Brandon Forys

PhD Candidate, Psychology (Cognitive Science), University of British Columbia
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Education and training

University of British Columbia, Vancouver, BC, Canada, PhD in Psychology 2022-present
Supervisors: Dr. Rebecca Todd & Dr. Alan Kingstone

University of British Columbia, Vancouver, BC, Canada, M.A. in Psychology 2020-2022
Supervisors: Dr. Rebecca Todd & Dr. Alan Kingstone
Master's thesis: *Gender moderates the relationship between mood disorder symptoms and effortful avoidance performance.*

University of British Columbia, Vancouver, BC, Canada, B.A. Honours in Psychology 2016-2020
Supervisors: Dr. Rebecca Todd (Honours), Dr. Kiran Soma (Honours), & Dr. Timothy Murphy
Honours theses: *Modulating effort cost in human avoidance behaviours.*; *A novel steroidogenic model for reward-seeking behaviour.*

Honours and awards

Faculty of Arts Graduate Award, UBC	2023
Stanley Coren Prize in Psychology, UBC	2023
Four Year Fellowships (4YF) For PhD Students, UBC	2022-2026
President's Academic Excellence Initiative PhD Award, UBC	2022-2026
Canada Graduate Scholarship – Doctoral, NSERC	2022-2025
Faculty of Arts Graduate Award (deferred from 2020), UBC	2021
Canada Graduate Scholarship – Master's, NSERC	2020
NSERC Undergraduate Student Research Award, NSERC/UBC	2020
Faculty of Arts Graduate Award, UBC	2020
Trek Excellence Scholarship for Continuing Students, UBC	2019
ARTA Scholarship, Alberta Retired Teachers' Association	2019
Wesbrook Scholar, UBC	2019
HSBC Emerging Leader Scholarship, UBC	2019
Suedfeld Scholar Award, UBC Psi Chi	2019
PSYC 217 Poster Award, 1st Place, UBC Psychology	2018
Student Scholarship in Arts, UBC Faculty of Arts	2018
Trek Excellence Scholarship for Continuing Students, UBC	2017
Stephen Straker Arts One Prize, UBC Arts One Program	2017
University of BC Sopron Memorial Scholarship, UBC	2016
Dean's List, UBC Faculty of Arts	2016-17, 2017-18, 2018-19, 2019-20

Publications and presentations

Journal articles

1. **Forys, B. J.**, Qi, E.**, Todd, R. M., & Kingstone, A. (2025). Hear it here: Built environments predict ratings and descriptions of ambiguous sounds. PLOS ONE, 20(1), e0316187. https://doi.org/10.1371/journal.pone.0316187
2. Ehlers, M. R., Kryklywy, J. H., Beukers, A. O., Moore, S. R., **Forys, B. J.**, Anderson, A. K., & Todd, R. M. (2024). Valenced tactile information is evoked by neutral visual cues following emotional learning. Imaging Neuroscience, 2, 1–16. https://doi.org/10.1162/imag_a_00320
3. **Forys, B. J.**, Winstanley, C. A., Kingstone, A., & Todd, R.M. (2024). Short-term memory capacity predicts willingness to expend cognitive effort for reward. eNeuro, 11(7). https://doi.org/10.1523/ENEURO.0068-24.2024
4. Kryklywy, J. H., **Forys, B. J.**, Vieira, J. B., Quinlan, D. J., Culham, J. C., & Mitchell, D. G. V. (2023). Dissociating representation of affect and motion in visual cortices. Cognitive, Affective, & Behavioural Neuroscience, 1-24. https://doi.org/10.3758/s13415-023-01115-2
5. **Forys, B. J.**, Tomm, R. J., Stamboliyska, D.**, Terpstra, A. R., Clark, L., Chakrabarty, T., Floresco, S. B., & Todd, R. M. (2023). Gender impacts the relationship between mood disorder symptoms and effortful avoidance performance. eNeuro, 10(2). https://doi.org/10.1523/ENEURO.0239-22.2023
6. Xiao, D., **Forys, B. J.**, Vanni, M. P., & Murphy, T. H. (2021). MesoNet: automated scaling and segmentation of mouse mesoscale cortical maps using machine learning. Nature Communications, 12(1), 5992. https://doi.org/10.1038/s41467-021-26255-2
7. Hamden, J.E., Salehzadeh, M., Gray, K. M., **Forys, B. J.**, & Soma, K. K. (2021). Isoflurane stress induces glucocorticoid production in mouse lymphoid organs. Journal of Endocrinology, 251(2), 1-13. https://doi.org/10.1530/JOE-21-0154
8. Hamden, J. E.*, Gray, K. M.*, Salehzadeh, M., Kachkovski, G. V., **Forys, B. J.**, Ma, C., ... Soma, K. K. (2021). Steroid profiling of glucocorticoids in microdissected mouse brain across development. Developmental Neurobiology, 81(2), 189–206. https://doi.org/10.1002/dneu.22808
9. **Forys, B. J.***, Xiao, D.*, Gupta, P., & Murphy, T. H. (2020). Real-time selective markerless tracking of forepaws of head-fixed mice using deep neural networks. eNeuro, 7(3). https://doi.org/10.1523/ENEURO.0096-20.2020

