Protected when completed

Mr. Matthew Bannerman Cooke

Correspondence language: English
Sex: Male
Date of Birth: 9/15
Canadian Residency Status: Canadian Citizen
Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

Address

Home (*)

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Surrey British Columbia V4P 3E7
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Telephone

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Mr. Matthew Cooke

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes
French	Yes	Yes	Yes	Yes	No

Degrees

2024/9 (2028/5) — Doctorate, Doctor of Philosophy, Neuroscience, University of British Columbia
Degree Status: In Progress

Supervisors: Jason Snyder, 2024/9 -

2019/1 - 2024/5 — Master's Thesis, Master of Science, Neuroscience, University of British Columbia
Degree Status: Completed
Thesis Title: Investigating the effects of silencing the hippocampus in a probabilistic reversal learning task

Supervisors: Jason Snyder, 2019/1 - 2024/5

2013/9 - 2018/11 — Bachelor's, Bachelor of Science, Computer Science, McGill University
Degree Status: Completed

User Profile

Fields of Application: Biomedical Aspects of Human Health, Foundations and Knowledge Acquisition, Pathogenesis and Treatment of Diseases

Disciplines Trained In: Computer Science, Neurosciences

Areas of Research: Learning and Memory, Neurogenesis and Gliogenesis, Computer Science and Statistics

Research Specialization Keywords: Neuroscience, Computer Science, Psychology

Research Disciplines: Neurosciences, Computer Science, Psychology

Employment

2020/9 - 2025/4 — Teaching Assistant
Faculty of Arts / UBC / Vancouver, University of British Columbia
Performed activities in the role of Teaching Assistant, including guest lectures, marking, office hours, and others.

2018/9 - 2019/9 — Teaching Assistant
Psychology, Vancouver, University of British Columbia

2018/9 - 2018/12 — Work Learn Student
Psychology, Vancouver, University of British Columbia

2018/5 - 2018/9 Research Assistant
Psychology, Vancouver, University of British Columbia
Full-time
Tenure Status: Non Tenure Track
Developed a software package used to analyze behaviour data for rodents in the Morris Water Maze.

2015/6 - 2018/4 Undergraduate Research Assistant
Psychology, Vancouver, University of British Columbia
Part-time
Tenure Status: Non Tenure Track
Developed software tools to analyze Morris Water Maze data. Helped with general lab duties and animal work.

2013/9 - 2014/5 Technical Consultant
Decor Experts Expo
Provided part time technical consultation for web services as well as software support.

Affiliations

The primary affiliation is denoted by (*)

(*) 2019/1 Graduate Student, University of British Columbia

Research Funding History

Awarded [n=3]

2025/5 - 2025/8
Principal Applicant
President's Academic Excellence Initiative PhD Award, Scholarship

Funding Sources:

2025/5 - 2025/8 University of British Columbia
Total Funding - 420 (Canadian dollar)
Funding Competitive?: No

2024/9 - 2025/4
Principal Applicant
President's Academic Excellence Initiative PhD Award, Scholarship

Funding Sources:

2024/9 - 2025/4 University of British Columbia
Total Funding - 830 (Canadian dollar)
Funding Competitive?: No

2024/9 - 2025/4
Principal Applicant
Faculty of Medicine Graduate Award, Scholarship

Funding Sources:

2024/9 - 2025/4 Faculty of Medicine
Total Funding - 4,800 (Canadian dollar)
Funding Competitive?: No

Completed [n=1]

2021/6 - 2022/6
Principal Applicant
Djavad Mowafaghian Centre for Brain Health 2021 Endowment Award: General Award, Scholarship
Clinical Research Project?: No
Project Description: I am using an appetitive operant paradigm to elucidate the role of hippocampus in probabilistic reward learning and behavioural flexibility. I am investigating whether dorsal, ventral, or both aspects of the hippocampus play roles in these forms of decision making. I will silence these regions of the hippocampus to determine which

aspects of probabilistic reward learning require the hippocampus. I will then use in-vivo calcium imaging to identify patterns of neuronal activity that may support reward-based learning and decision-making.

