Ty Lees

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Education

Ph.D. — *University of Technology Sydney* — August 2018
Cognitive psychophysiology
"The impact of Stress and Anxiety on the neurocognitive performance of Australian Nurses: An electroencephalographic and psychometric assessment"
Thesis Advisors: A/Prof. Sara Lal, Dr Najah Nassif, Prof. Phillip Newton

B.MSc — *University of Technology Sydney* — November 2012
Honours 1st Class
"Occupational stress and cognitive performance in nurses. An exploratory study: electroencephalographic and psychometric assessment."
Thesis Advisor: A/Prof. Sara Lal

Research Interests

- Self-monitoring; specifically, using system-level approaches to examine these behaviors, and how they and their development translate into broader self-regulation, psychopathology, and academic outcomes.
- Multi-modal psychophysiology; with an initial focus on combining peripheral and neural electrophysiology to investigate cognition and its development and psychopathological modulation.

Professional Positions

Assistant Neuroscientist | Instructor — March 2024 – Present
Center for Depression, Anxiety, and Stress Research, McLean Hospital
Department of Psychiatry, Harvard Medical School

Research Fellow — July 2023 – March 2024
Center for Depression, Anxiety, and Stress Research, McLean Hospital
Department of Psychiatry, Harvard Medical School
Advisor: Prof. Diego A. Pizzagalli

Postdoctoral Scholar — May 2019 – July 2023
Edna Bennett Pierce Prevention Research Center, The Pennsylvania State University
Advisor: Prof. Lisa M. Gatzke-Kopp

Research Associate — May 2017 – March 2019
School of Life Sciences, University of Technology Sydney
Advisor: A/Prof. Sara Lal

University Tutor — November 2017 – October 2018
School of Medicine, University of Notre Dame (Australia)

Associate Lecturer — March 2016 – December 2018
School of Life Sciences, University of Technology Sydney

Honors and Awards

Australian Postgraduate Award — 2013 – 2016 (~$75,000 USD)
Australian Research Council

Dean's Merit List for Academic Excellence — 2013
University of Technology Sydney

Grants & Contracts

Trait-level connectivity and state-level dynamics of large-scale neural networks in internalizing disorders. 2026 (Submission in February)
National Institute of Mental Health
Principal Investigator (R21)

Beyond reward insensitivity: Cognitive resource constraints underlying anhedonia 2026 (Resubmission in March)
National Institute of Mental Health
Co-Investigator (R01)

Performance monitoring as a dynamical system and its association with depressive symptoms in the transition to adolescence 2025 (Resubmitted)
National Institute of Mental Health
Principal Investigator (R21)

HealthSense: Technological human health sensors capable of providing feedback and intervention 2018 (~$81,000 USD)
New South Wales Defence Innovation Network
Co-Investigator

A review of current evidence about mental disorders, and psychological and other wellbeing programs in the law enforcement workplace 2016 (~$22,000 USD)
New South Wales Police Force
Consultant

Publications

*† Corresponding author; ‡ Equal author contribution, * Trainee, … Additional authors pending*

In Preparation or Under Review

1. Chuang, L-C., Bierwith, P., **Lees, T.,** Augustat, N., Endres, D., Pizzagalli, D.A., and Mueller, E.M. (2026). Dopamine D2-antagonist reverses the association between positive affectivity and electrophysiological responses to depressogenic sentences in healthy individuals. *Psychological Medicine* (*Under Review*).

2. Karker, M.A, Nawfel, J.L., Lee, N., Bonacci L.M., **Lees, T.,** Dougherty, R.M., Mathew, D., Dunayev, R., Mauk, T.D., Goodman, J.B., Cho, M.J., Lin, D.J., Abbaraju, V., Emadi, R., Wexler, A., Pedrelli, P., Inan, O.T., Pizzagalli, D.A., Dillon, D.G., and Webb, A.K. (2026). Inferring subjective truth judgments from neurophysiology: A multimodal deep learning approach. *Knowledge-Based Systems* (*In Revision*).

3. EEGManyPipelines Consortium, (2026). The EEGManyPipelines Dataset: Metascientific Data on 168 Independent Analyses of a Single EEG Dataset. *Nature Human Behavior* (*To be Submitted*). Pre-print doi: 10.31222/osf.io/c4xwg_v1

4. **Lees, T.**‡, Barnes, S.A.‡, Der-Avakian, A., Linton, S.R., Iturra-Mena, A., Kangas, B.D., Nowicki, G., Lobien, R., Vitaliano, G., Bergman, J., Carlezon Jr, W.A., and Pizzagalli, D.A.† (2026). Reward learning and responsiveness across species – Neurophysiological and behavioral signatures in humans and rats. *Nature Human Behavior* (*In Prep*).

5. **Lees, T.**‡, Cataldo, A.M.‡, Dunayev, R., Bogdanov, M., Karker, M.A., Nawfel, J.A., Lee, N., Bonacci, L.M., Dougherty, R.M., Mathew, D., Mauk, T.D., Goodman, J.B., Cho, M.J., Lin, D.J., Abbaraju, V., Emadi, R., Wexler, A., Pedrelli, P., Inan, O.T., Pizzagalli, D.A., Webb, A.K., Dillon, D.G. (2026). Neurocognitive Mechanisms Underlying the Positive Memory Advantage in Healthy Adults. *Affective Science* (*In Prep*)

6. **Lees, T.**‡, Dunayev, R.‡, Bogdanov, M., Karker, M.A., Nawfel, J.L., Lee, N., Bonacci, L.M., Dougherty, R.M., Mathew, D., Mauk, T.D., Goodman, J.B., Cho, M.J., Lin, D.J., Abbaraju, V., Emadi, R., Wexler, A., Pedrelli, P., Inan, O.T., Webb, A.K., Dillon, D.G., Pizzagalli, D.A. (2026). Expanding the behavioral and electrophysiological indices of the Autobiographical Implicit Association task. *Journal of Cognitive Neuroscience* (*In Prep*).

