



Queen's
UNIVERSITY



centre for
neuroscience
studies
AT QUEEN'S UNIVERSITY

ANNUAL REPORT 2022-2023

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Dear Colleagues

I hope this message finds you all well. As I take a moment to reflect on the past year and our accomplishments, I'd like to express my gratitude for your dedication in sharing our research vision and missions for the Centre for Neuroscience Studies (CNS). Despite setbacks caused by the Covid pandemic we are now well on our way to being back on track with in-person research and teaching. Together, the CNS continues to make strides in a multitude of fields of study within neuroscience and mental health. The overwhelming success of our graduate program is a testament to the world-class researchers we can boast of.



Microcredential Program. The New Frontiers in Research Fund saw a total of 9 grants awarded to Queen's in 2022 and three of these are members of the Centre for Neuroscience Studies. This tremendous research funding will make a tangible difference in the lives of individuals suffering with neurological and mental health diseases. I am incredibly proud of these achievements.

The CNS is a unique environment committed to fostering a diverse and inclusive community that celebrates and embraces differences. We believe this diversity of perspectives and experiences fuels creativity and enriches our research endeavours. We will actively strive to create an environment that supports and values all individuals as we strive to reach our collective mission.

In closing, I wish to express my appreciation for the dedication and commitment of our staff, students, postdoctoral fellows, and faculty in making the Centre for Neuroscience Studies the great success it is today.

I wish you all a productive and fulfilling year ahead.

Sincerely,

A handwritten signature in blue ink, which appears to read 'Roumen Milev'. The signature is fluid and cursive, with a large initial 'R'.

Roumen Milev

Director
Centre for Neuroscience Studies

“The ultimate goal of the Centre for Neuroscience Studies is to improve the quality of life for people with mental and neurological issues. Our faculty, trainees and staff are highly committed to making this happen.”

In the face of unprecedented financial changes and evolving circumstances, we are forging ahead with resilience, adaptability, and innovation. One example of our research successes can be identified by the CIHR results at Queen's University. In the CIHR Project Grant competitions of fall 2022 and spring 2023, a total of 12 grants were awarded to Queen's University. Of those, 4 are in the Centre for Neuroscience Studies and 3 of those 4 are for imaging. Queen's University was awarded a \$22M Canada First Research Excellence Fund as a partner institution with York University. This award also incorporates the Neurotech

CNS Strategic Plan

The Centre for Neuroscience Studies (CNS) Strategic Plan, developed by the Centre, outlines the respective objectives and actions plans. The strategic plan aimed at increasing awareness, governance, and financial sustainability initiatives. H



RESEARCH

The strategic plan places a strong emphasis on identifying and prioritizing main research themes in neuroscience. We are consistently exploring emerging areas of study and aim to stay at the forefront of cutting-edge research. We have successfully created networks linking medical, industry and other partners.

The Centre has a vast resource of members whose research expertise spans multiple disciplines making it difficult to identify 3 or 4 specific areas of interest.



EDUCATION

The Centre successfully developed and delivered innovative graduate education programs, including the introduction of NSCI 801 which is a tutorial-based introduction to quantitative methods for neuroscience. The Graduate Program also modified NSCI 830 Biological Psychiatry to recognize mental disorders as brain disorders requiring a multilevel approach from genes to neuroimaging to psychosocial mechanisms.



PROFILE & AWARENESS

The Strategic Plan focused on increasing the Centre's profile and awareness which we have successfully done through an increased social media presence. As well, the Neuroscience Outreach Program initiatives have effectively engaged the public and fostered a better understanding of neuroscience. By disseminating information and organizing outreach events, the Centre continues to succeed in promoting public interest and support for its research endeavors

Report Card 2022

...ped in 2018, outlined five key priorities along with their
...d to guide the CNS in its research, education, profile and
...ere is a brief summary of each priority.



GOVERNANCE

The Strategic Plan emphasized the importance of creating clear and transparent governance within the organization. Through the implementation of robust governance structures and policies, the Centre has enhanced accountability, decision-making processes, and member engagement. This has fostered a culture of transparency and integrity within the organization.



FINANCIAL SUSTAINABILITY

The Strategic Plan recognized the potential for revenue generation through the creation of professional programs such as the Neurotech Microcredentials program. By offering specialized training to professionals in the field, the Centre has generated additional revenue while meeting the demand for industry-relevant education.

