Brandon Forys
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Education
BA Honours in Psychology, the University of British Columbia, Vancouver, BC, May 2020
Senior-level average: 90% | Psychology average: 90% | Cumulative average: 89%
High School Diploma, Tempo School, Edmonton, AB, June 2016

Honours and Awards
Canada Graduate Scholarship – Master's, NSERC, 2020 ($17,500)
NSERC Undergraduate Student Research Award, NSERC/UBC, 2020 ($4,500)
Trek Excellence Scholarship for Continuing Students, UBC, 2019 ($1,500)
ARTA Scholarship, Alberta Retired Teachers' Association, 2019 ($3,000)
Wesbrook Scholar, UBC, 2019 ($1,000)
HSBC Emerging Leader Scholarship, UBC, 2019 ($5,000)
Suedfeld Scholar Award, UBC Psi Chi, 2019 ($500)
PSYC 217 Poster Award, 1st Place, UBC Psychology, 2018
Student Scholarship in Arts, UBC Faculty of Arts, 2018 ($1,000)
Trek Excellence Scholarship for Continuing Students, UBC, 2017 ($1,500)
Stephen Straker Arts One Prize, UBC Arts One Program, 2017 ($1,000)
University of BC Sopron Memorial Scholarship, UBC, 2016 ($5,000)
Dean's List, UBC Faculty of Arts, 2016-17, 2017-18, 2018-19, 2019-20

University activities (Research)
Publications
Paper. 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.* https://doi.org/10.1523/ENEURO.0096-20.2020
Paper. 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. *BioRxiv*, 482349. https://doi.org/10.1101/482349
Paper. Hamden, J. E., Gray, K., Saledzadeh, M., Kachkovski, G. K., **Forys, B. J.**, Ma, C., Austin, S., Soma, K. K. (in press). Steroid profiling of glucocorticoids in microdissected mouse brain across development. *Developmental Neurobiology.*
Paper. Xiao, D., **Forys, B. J.**, Vanni, M. P., & Murphy, T. H. (in preparation). MesoNet: machine learning-based approaches for automated analysis of mouse mesoscale cortical regions during reaching for water task.
Poster Presentations
Poster Presentation. 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.
Poster Presentation. 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.
Poster Presentation. 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.
Poster Presentation. 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.
Poster Presentation. 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)

Poster Presentation. 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).

Poster Presentation. 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.

Teaching Positions

Teaching Fellow with Prof. Catherine Rawn, PSYC 217, Research Methods in Psychology, UBC Psychology, 2020.

Teaching Fellow with Prof. Catherine Rawn, PSYC 218, Analysis of Behavioural Data, UBC Psychology, 2020.

Teaching Assistant with Prof. David King, PSYC 305A, Personality Psychology, UBC Psychology, 2019.

Research Positions

Graduate Student and Research Assistant with Prof. Alan Kingstone, UBC Psychology, 2020-present.

Graduate Student (2020-present) **and Research Assistant** with Prof. Rebecca Todd, UBC Psychology, 2019-present.
Investigating aversive responses and learning using stimulus associations. Learned PsychoPy, Psychtoolbox, LabChart, and PowerLab. Supervised Honours thesis: *Modulating Effort Cost in Human Avoidance Behaviours.*

Research Assistant with Prof. Kiran Soma, UBC Psychology, 2018-present.
Researching methods for predicting local neurosteroid concentration from circulating steroid hormone concentrations. Learned bioinformatics, histological analysis, cluster computing, and R for statistics. Supervised Honours thesis: *A Novel Steroidogenic Model for Reward-Seeking Behaviour.* Supervised directed studies paper: *Modelling Corticosterone Synthesis and Regeneration in the Mouse Brain*.

Laboratory Assistant with Prof. Tim Murphy, UBC Psychiatry, 2017-present.
Investigating movement and behavioural dynamics of mice using movement tracking; exploring the relationship between body part movement and mesoscale brain activity in mice. Learned Python, MATLAB, and brain slicing.

Workshop Host. Databinge; DeepLabCut. UBC Neuroscience, 2018.
Taught members of UBC's neuroscience community how to use a novel movement tracking system.

University Activities (Leadership & Extracurricular)

Vice President Internal, UBC Chapter of Psi Chi, 2019-20.

Vice President, Academic-Internal, Model United Nations Student Association, 2018-20. Hired staff for, prepared materials for, and oversaw execution of Model UN conferences at UBC.

Co-Founder and Vice President, AMS Turing Club @ UBC, 2017-20. Led workshops on a variety of artificial intelligence topics for UBC students of all backgrounds; marketed the club.

Volunteer Web Developer, Ubyssey Publications Society, 2017-18. Implemented a number of front-end and back-end improvements and fixes on the Ubyssey website; developed a software package to make it easier for Ubyssey web developers to start working with the website on their own computers.

Community and Volunteer Activities

Software Engineering Team Member, rLoop Incorporated, 2017-present.
Works with a global team of engineers and designers to design a one-person flying machine for the HeroX GoFly competition. Helped design an AI-based communication system for a hyperloop vehicle in the SpaceX Hyperloop Competition.

Skills

Programming Languages: Python, bash, R, MATLAB, JavaScript, C, C++, HTML/CSS, Java
Machine Learning and Computer Vision: TensorFlow, Keras, CUDA, OpenCV
Web Frameworks: Django, Flask, npm, Bootstrap, Wordpress, Squarespace
Infrastructure: Docker, VirtualBox, QEMU
Visualization: Photoshop, Illustrator, Inkscape, Inventor, Unity, Blender, AutoCAD, 3DSMax, Revit
Experimentation Technology: PsychoPy, PsychToolbox, BioSemi EEG, EEGLAB, LabChart/PowerLab

Professional affiliations

Member, Society for Neuroscience, 2019-present.
Member, Psi Chi International Honor Society in Psychology, 2019-present.
Student member, Association for Psychological Science, 2018-present.

Languages

English – native; **French** – fluent