7. Witmer, K.M., **Lees, T.,** Gatzke-Kopp, L.M. (2026). Developmental trajectories of aperiodic neural activity across middle childhood. *Developmental Cognitive Neuroscience* (*In Prep*)

8. Abbaraju, V., Cho, M.J., Emadi, R., Lin D.J., Lee, N., Nawfel, J.L., Dougherty, R.M., **Lees, T,** Dunayev, R., Karker, M.A., Bonacci, L.M., Mathew, D., Maul, T.D., Goodman, J.B., Wexler, A., Pedrelli, P., Pizzagalli, D.A., Dillon, D.G., Webb, A., Inan, O.T. (2026). Characterizing transient cardiovascular responses to autobiographical memory probing in healthy adults using nonlinear system identification. *IEEE Journal of Biomedical and Health Informatics* (*In Prep*).

9. Scholl, C.A., Yi, H.G., Hingorani, R., Cowley, H.P., Bezold, G.E., Cohen, A.B., Bracken, B.K., Lynn, S.K., Webb, A.K., Dillon, D.G., **Lees, T.,** Lee, N., Pizzagalli, D.A., Bronstein, M., Widge, A., Medani, T., Kadiri, S.R., Jeong, W., Kommineni, A., Avramidi, K., McDaniel, C., Hughes, M., McGee, T., Berry, D.J., Bogdan, P., Blank, I., Byrd, D., Kaiser, E., Lerman, K., Cahn, R., Habibi, A., Leahy, R.M., Narayanan, S., and Witkop, G. (2026) Is there a role for stimulus-evoked neurophysiological signatures in suicide risk assessment? Insights From and Limitations of the DARPA NEAT Program. (*In Prep*)

Journal Articles

1. **Lees, T.,** Scott Jr, J.N., Esfand, S.M., Li, M., Woronko, S.E., Linton, S.R., Dunayev, R., Bogdanov, M., Boyle, B.W., Miller, C., Bolton, P., Li, S., Meisner, R.C., and Pizzagalli, D.A.[†] (2026). Modulatory effects of ketamine on EEG source-based resting state functional connectivity in the Frontoparietal and Default-Mode Networks of patients with treatment resistant depression. *Translational Psychiatry* (*Accepted*).

2. Bogdanov, M., Scott Jr, J.N., Esfand, S.M., Boyle, B.W., **Lees, T.,** Li, M., Woronko, S.E., Linton, S.R., Jenkins, A.R., Miller, C., Li, S., Bolton, P., Meisner, R.C., Kangas, B.D.[‡], and Pizzagalli, D.A.[‡] (2026). Ketamine improves anhedonic phenotypes across species: Translational evidence from the Probabilistic Reward Task. *Biological Psychiatry: Global Open Science* (*Accepted*). Pre-print doi: 10.1101/2025.06.02.25328447

3. Woronko, S.E., Qian, A., Carlton, C.N., **Lees, T.,** Kujawa, A. (2026). Age-related changes in aperiodic neural activity and associations with internalizing symptoms in adolescents. *Psychophysiology,* 63(1), doi: 10.1111/psyp.70226

4. Abbaraju, V., **Lees, T.,** Cho, M.J., Emadi, R., Lin, D.J., Berkebile, J.A., Lee, N., Nawfel, J.L., Dougherty, R.M., Dunayev, R., Karker, M.A., Bonacci, L.M., Mathew, D., Mauk, T.D., Goodman, J.B., Wexler, A., Pedrelli, P., Pizzagalli, D.A., Dillon, D.G., Webb, A.K., Inan, O.T. (2025). Characterizing Central-Autonomic Dynamics during Episodic Memory Tasks using Multi-Modal Neural and Cardiomechanical Signals. *IEEE Transactions on Biomedical Engineering*, doi: 10.1109/TBME.2025.3622916

5. **Lees, T.[‡],** Woronko, S.E.[‡], Li, M., Scott Jr, J.N., Kuhn, M., Esfand, S.M., Bogdanov, M., Boyle, B.W., Linton, S.R., Borchers, L.R., Zhukovsky, P., Miller, C., Bolton, P., Li, S., Meisner, R.C., and Pizzagalli, D.A.[†] (2025). Differences in high-frequency connectivity among large-scale functional networks linked to Major Depressive Disorder and Treatment-Resistant Depression. *Biological Psychiatry: Global Open Science*. 5(6), doi: 10.1016/j.bpsgos.2025.100602

6. Chuang, L-C., Augustat, N., Bierwith, P., **Lees, T.,** Endres, D., Pizzagalli, D.A., and Mueller, E.M. (2025). Individual differences in dopamine-related traits influence mood effects of dopamine D2-antagonist and antidepressant treatment expectations. *International Journal of Neuropsychopharmacology* (*In Press*). doi: 10.1093/ijnp/pyaf067

