORF contribution) | Co-Applicant    |
| 2022-2024   | Taking a closer look: How perceived distance modulates visual processing          | VISTA – Vision Science to Application, York University             | C\$50,000                             | PI              |
| 2019-2025   | Uncovering the nature of object representations in the human dorsal visual cortex | Natural Sciences and Engineering Research Council (Discovery)      | C\$210,500                            | PI              |

### Past:

| <i>Date</i> | <i>Title</i>  | <i>Source</i>   | <i>Total</i> | <i>Role</i> |
|-------------|---|---|--------------|-------------|
| 2022        | Functional dissociation between perception and action in neurodevelopmental disorders | Distinguish travel grant from the Vision – Science to Application (VISTA) program | C\$10,000    | PI          |

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|           |  |   |            |    |
|-----------|--|---|------------|----|
| 2018-2023 | Annual allowance   | VISTA – Vision Science to Application York University                             | C\$125,000 | PI |
| 2021      | Perception and action in autism spectrum disorder  | Distinguish travel grant from the Vision – Science to Application (VISTA) program | C\$10,000  | PI |
| 2021      | COVID-19 Mitigation Grant  | VISTA Research Grant COVID-19 mitigation grant, York University                   | C\$5,000   | PI |
| 2020      | Behind the mask—the effect of face masks on perception and memory.   | VISTA Research Grant COVID-19 Accelerator, York University                        | C\$5,715   | PI |
| 2019-2021 | Neuropsychological approach for uncovering the relative contribution of parietal cortex to spatial perception and visuomotor control in neurological patients” | VISTA – Vision Science to Application, York University                            | C\$50,000  | PI |
| 2019      | Perception and Action in Children  | Distinguish travel grant from the Vision – Science to Application (VISTA) program | C\$10,000  | PI |
| 2018      | The representation of Weber's law in the human brain   | Faculty of Health, York University  | C\$4,995   | PI |
| 2015      | Prof. Rahamimoff Travel Grant for Young Scientists   | United States- Israel Binational Science Foundation (BSF)                         | \$4,000    | PI |

## VII. TEACHING

### UNDERGRADUATE TEACHING

| <i>Course</i>   | <i>Format</i>      | <i>Enrolment</i> | <i>Years</i> |
|---|--------------------|------------------|--------------|
| PSYC 4080 - Neuropsychology of Abnormal Behavior                  | Classroom          | 20               | 2018         |
| PSYC 4125 - fMRI Methods - Neuroimaging of Cognition              | Classroom          | 20 (10 UG)       | 2019-        |
| PSYC 4001 Honours Thesis / PSYC 4902 Independent Research project | Direct Supervision | 2-3              | 2020-        |
| PSYC 4260 Seminar in Perception and Sensation                     | Classroom          | 20               | 2023         |

I developed PSYC 4215, the first class that offers hands-on fMRI training to undergraduate students at York University.

### UNDERGRADUATE SUPERVISION

| <i>Date</i> | <i>Name</i> | <i>Topic</i> | <i>Next Position</i> | <i>Job title</i> |
|-------------|-------------|--------------|----------------------|------------------|
|-------------|-------------|--------------|----------------------|------------------|

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|           |                       |  |  |                            |
|-----------|-----------------------|--|--|----------------------------|
| 2018-2019 | Tasfia Ahsan          | Dorsal pathway representation            | PhD student Psychology (York University)     | Research Assistant         |
| 2018-2019 | Zoha Ahmad            | Dorsal pathway representation            | PhD student Biology (York University)        | Research Assistant         |
| 2018-2020 | Kathryn Bolton        | Depth perception                         | MA student Clinical Psychology (Ryerson)     | Research Assistant         |
| 2019-2020 | Emily Davidson        | Visuomotor control                       | MA student Neuroscience (Western University) | Research Assistant         |
| 2019-2020 | Krista Chiasson       | Depth perception                         | Unknown                                      | Research Assistant         |
| 2019-2022 | Ashish Srikanth       | Visuomotor control                       | Lab manager (Rotman research institute)      | Research Assistant         |
| 2019-2021 | Andreja Stajduhar     | Face Perception                          | PhD student (University of Toronto)          | Honours Thesis (CPA award) |
| 2020-2021 | David Eldridge        | Working memory                           | Nursing School                               | Honours Thesis             |
| 2021-2022 | Daniela Di Giammarino | Face Perception                          | Teachers' college                            | Research Assistant         |
| 2021-     | Orly Aziza            | Visuomotor control                       | NSERC USRA (in my lab)                       | Research Assistant         |
| 2021-2022 | Carmel Camilleri      | The effect of depth of visual perception | MA student (York university)                 | Research Assistant         |
| 2022-2023 | Judy Kalenga          | Visuomotor control                       |  | Research Assistant         |
| 2022-2023 | Shampora Boll         | Visuomotor control                       |  | Honours Thesis             |
| 2023-2024 | Nathaniel Goldstein   | Visuomotor control                       | MA student (York university)                 | NSERC USRA                 |
| 2023-2024 | Mario Costantino      | Visuomotor control                       | MA student (York university)                 | Neuroscience Capstone      |
| 2024-     | Noya Aronovich        | Configural shape processing              |  | Honours Thesis             |