The Centre is still working on identifying and securing a stable source of funding for long-term sustainability.

Achieved



Ongoing

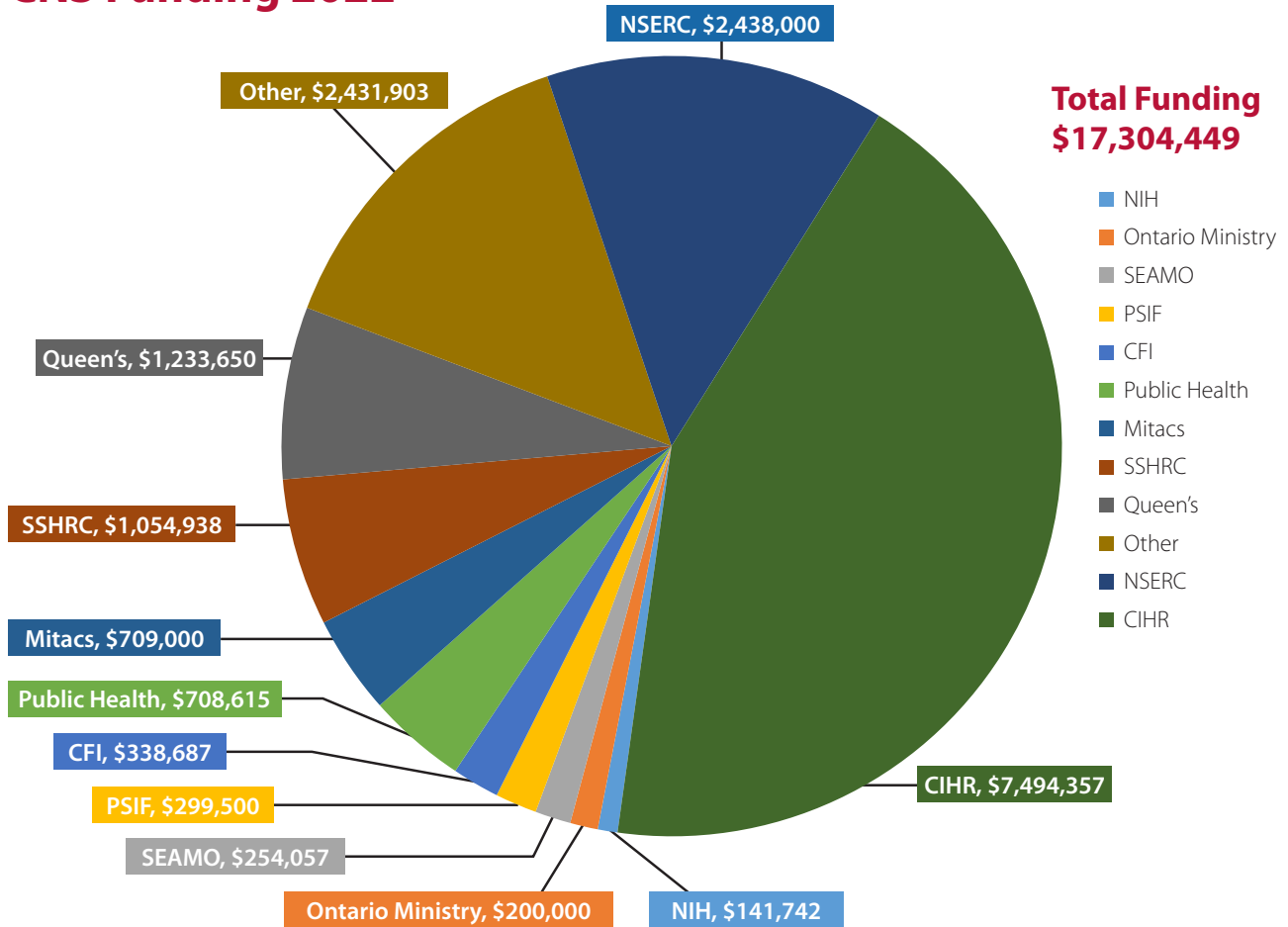


Equity, Diversity, Inclusivity, Indigeneity, Accessibility

Launched in May 2021 with the initial committee lead responsibility shared between a faculty member and a graduate student. The committee is composed of faculty, staff and trainees actively engaged in the Centre for Neuroscience Studies. Since the establishment of this committee we have successfully implemented numerous initiatives in support of EDIIA. The first was the creation of the Room of Requirement which is a dedicated accessible safe space for anyone requiring a personal space. The room can be used to think, pray, meditate or unwind. Dr. Sari van Anders from the Department of Psychology gave a very well attended talk on Neurodiversity and Research in 2022. The committee also developed a list of resources for supporting Women in STEM which were also passed along to the QHS Equity Office. A guide was created with