Funding Sources:

2021/9 - 2022/4	University of British Columbia Neuroscience Total Funding - 5,000 (Canadian dollar) Funding Competitive?: Yes

Courses Taught

	Graduate Student Advisor Course Title: Neuroscience Journal Club Course Code: BIO5148-S20 Course Topic: Reviewing research in Neuroscience Course Level: College Number of Students: 4 Lecture Hours Per Week: 2
2018/09/04	Guest Lecture - Teaching Assistant, Psychology, University of British Columbia Course Title: Brain Dysfunction and Behaviour (PSYC 301A) Course Level: Undergraduate Number of Students: 175 Guest Lecture?: Yes
2019/11/14 - 2019/11/14	Guest Lecture, Psychology, University of British Columbia Course Title: Research Methods Course Code: PSYC 277 Course Topic: Research Methods Course Level: College Academic Session: Fall Lecture Hours Per Week: 1 Guest Lecture?: Yes
2019/11/12 - 2019/11/12	Guest Lecture - Teaching Assistant, Psychology, University of British Columbia Course Title: Guest lecture - Sensory Systems Course Code: PSYC 304 Course Topic: Brain and Behaviour Course Level: College Academic Session: Fall Number of Students: 170 Number of Credits: 6 Lecture Hours Per Week: 2 Guest Lecture?: Yes

2019/06/14 - 2019/06/14
Guest Lecture - Teaching Assistant, University of British Columbia
Course Title: Frontal Lobe Dysfunction
Course Code: PSYC 301
Course Topic: Brain Dysfunction and Recovery
Course Level: Undergraduate
Number of Students: 100
Number of Credits: 3
Guest Lecture?: Yes

Co-instructors: Hynes, Tristan

Mentoring Activities

2023/3 - 2024/5
Research Mentour, University of British Columbia
Number of Mentorees: 3
Mentorees: Peyton Holder Si-ah Choi Likitha Mallela
Mentouring undergraduate research assistants

2021/1 - 2023/9
Diversity Mentour, University of British Columbia
Number of Mentorees: 4
Provide mentouring to students interested in applying to graduate school coming from diverse and underprivileged backgrounds.

2019/6 - 2023/3
Research Mentor, University of British Columbia
Number of Mentorees: 2
Mentorees: Ricky Ma & Brie Dungate
Supervising a COGS student and a Computer Science student in the lab.

2021/6 - 2023/1
Research Mentour, University of British Columbia
Number of Mentorees: 1
Mentorees: Tyler Lin
Mentoring undergraduate students.

2020/1 - 2022/6
Research Mentor, University of British Columbia
Number of Mentorees: 1
Mentorees: Brie Dungate
Actively mentoring an undergraduate student with a background in Computer Science building experience working in a Neuroscience setting.

2020/5 - 2020/9
Research Mentor, Bahai Institute of Higher Education
Number of Mentorees: 4
Provided mentorship to a class of Neuroscience students at the BIHE. We reviewed students choices of academic literature, and learned about the process of dissecting academic papers.

2018/9 - 2019/1
Research Mentor, University of British Columbia
Number of Mentorees: 1
Mentorees: Phelan Harris
Recruited and mentored a computer engineering student in the lab. Helping teach biological computing and the role computer science plays in the field of Neuroscience

Journal Review Activities

2021/6 - 2021/7
Reviewer,Behaviour Research Methods
Number of Works Reviewed / Refereed: 1

Community and Volunteer Activities

2017/7	Data Acquisition and Analysis, ALS BC Working with ALSBC and UBC, to create data acquisition and analysis tools for participant responses to multiple questionnaires and surveys. I also developed an iPad app for researches to randomly assign participants to multiple groups.
2021/9 - 2023/5	Diversity Mentour, University of British Columbia Serving as a mentor for students with diverse backgrounds who plan on applying to graduate school in field relating to psychology and neuroscience.