7. Woronko, S.E.[*], Li, M., Scott Jr, J.N., Kuhn, M., Esfand, S.M., Bogdanov, M., Boyle, B.W., Linton, S.R., Borchers, L.R., Zhukovsky, P., Miller, C., Bolton, P., Li, S., Meisner, R.C., **Lees, T.[‡],** and Pizzagalli, D.A.[‡,†] (2025). Alterations in aperiodic neural activity associated with major depressive disorder. *Nature Mental Health,* 3, doi: 10.1038/s44220-025-00494-4

8. Der-Avakian, A.[‡], Barnes, S.A.[‡], **Lees, T.[‡],** Schroder, H.S., Kangas, B.D., Linton, S.R., Nickels, S., Robble, M.A., Breiger, M., Iturra-Mena, A.M., Lobien, R., Perlo, S., Cárdenas, E.F., Nowicki, G.P., Wu, Z., Pan, H., Dillon, D.G., Kesby, J.P., Carlezon Jr, W.A., Risbrough, V.B., Mukamel, E., Leutgeb, S., and Pizzagalli, D.A. (2025). Identification of conserved frontal neurophysiological markers of cognitive flexibility in humans and rats. *Communications Biology,* 8(1), doi: 10.1038/s42003-025-08729-x

9. Bogdanov, M., Scott Jr, J.N., Esfand, S.M., Boyle, B.W., **Lees, T.,** Li, M., Woronko, S.E., Linton, S.R., Miller, C., Li, S., Bolton, P., Meisner, R.C., and Pizzagalli, D.A.[†] (2025). Test-Retest Reliability of Behavioral and Electrophysiological Markers in an Eriksen Flanker Task. *Cognitive, Affective, and Behavioral Neuroscience*, 25(1), doi: 10.3758/s13415-

025-01336-7

10. **Lees, T.,** and Gatzke-Kopp, L.M.† (2025). Differences in consummatory but not anticipatory reward processing predict depressive symptoms in young adult women. *Psychophysiology*, 62(3), doi: 10.1111/psyp.70026

11. Linton, S.‡, **Lees, T.‡,** Iturra-Mena, A., Kangas, B.D., Lobien, R., Nowicki, G., Vitaliano, G., Bergman, J., Carlezon Jr, W. A., and Pizzagalli D.A.† (2024). Behavioral and neurophysiological signatures of cognitive control in humans and rats. *International Journal of Neuropsychopharmacology*, 27(1), doi: 10.1093/ijnp/pyae050

12. **Lees, T.,** Ram, N., Swingler, M.M., and Gatzke-Kopp, L.M.† (2024). Hair type and texture, and their influence on electroencephalogram and event-related potential data quality. *Psychophysiology*, 61(3), doi: 10.1111/psyp.14499

13. **Lees, T.‡,** Chalmers, T.‡, Burton, D., Zilberg, E., Penzel, T., and Lal, S.† (2023). Psychophysiology of monotonous driving, fatigue and sleepiness in train and non-professional drivers: Driver safety implications. *Behavioral Sciences*, 13(10), doi: 10. 3390/bs13100788

14. **Lees, T.,** White, R., Zhang, X., Ram, N., and Gatzke-Kopp, L.M.† (2022). Decision-making in uncertain contexts: The role of autonomic markers in resolving indecision. *International Journal of Psychophysiology*, 177, doi: 10.1016/j.ijpsycho.2022.05.014

15. Chalmers T., Eaves, S., **Lees, T.,** Lin, C.T., Newton, P.J., Clifton-Bligh, R., McLachlan, C.S., Gustin, S.M., and Lal, S.† (2022). The relationship between neurocognitive performance and HRV parameters in nurses and non-healthcare participants. *Brain and Behavior*, 12(3), doi: 10.1002/brb3.2481

16. **Lees, T.**†, Fry, C.M., Terrell, S., Jetha, M.K., Segalowitz, S.J., and Gatzke-Kopp, L.M. (2021). Developmental changes in external and internal performance monitoring across middle childhood: an ERP study. *International Journal of Psychophysiology,* 169, doi: 10.1016/j.ijpsycho.2021.09.002

17. **Lees, T.**†‡**,** Fry, C.M.‡, Jetha, M.K., Segalowitz, S.J., and Gatzke-Kopp, L.M. (2021). Association between EEG asymmetry and the error-related negativity across middle childhood. *Biological Psychology,* 163, doi: 10.1016/j.biopsycho.2021.108137

18. Akella, A., Singh A.K., Leong, D., Lal, S., Newton, P.J., Clifton-Bligh, R., McLachlan, C.S., Gustin, S.M., Maharaj, S., **Lees, T.,** Cao, Z., and Lin C.T.† (2021). Classifying multi-level stress responses from brain cortical EEG in nurses and non-health professionals using machine learning auto encoder. *IEEE Journal of Translational Engineering in Health & Medicine,* 9, doi: 10.1109/JTEHM.2021.3077760

19. Jarman, L., Elliott, J.L., **Lees, T.,** Clifton-Bligh, R., Simpson, A.M., Nassif, N., and Lal, S† (2021). Heart rate variability as a potential non-invasive marker of blood glucose level. *Human Physiology*, 47, doi: 10.1134/S0362119721020031

20. **Lees. T.‡,** Chalmers, T.‡, Burton, D., Zilberg, E., Penzel, T., Lal, S., and Lal S.† (2021). Electrophysiological brain-cardiac coupling in train drivers during monotonous driving. *International Journal of Environmental Research and Public Health*, 18, 3741, doi: 10.3390/ijerph18073741