resources and information for supervisors on how best to support female students. Students were also offered EDIIA online training through the CNS with topics including anti-discrimination, normalized bias, Indigenous issues, conducting human research with equity deserving populations, anti-racism in Canada, gender and sexual diversity and accessibility. In a recent initiative of the CNS, we lobbied for funding to install an automatic door opening to the main doors of Botterell Hall 2nd floor to provide accessibility to one of our graduate students in a wheelchair. We are thrilled to announce the install of this new door which we feel provides much needed accessibility to the CNS administrative space.

CNS Funding 2022



1902

Refereed Journal Articles and Citations

In 2022 faculty members from the Centre for Neuroscience Studies published **451** refereed journal articles and had over **35,465** citations.

The Neurotech Micro-credential Program

Neurotechnology is an emerging growth industry that applies brain sensing, imaging or modulating technologies to solve real world problems, such as diagnosing and treating brain disorders, understanding and modifying brain states, and even interfacing the brain with machines. To innovate in the neurotechnology field, individuals require interdisciplinary knowledge of fields such as engineering, physics, and neuroscience, however, there was no widely accessible academic program to allow students to generate this diverse knowledge base. Our new Neurotech Micro-credential Program aims to address this gap to help better prepare students to innovate in the emerging field of neurotechnology. <https://neurotechmicrocreds.com/>



Funding

We successfully obtained funding from the Province of Ontario Microcredential Challenge Fund (\$300,000) to create a core set of online microcredentials on topics of relevance to the NeuroTech Industry. We were then successful in securing a ~\$1,000,000 Community Impact Award to expand the program across the province, by partnering with York, Western, and Nipissing Universities to provide an in-person Capstone Project course where students can get hands-on experience with neurotechnologies. To support our new Neurotech Discovery Lab, we have used this funding to purchase a variety of neurotech equipment that will benefit teaching and research in the Centre for Neuroscience Studies, including fNIRs, a variety of EEG devices (g-tec, MUSE), OpenBCI Galea (EEG enabled VR headset), AdHawk eye tracker, Synaptive brain molds and more!

Engineers and computer scientists have the hard skills required to innovate in the Neurotech field, but often lack the foundational neuroscience knowledge; with the reverse being true for biomedical and social science students. Most groups of learners know little about neuroethical and regulatory frameworks. Our aim is to address these gaps by developing a suite of microcredentials to prepare students to transition to the neurotechnology industry and/or help people in the workforce upscale their skills to do so.

Industry Support

We partnered with NeuroTechX, the world's largest neurotech enthusiast community. We also consulted with a variety of industry supporters on course content, many of whom have provided review of course materials, including Kinarm, Blackrock Neurotech, Synaptive, InteraXon MUSE, Theia Markerless, ENO, Neurable, Hyperfine, and more.

Online Courses

These are made-for-online courses that are rigorously assessed with end of module quizzes and assignments, and a photo-ID verified oral exit exam. Upon successful completion, learners receive a digital credential – issued through Accredible – to display on their LinkedIn, share with employers, and add to their digital wallet of credentials.

1. **Neuroscience & NeuroTech Primer: (Enrolling since June 1, 2023)**
 - Neuroscience Primer:
Explore neuroanatomy, neuron function, circuits, and neural signal recording.
 - Neuroprosthetics:
Discover cochlear and retinal implants, motor BCIs, and systems neuroscience.
 - Neuroimaging Primer:
Gain insights into MRI, CT, fMRI, fNIRs, and EEG applications.
 - Neurostimulation Primer:
Uncover non-invasive techniques like TMS, tDCS, FUS, and invasive methods including DBS, VNS, and Spinal stimulation.