Manuscripts in preparation

1. Tomm, R. J., **Forys, B. J.**, Kalenteridis, L., Daly, I., Terpstra, A. R., Clark, L., Chakrabarty, T., Floresco, S. B., & Todd, R. M. (under review). Depression levels are associated with reduced capacity to learn to actively avoid aversive events in young adults.

*Co-first authors

Poster presentations

1. **Forys, B. J.**, Winstanley, C. A., Kingstone, A., & Todd, R. M. (2024). What predicts the choice to expend effort for reward? A translational study. Presented at Neuroscience 2024, Chicago, IL.
2. **Forys, B. J.**, Tomm, R. J., Kryklywy, J. H., Clark, L., Chakrabarty, T., Floresco, S. B., & Todd, R. M. (2023). Using a novel form of pattern component modeling with representational similarity analysis to model information learned in active and inhibitory avoidance and reward-seeking. Presented at International Conference on Learning and Memory, 2023, Huntington Beach, CA.
3. **Forys, B. J.**, Kryklywy, J. H., Ehlers, M. R., Moore, S. R., Beukers, A. O., Anderson, A. K., & Todd, R. M. (2022). Modelling representations of continuously shifting stimuli: a novel sliding window approach. Presented at Cognitive Neuroscience Society Annual Meeting, 2022, San Francisco, CA.
4. Zheng, J.**, **Forys, B. J.**, & Todd, R. M. (2022). Maladaptive Transfer of Cognitive Effort in Emotional Situations. Presented at UBC Psychology Undergraduate Research Conference, 2022.
5. **Forys, B. J.**, Tomm, R. J., Stamboliyska, D.**, Terpstra, A. R., Clark, L., Chakrabarty, T., Floresco, S. B., & Todd., R. M. (2021). Gender selectively moderates relationships between mood disorder symptoms and performance of effort related avoidance and reward-seeking tasks. Presented at Neuroscience 2021.
6. Tomm, R. J., **Forys, B. J.**, Daly, I. D., Terpstra, A. R., Clark, L., Chakrabarty, T., Floresco, S. B., & Todd., R. M. (2021). Depressive and anxiety symptom clusters in humans are related to distinct avoidance profiles in a cross-species translation of a go/no-go avoidance task. Presented at Neuroscience 2021.
7. Daly, I. D., Tomm, R. J., **Forys, B. J.**, Terpstra, A. R., Clark, L., Chakrabarty, T., Floresco, S. B., & Todd., R. M. (2021). Levels of depressive and anxiety symptoms in humans predict distinct patterns of reward-seeking: A cross-species translation of an appetitive go/no-go task. Presented at Neuroscience 2021.
8. Tomm, R. J., Daly, I. D., **Forys, B. J.**, Floresco, S. B., & Todd, R. M. (2021). Anxiety and depressive symptoms in humans are related to distinct avoidance profiles in a cross-species translation of a go/no-go avoidance task. Presented at the International Behavioural Neuroscience Society Meeting, 2021.
9. Sidarth, A.**, **Forys, B. J.**, & Todd, R. M. (2021). Cognitive control on reward-seeking behavior. Presented at UBC Multidisciplinary Undergraduate Research Conference, 2021, and UBC Parkinson's and Alzheimer's Targeted Hope and Support Conference, 2021.
10. Xiao, D., Gupta, P., **Forys, B.**, & Murphy, T. H. (2020). Real-time forepaw movement coded auditory feedback promotes motor skill learning in mice. Presented at UBC Psychiatry Virtual Research Day, 2020.
11. **Forys, B. J.**, Xiao, D., Gupta, P., Boyd, J. D., & Murphy, T. H. (2019). Short latency (~100 ms) markerless video tracking of body parts in mice using deep neural networks. Presented at Neuroscience 2019, Chicago, IL., and UBC Neuroscience Undergraduate Research Conference, 2020.