Committee Memberships

Committee Member, UBC Animal Workers Joint Occupational Health and Safety Committee, University of British Columbia

Committee Member, DMCBH Lab Operations and Safety Committee, University of British Columbia

Other Memberships

2018/10	Student Member, Molecular and Cellular Cognition Society
2018/6	Student Member, Society for Neuroscience
2018/5	Student Member, Canadian Association for Neuroscience

Most Significant Contributions

2024/4	Investigating the effects of silencing the hippocampus in a probabilistic reversal learning task Master's Thesis
2019/8	Pathfinder: open source software for analyzing spatial navigation search strategies Developed the software to analyze data in the Morris Water Maze. Conducted analysis of data. Wrote manuscript.

Presentations

1. (2025). Statistical Learning in the Murine Hippocampus. Park City Learning and Memory, Park City, UT, United States of America
   Main Audience: Researcher
   Invited?: No, Keynote?: No, Competitive?: No
2. (2020). Pathfinder: An open source software package for analyzing spatial navigational data.Neuromatch 3.0, Canada
   Main Audience: Researcher

Publications

Journal Articles

1. (2022). Search strategy analysis of Tg4-42 Alzheimer Mice in the Morris Water Maze reveals early spatial navigation deficits. Scientific Reports.
http://dx.doi.org/10.1038/s41598-022-09270-1
Co-Author
Published, , Open Access?: Yes
Number of Contributors: 10
Description / Contribution Value: Developed software to analyze study data. Supported authors with use of the software.

Thesis/Dissertation

1. Investigating the effects of silencing the hippocampus in a probabilistic reversal learning task. (2024). University of British Columbia. Master's Thesis.
http://dx.doi.org/10.14288/1.0442003
Number of Pages: 80 Supervisor: Jason Snyder
Contribution Percentage: 91-100

Conference Publications

1. Matthew Cooke Tyler Lin Brie Dungate Jackson Schumacher Stan Floresco Jason Snyder. The Effects of Silencing Dorsal and Ventral Hippocampus in a Probabilistic Reversal Learning Task in Rats. DMCBH Research Retreat, Kelowna, Canada,
Poster
First Listed Author
Published
Number of Contributors: 6

2. Matthew Cooke Tyler Lin Brie Dungate Jackson Schumacher Stan Floresco Jason Snyder. The Effects of Silencing Dorsal and Ventral Hippocampus in a Probabilistic Reversal Learning Task in Rats. Society for Neuroscience 2022, San Diego, United States of America,
Conference Date: 2022/11
Poster
First Listed Author
Published
Contribution Percentage: 71-80

3. Matthew B. Cooke, Timothy P. O'Leary, Phelan Harris, Ricky Ma, Richard E. Brown, Jason S. Snyder. Pathfinder: A Software package to analyze Morris Water Maze data.Society for Neuroscience, Chicago, United States of America,
Conference Date: 2019/10
Poster
First Listed Author
Published
Description / Contribution Value: Presented a poster at the Society for Neuroscience meeting in 2019.

4. Matthew B. Cooke, Timothy P. O'Leary, Phelan Harris, Ricky Ma, Richard E. Brown, Jason S. Snyder. Pathfinder: A Software package to analyze Morris Water Maze data.NeuroFutures, Portland, United States of America,
   Conference Date: 2019/7
   Poster
   First Listed Author
   Published
   Number of Contributors: 5
   Contribution Percentage: 81-90
   Description / Contribution Value: Presented a poster at NeuroFutures in Portland.
5. Matthew B. Cooke, Timothy P. O'Leary, Phelan Harris, Ricky Ma, Richard E. Brown, Jason S. Snyder. (2021). PATHFINDER: A SOFTWARE PACKAGE TO ANALYSE SPATIAL SEARCH STRATEGIES. Society for Neuroscience, ,
   Poster
   First Listed Editor
   Published
6. Matthew B. Cooke, Timothy P. O'Leary, Phelan Harris, Ricky Ma, Richard E. Brown, Jason S. Snyder. (2020). Pathfinder: A Software package to analyze Spatial Navigational Data.Society for Neuroscience, ,
   Poster
   First Listed Author
   Published

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