2. **Neuroelectronic Recording and Processing (Enrolling since July 1, 2023)**
3. **Neuroimaging (Enrolling since July 1, 2023)**
4. **Neuroentrepreneurship (~November 2023)**
5. **Neuroethical Considerations in Neurotech (~December 2023)**
6. **Neuromodulation (coming in 2024)**
7. **Behavioural Measurement Techniques (coming in 2024)**
8. **Neuromarketing (coming in 2024)**

In-person Capstone Project Course

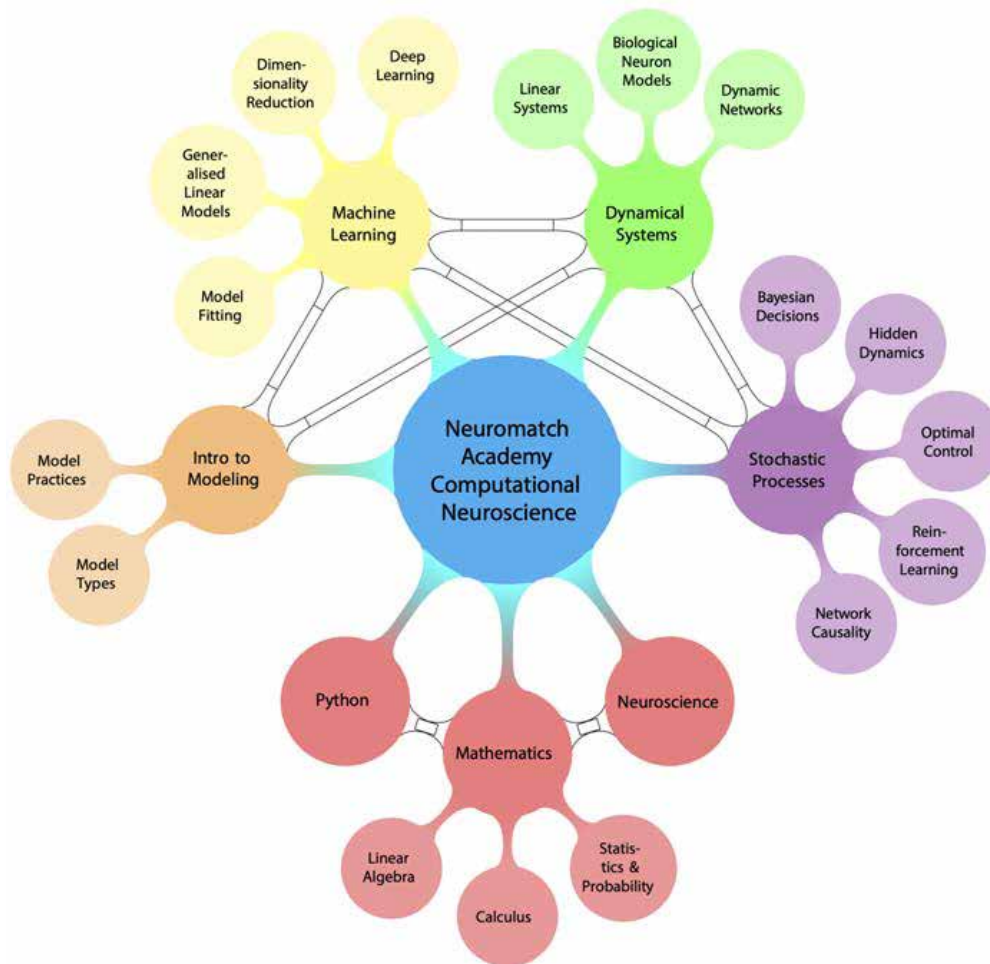
The capstone event is an experiential learning experience available to students who have completed a subset of the online micro-credential courses. This will take place in-person for 2 weeks on one of the 4 partner University campuses (Queen's, York, Western and Nipissing Universities) where students will participate in various workshops, presentations, and complete a capstone project within a small group. Students will develop skills with various neurotechnologies, and also in project management, communication, entrepreneurship, IP, regulations, and more.

Neuromatch Academy

Neuromatch Academy (NMA) is a unique and innovative educational initiative that brings together aspiring researchers, professionals, and students from around the world to learn about computational neuroscience and related fields. Founded in 2020, NMA aims to make high-quality training in neuroscience and computational methods accessible to a global audience, fostering collaboration and knowledge exchange.