21. **Lees, T.,** Maharaj, S., Kalatzis, G., Nassif, N., Newton, P.J., and Lal, S.† (2020). Electroencephalographic prediction of global and domain specific cognitive performance of clinically active Australian Nurses. *Physiological Measurement*, 41(9), doi: 10.1088/1361-6579/abb12a

22. Chalmers, T.‡, Maharaj, S.‡, **Lees, T.,** Lin, C.T., Newton, P.J., Clifton-Bligh, R., McLachlan, C.S., Gustin, S.M., and Lal, S.† (2020). Impact of acute stress on cognitive-cardiac coupling in Australian Nurses. *Journal of Integrative Neuroscience,* 19(2), doi: 10.31083/j.jin.2020.02.74

23. **Lees, T.,** Elliott, J.L., Gunning, S., Newton, P.J., Rai, T., and Lal, S.† (2019). A systematic review of the current evidence regarding interventions for anxiety, PTSD, sleepiness and fatigue in the law enforcement workplace. *Industrial Health*, 57(6), doi: 10.2486/indhealth.2018-0088

24. Maharaj, S., **Lees, T.,** and Lal, S.† (2019). Prevalence and risk factors of depression, anxiety, and stress in a cohort of Australian nurses. *International Journal of Environmental Research and Public Health*, 16(1), doi: 10.3390/ijerph16010061

25. **Lees, T.‡,** Chalmers, T.‡, Burton, D., Zilberg, E., Penzel, T., Lal, S., and Lal, S.† (2018). Electroencephalography as a

predictor of self-report fatigue/sleepiness during monotonous driving in train drivers. *Physiological Measurement*, 39(10), doi: 10.1088/1361-6579/aae42e

26. Maharaj, S., **Lees, T.,** and Lal, S.† (2018). Negative mental states and their association to the cognitive function of nurses. *Journal of Psychophysiology*, 33(3), doi: 10.1027/0269-8803/a000223
27. **Lees, T.,** Shad-Kaneez, F., Simpson, A.M., Nassif, N., Lin, Y., and Lal, S.† (2018). Heart rate variability as a biomarker for predicting stroke, post-stroke complications and functionality. *Biomarker Insights*, 13, doi: 10.1177/1177271918786931
28. **Lees, T.,** and Lal, S.† (2017). Stress and its impact on the cognitive performance of Australian nurses. Stress and Health, 33(1), doi: 10.1002/smi.2672
29. **Lees, T.,** Nassif, N., Simpson, A.M., Shad-Kaneez, F., Martiniello-Wilks, R., Lin, Y., Jones, A., Qu, X., and Lal, S.† (2017). Recent advances in molecular biomarkers for diabetes mellitus: a systematic review. *Biomarkers*, 22(7), doi: 10.1080/1354750X.2017.1279216
30. **Lees, T.,** Khushaba, R., and Lal, S.† (2016). Electroencephalogram Associations to Cognitive Performance in Clinically Active Nurses. Physiological Measurement, 37(7), doi: 10.1088/0967-3334/37/7/968
31. Rothberg, L.J., **Lees, T.,** Clifton-Bligh, R., and Lal, S.† (2016). Associations between heart rate variability and blood glucose levels: implications for non-invasive glucose monitoring. *Diabetes Technology & Therapeutics*, 18(6), doi: 10.1089/dia.2016.0010

Reports

1. Lal, S.†, **Lees, T.,** Elliott, J.L., Rai, T., Gunning, S., and Newton, P. (2016). A review of current evidence about mental disorders and psychological and other wellbeing programs in the law enforcement workplace. Sydney, Australia. Commissioned by the NSW Police Force.

Pre-registrations

1. **Lees, T.,** Bogdanov, M., Dunayev, R., Knaack, G., Lee, N., Nawfel, J., Karker, M., Dougherty, R., Goodman, J., Mauk, T., Heller, J., Hale, K., McCarthy, A., Pedrelli, P., Civillico, G., Bostrom, D., Inan, O., Cho, M., Lin, D., Berkebile, J.A., Wexler., A., Dillon, D.G., Pizzagalli, D.A., Webb, A. (2023). Finding Integrated Neural Determinants of Emerging Risk (FINDER) – Phase 1. osf.io/zq7wu

Conference Abstracts

1. **Lees, T.†,** and Lutz-Landesbergen, M.C. (2024). Lessons learned: Navigating developmental psychophysiology from infancy to adulthood. *Psychophysiology*, 61(S1), S28. doi: 10.1111/psyp.14690
2. **Lees, T.†,** and Gatzke-Kopp, L.M. (2024). The need to examine potential measurement bias in EEG and ERP research. *Psychophysiology*, 61(S1), S84. doi: 10.1111/psyp.14690
3. Chuang, LC.†, Augustat, N., Bierwirth, P., **Lees, T.,** Pizzagalli, D.A., and Mueller, E.M. (2024). Individual differences in anhedonia moderate the effects of dopaminergic antidepressant on mood and event-related potentials. *Psychophysiology*, 61(S1), S86. doi: 10.1111/psyp.14691
4. Witmer, K.†, **Lees, T.,** and Gatzke-Kopp, L.M. (2024). The role of neural cue responses in anxiety. *Psychophysiology*, 61(S1), S95. doi: 10.1111/psyp.14692
5. **Lees, T.†,** Der-Avakian, A., Barnes, S.A., Linton, S.R., Iturra-Mena, A., Kangas, B.D., Nowicki, G., Lobien, R., Vitaliano, G., Bergman, J., Carlezon Jr, W.A., and Pizzagalli, D.A. (2024). Neurophysiological and behavioral signatures of reward learning are conserved across humans and rats. *Psychophysiology*, 61(S1), S119. doi: 10.1111/psyp.14692
6. **Lees, T.†,** Ram, N., Swingler, M.M., and Gatzke-Kopp, L.M. (2023). Simple procedures to help mitigate the influence of Hair Type and Texture on ERP data quality. *Psychophysiology*, 60(S1), S164. doi: 10.1111/psyp.14417
7. **Lees, T.†,** and Gatzke-Kopp, L.M. (2023). Interaction of Anticipatory and Consummatory Reward Processing in Predicting Depressive Symptomatology. *Psychophysiology*, 60(S1), S85. doi: 10.1111/psyp.14417
8. **Lees, T.†,** Fisher, Z.F., and Gatzke-Kopp, L.M. (2022). Performance monitoring and its development – A cognitive systems approach. *Psychophysiology*, 58(S1), S41. doi: 10.1111/psyp.14141