#### GRADUATE TEACHING

| <i>Course</i>                              | <i>Format</i> | <i>Enrolment</i> | <i>Years</i> |
|--|---------------|------------------|--------------|
| PSYC 6253 – Fundamental of Neuroscience II | Classroom     | 20               | 2020-        |

## GRADUATE SUPERVISION

### Current:

| <i>Date</i> | <i>Name</i>           | <i>Degree</i> | <i>Department</i>         | <i>Topic</i>   |
|-------------|-----------------------|---------------|---------------------------|--|
| 2019-       | Tasfia Ahsan          | Ph.D.         | Psychology                | Depth Perception                                     |
| 2020-       | Gaelle Nsamba Luabeya | Ph.D.         | Biology<br>Co-supervision | Neural mechanisms of Object placement                |
| 2023-       | Felicia Tassone       | M.A           | Psychology                | The perception & action dissociation in older adults |
| 2023-       | Emily Fewster         | M.A.          | Psychology                | Handedness in autism                                 |
| 2024-       | Nathaniel Goldstein   | M.A.          | Psychology Co-supervision | Visuomotor control in 3D space                       |
| 2024-       | Mario Costantino      | M.A.          | Psychology                | Action prediction in autism                          |

### Past:

| <i>Date</i> | <i>Name</i>      | <i>Degree</i> | <i>Department</i>            | <i>Topic</i>                      |
|-------------|------------------|---------------|------------------------------|-----------------------------------|
| 2019-2025   | Zoha Ahmad       | Ph.D.         | Biology                      | Development of Visuomotor control |
| 2020-2022   | Rachel Moreau    | M.A.          | Psychology<br>Co-supervision | Symmetry perception               |
| 2019- 2023  | Krista Mitchnick | Ph.D.         | Psychology<br>Co-supervision | Pattern Separation                |
| 2022-2024   | Maxym Yerkeyev   | M.A.          | Psychology<br>Co-supervision | Memory and eye-movements          |

## POST-DOCTORAL SUPERVISION

### Current:

| <i>Date</i> | <i>Name</i>    | <i>Department</i> | <i>Topic</i>                        |
|-------------|----------------|-------------------|-------------------------------------|
| 2025        | Dr. Zoha Ahmad | Psychology        | Development of visuomotor abilities |

### Past:

| <i>Date</i> | <i>Name</i>                  | <i>Department</i> | <i>Topic</i>  |
|-------------|------------------------------|-------------------|---|
| 2022-2024   | Dr. Yael Goldstein-Marcusohn | Psychology        | The role of the dorsal pathway in object perception |

## IX. PROFESSIONAL SERVICE

### PROVINCIAL OR NATIONAL LEVEL

| <i>Date</i> | <i>Position</i>  | <i>Role</i>          |
|-------------|--|----------------------|
| 2023        | Symposium organization for the Vision Scientific Society (VSS)               | Organizer            |
| 2021 - 2022 | Canadian Brain Research Strategy   | Member               |
| 2020        | Symposium organization for the Cognitive Neuroscience Society (CNS)          | Chair & co-organizer |
| 2019- 2023  | Organizing committee - Annual Lake Ontario Visionary Establishment (L.O.V.E) | Co-Chair             |
| 2018        | steering committee CAPnet conference   | Member               |
| 2015        | Nano-Symposium organization for the Society for Neuroscience (SfN)           | Chair & organizer    |

### UNIVERSITY LEVEL

| <i>Date</i>   | <i>Position</i>                                     | <i>Role</i>        |
|---------------|---|--------------------|
| 2025- ongoing | Centre for Vision Research                          | Associate Director |
| 2025- ongoing | Neuroscience Graduate Diploma                       | Director           |
| 2024          | Review York Research Chair Application              | Member             |
| 2022- ongoing | VISTA training committee                            | Member             |
| 2022-2023     | Centre for Vision Research – Seminar series         | Co-organizer       |
| 2021          | Centre for Vision Research Conference committee     | Member             |
| 2020- 2023    | Centre for Vision Research website committee        | Chair              |
| 2020- ongoing | MRI user committee                                  | Member             |
| 2019- 2024    | Steering committee – Centre for Vision Research     | Member             |
| 2019          | VISTA grant reviewing committee                     | Member             |
| 2019- ongoing | Steering committee-Graduate Diploma in Neuroscience | Member             |

### DEPARTMENTAL LEVEL

| <i>Date</i>  | <i>Position</i>   | <i>Role</i> |
|--------------|---|-------------|
| 2025-ongoing | Undergraduate Studies Committee, Department of Psychology | Member      |
| 2023         | Computational neuroscience search committee               | Chair       |

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|             |   |                              |
|-------------|---|------------------------------|
| 2022        | Multiple search committees (clinical neuropsychology, computational neuroscience) | Member                       |
| 2021        | Undergraduate Research Opportunities committee                                    | Member                       |
| 2021        | Tenure & Promotion committee  | File preparation coordinator |
| 2019- 2024  | Area Head – Brain, Behavior and Cognitive Sciences, Department of Psychology      | Area head                    |
| 2018 - 2020 | Undergraduate Studies Committee, Department of Psychology                         | Member                       |