Key Features and Objectives:

1. **Accessible Online Learning:** NMA offers its programs and resources online, making it accessible to participants from diverse backgrounds and geographical locations. The academy provides an inclusive learning environment that encourages participation and engagement.
2. **Computational Neuroscience Curriculum:** The core focus of NMA is on computational neuroscience, a field that combines neuroscience, mathematics, and computer science to understand brain function and behavior. The curriculum covers a wide range of topics, including neural data analysis, modeling, machine learning, and statistical techniques.
3. **Hands-On Learning:** NMA places a strong emphasis on hands-on learning experiences. Participants are provided with practical tutorials, coding exercises, and projects that allow them to apply their knowledge and develop computational skills. These interactive activities enable participants to gain practical experience and build a strong foundation in computational neuroscience.
4. **Expert Faculty and Mentors:** NMA collaborates with leading researchers, faculty, and industry experts who are at the forefront of their fields. These experienced mentors provide guidance, support, and feedback to participants throughout their learning journey. The mentorship aspect of NMA is instrumental in fostering a vibrant learning community.
5. **Collaborative Learning Environment:** NMA encourages collaboration and community-building among its participants. Through interactive forums, virtual meetups, and team-based projects, participants have the opportunity to connect with fellow learners, share ideas, and form valuable professional networks.
6. **Diversity and Inclusivity:** NMA is committed to creating a diverse and inclusive learning environment. It actively promotes equitable access to education, welcomes participants from all backgrounds, and strives to ensure that underrepresented groups have equal opportunities to engage in neuroscience and computational research.
7. **Global Impact:** By providing free and accessible training, NMA aims to democratize education and enable aspiring researchers worldwide to contribute to the field of computational neuroscience. The academy's programs have a global reach, fostering collaboration and advancing knowledge across borders.
8. **Continuous Learning and Alumni Network:** NMA is not just a short-term educational experience. It is a platform for lifelong learning and engagement. Participants become part of the NMA alumni network, gaining access to continued learning opportunities, mentorship, and collaboration within the broader computational neuroscience community.



Neuromatch Academy has quickly established itself as a pioneering educational institution in the field of computational neuroscience. Its commitment to accessible, hands-on learning, diverse participation, and global collaboration makes it an invaluable resource for anyone interested in exploring the intersection of neuroscience and computation.

Neuromatch Academy teaches computational techniques crucial in today's climate for success in both academia and industry. The program reaches thousands of students across the globe each year throughout the world and is the epitome of globally accessible science education.

<https://academy.neuromatch.io/>
 For NMDA: <https://www.nmda.io/>
 For NMOP: <https://nmop.io/>

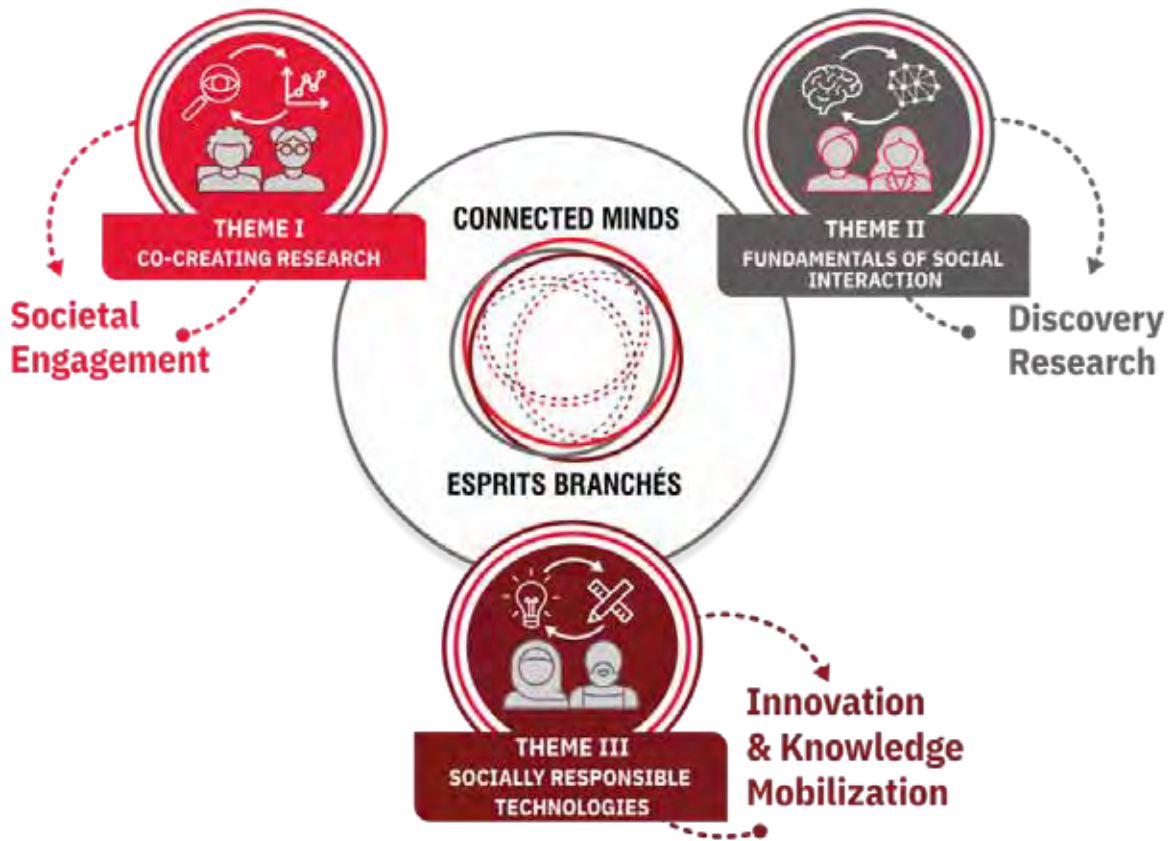
The Canada First Research Excellence Fund Announcement