9. **Lees, T.†,** Fry, C.M., Terrell, S., Jetha, M.K., Segalowitz, S.J., and Gatzke-Kopp, L.M. (2020). Developmental changes in ERP measures of external and internal performance monitoring across middle childhood. *Psychophysiology*, 57(S1), S70. doi: 10.1111/psyp.13670
10. Shad, K.F.†, **Lees T.,** Lal, S., Aghazadeh, Y., and Kress, B. (2019). Auditory pathway and Alzheimer's disease. *IBRO Reports*, 6 (S1), doi 10.1016/j.ibror.2019.07.190
11. **Lees, T.†,** Maharaj, S., Kalatzis, G., Nassif, N., Newton, P., and Lal, S. (2018). The neurocognitive relationship between stress and anxiety, and memory and decision-making performance of Australian nurses. *Psychophysiology*, 55(S1), S48. doi: 10.1111/psyp.13264
12. **Lees, T.†,** Kalatzis, G., and Lal, S. (2015). Examining negative mental states and their association to psychometric and electroencephalographic measures of cognitive performance in Australian Nurses. *Psychophysiology*, 52(S1), S24. doi: 10.1111/psyp.12495
13. **Lees, T.†,** Maharaj, S., and Lal, S. (2015). Electroencephalographic markers of subjective cognitive performance: Implications towards electrophysiological prediction of early cognitive decline. *Frontiers in Human Neuroscience*. doi: 10.3389/conf.fnhum.2015.219.00057

Presentations

Symposium

1. **Lees, T.,** Barnes, S.A., Der-Avakian, A., Linton, S.R., Iturra-Mena, A., Kangas, B.D., Nowicki, G.P., Lobien, R., Vitaliano, G., Bergman, J., Carlezon Jr, W.A., and Pizzagalli, D.A. (2025). Reward learning – A trial-level approach to understanding and linking behavioral and neural responses in both humans and rats. Symposium on *'Beyond Averages: Trial-by-Trial Approaches to Neural and Behavioral Dynamics'*. Presented at the 64th Annual meeting of the Society for Psychophysiological Research, Montreal, Canada
2. **Lees, T.,** and Lutz-Landesbergen, M.C. (2024). Lessons learned: Navigating developmental psychophysiology from infancy to adulthood. *Co-Chair:* Presented at the 63rd Annual meeting of the Society for Psychophysiological Research, Prague, Czech Republic.
3. **Lees, T.,** and Gatzke-Kopp, L.M., (2024). The need to examine potential measurement bias in EEG and ERP research. Symposium on *'Enhancing inclusivity in EEG methodology: Considerations for employing equitable research practices with Black and Latine participants'*. Presented at the 63rd Annual meeting of the Society for Psychophysiological Research, Prague, Czech Republic.

Invited

1. **Lees, T.** (2025). Modulatory Effects of Ketamine on Neural Connectivity in Treatment Resistant Depression. Neurotherapeutics Research Meeting, McLean Hospital, Boston, USA.
2. **Lees, T.** (2025). Neural activity, electrophysiology, and computational modeling: Psychiatry and what's next? *Guest Lecture:* Computational Psychology (MIT 6.S084), Massachusetts Institute of Technology, Boston, USA
3. **Lees, T.** (2024). Panellist for the *International Mentoring - Opportunity and Challenges Luncheon* hosted by Women in Science and Education Committee: 63rd Annual meeting of the Society for Psychophysiological Research, Prague, Czech Republic.
4. **Lees, T.,** and Gatzke-Kopp, L.M. (2024). Differences in consummatory but not anticipatory reward processing predict depressive symptoms in young adult women. Laboratory for Brain and Cognitive Health Technology, Advanced Bioinformatics and Computational Discovery Hub, McLean Hospital, Boston, USA
5. **Lees, T.** (2023). Panellist for the *President's Symposium on Diversity, Equity, and Inclusion:* 62nd Annual meeting of the Society for Psychophysiological Research, New Orleans, USA.
6. **Lees, T.** (2023). Self-Monitoring: A self-regulatory mechanism, its development, and translation. Laboratory of Affective and Translational Neuroscience, McLean Hospital, Boston, USA.
7. **Lees, T.†,** Chalmers, T., Burton, D., Zilberg, E., Penzel, T., Lal, S., and Lal, S. (2019). Electroencephalography as a predictor of train driver fatigue & sleepiness. *Oral Presentation:* Centre for Sleep and Chronobiology weekly seminar. Woolcock Institute of Medical Research, Sydney, Australia.