12. Xiao, D., **Forys, B. J.**, Tandun, R., & Murphy, T. H. (2019). Automated alignment and segmentation of mouse mesoscale brain images using machine learning. Presented at Neuroscience 2019, Chicago, IL.; UBC Future of Health Research Day; UBC School of Biomedical Engineering Symposium, 2019.
13. **Forys, B.**, Tobiansky, D. J., & Soma, K. K. (2019). A novel steroidogenic model for reward-seeking behaviour. Presented at UBC Psychology Undergraduate Research Conference, 2019.
14. **Forys, B.**, Xiao, D., Gupta, P., Boyd, J. D., & Murphy, T. H. (2018). Real-time markerless video tracking of bodyparts in mice using deep neural networks. Presented at UBC Brain Circuits Cluster 2018; Neuroextravaganza 2018; UBC Undergraduate Neuroscience Conference 2019; UBC School of Biomedical Engineering Symposium 2019.
15. Tobiansky, D. J., Kachkovski, G., Enos, R. T., Schmidt, K. L., Ma. C., **Forys, B.**, Hamden, J. E., Jalabert, C., Floresco, S. B., Murphy, E. A., Soma, K. K. (2018). Perinatal sucrose exposure in rats disrupts hormones, brain, and behavior in adulthood. Presented at Neuroscience 2018, San Diego, CA. (Credited on poster, not on abstract)
16. **Forys, B.**, Phi, J., Shi, L., Yu, V. ZH. (2018). Emojinal perception: Emoji presence and perceived emotional valence. Presented at UBC Psychology Undergraduate Research Conference, 2018 (PSYC 217 Poster Award, 1st place winner).
17. **Forys, B.**, Tandun, R., Cookson, J., & Xiao, D. (2018). Predicting facial and paw movement from cortical mesoscopic calcium activity in mice: A machine learning perspective. Presented at UBC Multidisciplinary Undergraduate Research Conference, 2018.

**Trainee

Invited talks

1. **Forys, B. J.** (2023). Exploring the structure of brain activity (and why it matters for neurophenomenology). Delivered at UBC Neurophenomenology Meeting, 2023, Vancouver, BC.
2. **Forys, B. J.** & Todd, R. M. (2023). Using fMRI to model representational content in a translational context. Delivered at UBC MRI Research Centre Annual Retreat, 2023, Vancouver, BC.

Conference talks

1. **Forys, B. J.**, Kryklywy, J. H., Ehlers, M. R., Moore, S. R., Beukers, A. O., Anderson, A. K., & Todd, R. M. (2022). Modelling representations of continuously shifting stimuli: a novel sliding window approach. Delivered at Cognitive Neuroscience Society Annual Meeting, 2022, San Francisco, CA.