Through a collaboration with York University, Queen's is thrilled to announce the launch of the Canada First Research Excellence Fund Connected Minds initiative. Connected Minds: Neural and Machine Systems for a Healthy, Just Society is a \$100M award devoted to mobilizing transdisciplinary expertise to develop socially responsible technologies.

Under the direction of Dr. Gunnar Blohm, Vice Director Connected Minds, this program will create a 'techno-social collective' where humans and intelligent machines are deeply interconnected. The Connected Minds Program envisions a world where breakthroughs in technology promote social health and justice for all, with a special focus on the Indigenous Peoples of Canada.



Steven Smith, Susan Boehnke, Gunnar Blohm, Caitlin Mullin, Minister Francois-Philippe Champagne, Amir Asif, Doug Crawford, Pina D'Agostino



The program focuses on three central themes:

1. Co-Creating Research for Society Needs and Impact
2. Fundamentals of Social Interaction: Neural, Algorithmic and Social Networks
3. Developing Ethical and Responsible Technologies

Over \$22M has been awarded to Queen's University to support faculty recruitment, a staffing complement for the initiative, research infrastructure support to four Queen's research centres as well as research grant opportunities and trainee support.

CIHR Grant Recipient



Dr. Anne Duffy

Over the past decade, there has been an increase in reported anxiety, depression and self-harm in university students commensurate with similar trends in the general population of young people. In parallel, there has been a steady increase in student demand for well-being and mental health support; straining university resources. This grant addressed several identified priorities including (i) providing large scale reliable data about student well-being in the transition to and over undergraduate studies; (ii) understanding the determinants of student mental health need and highlighting barriers and gaps in services and (iii) translating findings into evaluable student-tailored support organized in a stepped care framework co-developed with students, campus and community stakeholders.

GRANT TITLE:

THE U-FLOURISH STUDENT MENTAL HEALTH TRANSLATIONAL RESEARCH

LAY ABSTRACT: Student well-being and mental health are prerequisites to successful completion of higher education, which itself is a major driver of societal healthy growth and development. The need for a comprehensive, effective, scalable and sustainable approach to support the spectrum of university student well-being and mental health need is a clear priority. The U-Flourish Student Mental Health Translational Research program is a Queen's success story made possible by a strong partnership with students in collaboration with multidisciplinary university academics and stakeholders and funders including the Rossy Family Foundation, Mach Gaensslen Foundation, McCall MacBain Foundation, and the Canadian Institutes of Health Research. The work completed is a quantum advance in developing and evaluating accessible,

inclusive, effective, and digitally supported prevention and early-intervention initiatives that benefit the diverse university student population. The findings have resulted in new operating grants from the Canadian Institutes for Health Research (in partnership with the Rossy Family Foundation and McCall MacBain Foundation) and the Medical Research Council in the UK to continue and expand this work across several Canadian universities (Queen's, uCalgary, uOttawa) and 6 major UK universities (Oxford, Exeter, Cardiff, KCL, Southampton, Newcastle). A curated library of versions of the biannual survey, mental health literacy course and the digital well-being platform are available for adaption and use by other higher learning institutions in collaboration with the investigators in Canada and the UK.