8. **Lees, T.,** (on behalf of Lal, S.). (2018). Health sensors and countermeasures. *Oral Presentation:* Defence Innovation Network Pilot Project Sandpit Workshop. Western Sydney University, Sydney, Australia.
9. **Lees, T.** (2015). Stress and cognitive performance in nurses: An example of research in the NRU. *Oral Presentation:* Warfighter Effectiveness Research Centre (WERC) United States Airforce Academy Brownbag, Colorado Springs, USA.
10. **Lees, T.,** and Lal, S. (2015). Research and collaboration in the Neuroscience Research Unit (NRU). *Oral Presentation:* Warfighter Effectiveness Research Centre (WERC) United States Airforce Academy Brownbag, Colorado Springs, USA.

Conference

1. Woronko, S.E., Li, M., Scott Jr, J.N., Kuhn, M., Esfand, S.M., Bogdanov, M., Boyle, B.W., Linton, S.R., Borchers, L.R., Zhukovsky, P., Miller, C., Bolton, P., Li, S., Meisner, R.C., **Lees, T.,** Pizzagalli, D.A. (2025). Alterations in aperiodic neural activity associated with major depressive disorder. *Poster Presentation:* 64th Annual meeting of the Society for Psychophysiological Research, Montreal, Canada.
2. **Lees, T.,** Woronko, S.E., Li, M., Scott Jr, J.N., Kuhn, M., Esfand, S.M., Bogdanov, M., Boyle, B.W., Linton, S.R., Borchers, L.R., Zhukovsky, P., Miller, C., Bolton, P., Li, S., Meisner, R.C., Pizzagalli, D.A. (2025). Differences in high-frequency connectivity among large-scale functional networks linked to major depressive disorder and treatment-resistant depression. *Poster Presentation:* 64th Annual meeting of the Society for Psychophysiological Research, Montreal, Canada.
3. Witmer, K.M., **Lees, T.,** Gatzke-Kopp, L.M. (2025). Developmental trajectories of aperiodic neural activity across middle childhood. *Poster Presentation:* 64th Annual meeting of the Society for Psychophysiological Research, Montreal, Canada.
4. Sapperstein, M., **Lees, T.,** Bogdanov, M., Scott Jr, J.N., Boyle, B.W., Esfand, S.M., Linton, S.R., Miller, C., Li, M., Woronko, S.E., Bolton, P., Li, S., Meisner, R.C., Dillon, D.G., Pizzagalli, D.A. (2025). Neurophysiological signatures of response bias and evidence accumulation in the probabilistic reward task. *Poster Presentation:* 64th Annual meeting of the Society for Psychophysiological Research, Montreal, Canada.
5. Zhang, E., Lam, C.S.T., Woronko, S.E., Li, M., Kuhn, M., Borchers, L., Zhukovsky, P., **Lees, T.,** Bogdanov, M., Pizzagalli, D.A. (2025). Error-related Alpha Suppression in Major Depressive Disorder. *Poster Presentation*: 2025 Annual meeting of the Society for Research in Psychopathology, Los Angeles, USA.
6. Woronko, S.E., **Lees, T.,** and Kujawa, A. (2025). Age-related changes in aperiodic neural activity and associations with internalizing symptoms in adolescents. *Poster Presentation:* 2025 Annual meeting of the Anxiety and Depression Association of America, Las Vegas, USA.
7. Zhang E., Lam, C.T., Woronko S.E., Li, M., Bogdanov, M., Kuhn, M., Borchers, L.R., Zhukovsky, P., **Lees, T.,** and Pizzagalli, D.A. (2024). Differential Associations of Error-Related Negativity and Frontal Midline Theta with Depression Severity in Major Depressive Disorder. *Poster Presentation:* 2024 Annual McLean Research Day, Belmont, USA.
8. **Lees, T.,** Der-Avakian, A., Barnes, S.A., Linton, S.R., Iturra-Mena, A., Kangas, B.D., Nowicki, G.P., Lobien, R., Vitaliano, G., Bergman, J., Carlezon Jr, W.A., and Pizzagalli, D.A. (2024). Neurophysiological and behavioral signatures of reward learning are conserved across humans and rats. *Poster Presentation:* 63rd Annual meeting of the Society for Psychophysiological Research, Prague, Czech Republic.
9. Witmer, K., **Lees, T.,** and Gatzke-Kopp, L.M. (2024). The role of neural cue responses in anxiety. *Poster Presentation:* 63rd Annual meeting of the Society for Psychophysiological Research, Prague, Czech Republic.
10. Chuang, LC., Augustat, N., Bierwirth, P., **Lees, T.,** Pizzagalli, D.A., and Mueller, E.M. (2024). Individual differences in anhedonia moderate the effects of dopaminergic antidepressant on mood and event-related potentials. *Oral Presentation:* 63rd Annual meeting of the Society for Psychophysiological Research, Prague, Czech Republic.
11. **Lees, T.,** Scott Jr, J.N., Esfand, S.M., Li, M., Woronko, S.E., Linton, S.R., Dunayev, R., Bogdanov, M., Boyle, B.W., Miller, C., Bolton, P., Li, S., Meisner, R.C., and Pizzagalli, D.A. (2024). Ketamine modulates EEG source-based resting state functional connectivity of patients with treatment resistant depression. *Poster Presentation:* 2024 Annual meeting

of the Society for Research in Psychopathology, Montreal, Canada.