Software

1. Xiao, D., **Forys, B. J.**, Vanni, M. P. & Murphy, T. H. (2021). MesoNet: automated scaling and segmentation of mouse mesoscale cortical maps using machine learning. Code Ocean. https://doi.org/10.24433/CO.1919930.V1

2. Kryklywy, J.H., **Forys, B. J.**, & Todd, R.M. (2021). Pattern Component Modelling for R (PCM-R), R package, pre-release. https://github.com/bf777/PCMforR

Datasets

1. Ehlers, M. R., Kryklywy, J. H., Beukers, A. O., Moore, S. R., **Forys, B. J.**, Anderson, A.K. & Todd, R. M. (2024). Valenced tactile information is evoked by neutral visual cues following emotional learning. OpenNeuro. https://doi.org/10.18112/openneuro.ds005449.v1.0.0

Teaching, mentoring, and organization

Teaching

Sessional Lecturer, PSYC 365, Cognitive Neuroscience, UBC 2025
Taught, developed the course material and assessments for, and supervised TAs for the main undergraduate cognitive neuroscience course at UBC Vancouver, a class of 220 students.

Teaching Assistant and Guest Lecturer, UBC fMRI Brain Camp 2023-2024
Co-designed and conceptualized the course structure. Taught five sessions on fMRI preprocessing and open data practices, including on how to use the BIDS format, conduct quality control, run representational similarity analysis, use fMRIprep, and run analyses on high-performance computing platforms. Provided technical support to students at all stages of preprocessing.

Senior Teaching Fellow, Dr. Catherine Rawn, PSYC 217, Research Methods in Psych., UBC 2024
Teaching Assistant, Dr. Rebecca Todd, PSYC 365, Cognitive Neuroscience, UBC 2021-2024
Teaching Fellow, Dr. Catherine Rawn, PSYC 217, Research Methods in Psych., UBC 2020-2023
Teaching Fellow, Dr. Catherine Rawn, PSYC 218, Analysis of Behavioural Data, UBC 2020
Teaching Assistant, Dr. David King, PSYC 305A, Personality Psych., UBC 2019

Mentoring

Undergraduate honours students

Michelle Gitaari, University of British Columbia 2023-2024
Honours thesis: *High vs. low effort: How perception of cognitive effort ability impacts effort deployment choices.*
Skye Zheng, University of British Columbia 2022-2023
Honours thesis: *Maladaptive transfer of cognitive effort in emotional situations.*

Undergraduate directed studies students

Dayana Stamboliyska, University of British Columbia 2021-2022
Paper: *Self-Efficacy in modern computational theories of motivated action.*

Undergraduate research assistants

Nick Moise, University of British Columbia 2025-present
Anisha Singh, University of British Columbia 2024-present
Emily Qi, University of British Columbia 2023-2024
Rita Jin, University of British Columbia 2023-2024

Niharika Dwivedi, University of British Columbia 2023
Paul Kee, University of British Columbia 2022
Aanandi Sidarth, University of British Columbia 2021-2022

Mentorship positions

Diversity Mentor, UBC Psychology Diversity Mentorship Program 2021-present
Mentors students interested in applying to graduate school in Psychology, guiding them through the mentor selection and school application process and meeting with them on a regular basis.

Reviewer activities

Reviewed articles for the following journals:

eLife
Nature
Journal of Environmental Psychology

Organization and leadership

PsychFest Committee Member, UBC Psychology 2024-2025

Selected and booked the venue for, and helped organize, the PsychFest end-of-year conference for UBC Psychology graduate students. Served on the UBC Psychology Graduate Student Council as part of this role.

Skills

Programming Languages: Python, bash, R, JavaScript, MATLAB, C#, HTML/CSS, Swift, Java
Machine Learning and Computer Vision: TensorFlow, Keras, OpenCV
Experimentation Technology: PsychoPy, PsychToolbox, fMRIPrep, AFNI, FSL, CONN, fMRI-CPCA, BioSemi EEG, EEGLAB, LabChart/PowerLab
Web Frameworks: Django, Flask, npm, Bootstrap, Wordpress, Squarespace
Infrastructure: Docker, Azure, High performance computing (SLURM, PBS)
Visualization: Photoshop, Illustrator, Inkscape, Unity, Blender, AutoCAD, 3DSMax, Revit, Inventor

Professional affiliations

Member, Psychonomic Society 2025-present
Member, Society for Neuroscience 2019-present
Member, Psi Chi International Honor Society in Psychology 2019-present

Languages

English – native; French – fluent