12. Bogdanov, M., Scott, J.N., Esfand, S.M., Li, M., Woronko, S.E., Linton, S.R., **Lees, T.,** Boyle, B.W., Miller, C., Bolton, P., Li, S., Meisner, R.C., and Pizzagalli, D.A. (2024). Ketamine infusion increases reward sensitivity in patients with treatment-resistant depression 24 hours post-injection. *Poster Presentation:* 2024 Annual meeting of the Society for Research in Psychopathology, Montreal, Canada.
13. Dunayev, R., **Lees, T.,** Bogdanov, M., Li, M., Woronko, S.E., Esfand, S., Scott Jr, J.N., Boyle, B.D., Meisner, R.C., and Pizzagalli, D.A. (2024). Effects of ketamine on reducing internalizing symptoms in treatment resistant depression. *Poster Presentation:* 2024 Annual meeting of the Society for Research in Psychopathology, Montreal, Canada.
14. Dunayev, R., **Lees, T.,** Scott Jr, J.N., Esfand, S., and Pizzagalli, D.A. (2024). Electroencephalography resting state functional connectivity abnormalities in treatment resistant depression. *Poster Presentation:* 2024 Annual meeting of the Anxiety and Depression Association of America, Boston, USA.
15. Dunayev, R., **Lees, T.,** Bogdanov, M., Dillon, D.G., Knaack, G.L., Webb, A., and Pizzagalli, D.A. (2023). Finding integrated neural determinants of emerging risk (FINDER): A protocol overview. *Poster Presentation*: 2023 Annual McLean Research Day, Belmont, USA.
16. **Lees, T.,** Ram, N., Swingler, M.M., and Gatkze-Kopp, L.M. (2023). Simple procedures to help mitigate the influence of hair type and texture on ERP data quality. *Poster Presentation:* 62nd Annual meeting of the Society for Psychophysiological Research, New Orleans, USA.
17. **Lees, T.,** and Gatkze-Kopp, L.M. (2023). Differences in consummatory and not anticipatory reward processing predict depressive symptoms in young adult women. *Poster Presentation:* 62nd Annual meeting of the Society for Psychophysiological Research, New Orleans, USA.
18. **Lees, T.,** Fisher, Z. F., and Gatzke-Kopp, L.M. (2022). Performance monitoring and its development: A cognitive systems perspective. *Poster Presentation:* 61st Annual meeting of the Society for Psychophysiological Research, Vancouver, Canada
19. Terrell, S., **Lees, T.,** and Gatzke-Kopp, L.M. (2021). Neural sensitivity to feedback moderates the association between parental discipline and child externalizing behaviour. *Oral Presentation:* 54th Annual meeting of the International Society for Developmental Psychobiology, Chicago, USA.
20. **Lees, T.,** Drummond, C.P., Seay, D.M., Garber, J.M., Lohay, G., and Eswara, P. (2021). Case study in pivoting to an online format and using Canvas to host a postdoctoral research exhibition. *Online Presentation (COVID-19):* 2021 National Postdoctoral Association Annual Meeting.
21. **Lees, T.,** Fry, C.M., Terrell, S., Jetha, M.K., Segalowitz, S.J., and Gatzke-Kopp, L.M. (2020). Developmental changes in ERP measures of external and internal performance monitoring across middle childhood. *Online Presentation (COVID-19):* 60th Annual meeting of the Society for Psychophysiological Research.
22. **Lees, T.,** Maharaj, S., Kalatzis, G., Nassif, N., Newton, P, and Lal, S. (2018). The neurocognitive relationship between stress and anxiety, and memory and decision-making performance of Australian Nurses. *Poster presentation:* 58th Annual meeting of the Society for Psychophysiological Research, Quebec City, Canada
23. Maharaj, S., **Lees, T.,** Zaslawski, C., Fatima-Shad, K., and Lal, S. (2017). Assessing the link between negative mental states and cognitive performance in health professionals. *Poster Presentation:* Australasian Cognitive Neuroscience Society Conference, Adelaide, Australia
24. Kalatzis, G., **Lees, T.,** Nassif, N., Zaslawski, C., and Lal, S. (2017). Exploring cognitive function in diabetes and non-diabetes samples using electroencephalography (EEG) and psychometric assessment: a comparative study. *Oral presentation:* 37th Annual Scientific Meeting of the Australasian Neuroscience Society, Sydney, Australia
25. Hopkins, Z., **Lees, T.,** and Lal, S. (2017). Cardiovascular and Autonomic Associations to post-traumatic stress disorder symptomatology. *Oral Presentation:* Inter-University Neuroscience & Mental Health Conference, Sydney, Australia.
26. Maharaj, S., **Lees, T.,** Zaslawski, C., Fatima-Shad, K., and Lal, S. (2017). The prevalence of depression in a cohort of Australian Nurses. *Poster presentation:* Inter-University Neuroscience & Mental Health Conference, Sydney, Australia.

27. Vine, M., **Lees, T.,** Nassif, N., Simpson, A. M., and Lal, S. (2017). Investigating the associations between ADHD symptomology and chronic illness: cardiovascular disease and diabetes mellitus. *Poster Presentation:* Inter-University Neuroscience & Mental Health Conference, Sydney, Australia.
28. Maharaj, S., **Lees, T.,** and Lal, S. (2016). Electroencephalographic changes in beta & gamma reactivity associated with cognitive performance. *Poster Presentation:* Inter-University Neuroscience & Mental Health Conference, Sydney, Australia
29. Kalatzis, G., **Lees, T.,** Nassif, N., Zaslawski, C., and Lal S. (2016). Investigating cognitive function in diabetes and healthy samples using electroencephalography (EEG) and psychometric assessment: a comparative study. *Oral Presentation:* Inter-University Neuroscience & Mental Health Conference, Sydney, Australia
30. Jarman, L.R., Elliott J.L., **Lees, T.,** Nassif, N., Simpson, A.M. Clifton-Bligh, R., and Lal, S. (2016). Associations between heart rate variability and blood glucose levels. *Poster presentation:* New Horizons – 33rd Combined Health Science Conference, Sydney, Australia.
31. Ricciardiello, A., Elliott, J.L., **Lees, T.,** and Lal, S. (2016). Emotion regulation and stress: physiological assessment. *Poster presentation:* New Horizons – 33rd Combined Health Science Conference Sydney, Australia
32. Gorval, M., **Lees, T.,** Elliott, J.L., Nassif, N., Simpson, A.M., Clifton-Bligh, R., and Lal, S. (2016). Investigation of the association between blood glucose levels, anxiety and depression. *Poster presentation*: New Horizons – 33rd Combined Health Science Conference; Sydney, Australia
33. **Lees, T.,** Kalatzis, G., and Lal, S. (2015). Examining negative mental states and their association to psychometric and electroencephalographic measures of cognitive performance in Australian Nurses. *Poster presentation*: 55th Annual meeting of the Society for Psychophysiological Research, Seattle, USA
34. **Lees, T.,** Maharaj, S., and Lal, S. (2015). Electroencephalographic markers of subjective cognitive performance: Implications towards electrophysiological prediction of early cognitive decline. *Oral Presentation:* 25th Annual Conference of the Australasian Society for Psychophysiology, Sydney Australia
35. **Lees, T.,** and Lal, S. (2015). Negative mental states, their association to frontal lobe brain activity and the effect of coping. *Oral Presentation:* Inter-university Neuroscience & Mental Health Conference, Sydney, Australia.
36. Elliott, J., **Lees, T.,** Nassif, N., and Lal, S. Stress and the New South Wales Police Force: The prevalence of various coping mechanisms. *Oral Presentation:* Inter-university Neuroscience & Mental Health Conference 2015, Sydney, Australia.
37. Maharaj, S., **Lees, T.,** and Lal, S. (2015). Cognitive function associations to mental states in nurses. *Poster presentation:* New Horizons – 32nd Combined Health Science Conference, Sydney, Australia.
38. Kalatzis, G., **Lees, T.,** Nassif, N., and Lal, S. (2015). Investigating Cognitive Function in Clinical and Healthy Samples using Electroencephalography and Psychometric Assessment: A Comparative Study. *Poster Presentation:* New Horizons – 32nd Combined Health Science Conference, Sydney, Australia
39. Elliot, J.L., **Lees, T.,** Nassif, N., and Lal, S. (2014). Cardiovascular measures and sleep health associations with shift work in police officers: A physiological assessment. *Oral Presentation:* New Horizons – 31st Combined Health Science Conference, Sydney, Australia
40. Kalatzis, G., **Lees, T.,** and Lal, S. (2014). Investigating cognitive performance in different racial groups: an exploratory study using electroencephalography and psychometric Assessment. *Poster presentation:* New Horizons – 31st Combined Health Science Conference, Sydney, Australia
41. **Lees, T.,** and Lal, S. (2013). Electroencephalography and its associations to cognitive performance in nurses: an exploratory assessment. *Poster Presentation:* New Horizons – 30th Combined Health Science Conference, Sydney, Australia.
42. **Lees, T.,** and Lal, S. (2012). Occupational stress and cognitive performance in nurses. *Poster Presentation:* New Horizons – 29th Combined Health Science Conference, Sydney, Australia.

Teaching Experience

Undergraduate Courses

Medical and Applied Physiology (Psychophysiology)
Molecular and Systems Neuroscience/Neuroanatomy
Pathophysiology and Pharmacology
Physiological Systems

Graduate Courses (Medical School)

Basic and Clinical Sciences
Molecular and Systems Neuroscience

Professional Activities

Academic Service & Outreach

Organizing committee member for PSU Postdoctoral Research Exhibition	2020
Reviewer for Society for Research in Child Development Biennial Meeting (*Biological Processes: Neuroscience and Genetics & Cognitive Processes)*	2020, 2022
Review Panel Co-chair for Society for Research in Child Development Biennial Meeting (*Biological Processes – Cognitive Processes*)	2024
Society of Psychophysiological Research Committee Member *(Education and Training; Promote Student's Interests*)	2021 – 2026

Society Membership

Society for Neuroscience	2020 – 2023
Society for Psychophysiological Research	2015 – Present
Society for Research in Child Development	2020 – Present
Society for Research in Psychopathology	2024 – Present

Journal Reviewing

Annals of Work Exposures and Health
BMJ Open
Dev Cog Neuroscience
Frontiers in Psychiatry
Int J Neuropsychopharm
J Psychopathol & Clin Sci
Physiological Measurement
Psychophysiology
Sleep and Breathing
Biomarkers
Brain Sciences
Developmental Psychobiology
Int J Env Research & Public Health
Int J Psychophysiology
J Psychophysiology
Psychological Science
Scientific Reports
Soc. Cogn. Affect. Neuroscience
Biological Psychology
Child Development
Frontiers in Beh Neuroscience
Int J Human-Computer Interaction
J Neural Engineering
Neurocritical Care
Psych Res & Behav Management
Sensors
Translational Psychiatry