Additional information is available at <https://www.queensu.ca/u-flourish/>

U-Flourish SMH Research: From Evidence to Action



- Provide indicated, accessible and tailored support to students
- Engage students in proactive support
- Understand what works, why and for whom

CIHR Grant Recipient



Dr. Douglas James (DJ) Cook

Dr. Douglas James (DJ) Cook MD, PhD, FRCS(C) is Professor and Chair of Neurosurgery at Queen's University. His subspecialty area of interest is in cerebrovascular neurosurgeon and translational stroke and traumatic brain injury research. The broad goals of the Cook Lab research program are to understand how the brain is perturbed and recovers following injury using multiple tools including neuroimaging, transcranial doppler, electrophysiology and quantitative neurobehavioural testing to evaluate structure, function and physiology. Specifically, his work focuses on the use of translational stroke models to evaluate promising new acute and chronic stroke therapies to facilitate translation to clinical trials and validate mechanism of action in a clinically relevant model. The lab also studies mechanisms of traumatic brain injury in military personnel and athletes. Dr. Cook has focuses on the use of minimally invasive brain surgery techniques for aneurysm repair and brain tumour resection in his clinical practice.

GRANT TITLE:

IMAGING-BASED ANALYSIS OF MECHANISMS UNDERLYING REPEATED SUB-CONCUSSIVE INJURY ASSESSED IN MILITARY PERSONNEL

LAY ABSTRACT: After a mild traumatic brain injury (mTBI), or concussion, patients can suffer with symptoms such as nausea, headache, fatigue, and other changes that affect their quality of life. Changes in the brain associated with concussion are difficult to study since there is often a lot of variability between individuals in terms of how the injury is sustained, the resulting symptoms and the unpredictable occurrence of the injury. In recent years, snipers in the Canadian Special Operations Forces Command (CANSOFCOM) have presented with concussion-like symptoms after repeated exposure to impacts as a result of recoil of their weapon sustained by their head and shoulder during training and deployment. These exposures do not result in immediate symptoms and because of this, are

called sub-concussive. However, over longer periods of these exposures as their careers progress, these impacts can become symptomatic. Since the members of this military population all receive similar exposure to sub-concussive forces, this group is ideal for studying neurological health. Our proposal will evaluate a cohort of 25 military special-forces members, who are regularly exposed to significant sub-concussive impacts as they experience several rounds of training and deployment, along with 25 controls. During the study period, over four years at multiple time points, we will quantify the amount of force that each sniper is exposed to using blast sensors and modelling and relate this exposure to markers of injury in the brain and determine if there is any effect on behavior or cognitive function. We will characterize structure and physiology in the brain using MRI. Our goal is to improve detection, and monitoring of these injuries as an initial step in the development of targeted prevention and treatment strategies for all forms of mTBI.

CIHR Grant Recipient



Dr. Beth Kelley

Elizabeth (Beth) Kelley, PhD is an Associate Professor in Psychology and Psychiatry and a member of the Centre for Neuroscience Studies. Her work investigates many factors related to autism spectrum disorder and attention-deficit hyperactivity disorder, including brain imaging, mental health, phenotyping more broadly, and intervention.

GRANT TITLE:

OPT-IN: ONLINE PARENT TRAINING INTERVENTION FOR YOUNG CHILDREN DIAGNOSED WITH AUTISM SPECTRUM DISORDER: A RANDOMIZED CONTROLLED TRIAL

LAY ABSTRACT: Young children who have been recently diagnosed with autism spectrum disorder (ASD) may wait up to three years for treatment in Ontario, a situation that has only been exacerbated by the COVID-19 pandemic. This situation is particularly bad in rural areas, with these families often having to travel for hours to receive services for their children. Numerous research studies have shown that the earlier autistic children receive intervention, the better their prognosis. Much research has also shown that involving families in the intervention process (by teaching them how to interact with their children to encourage social-communication behaviours and reduce problematic behaviours) also increases the effectiveness of

interventions. Given these two findings, we are proposing to conduct a randomized controlled trial of a completely-online programme which will teach parents how to encourage social communication behaviours and discourage behaviours that interfere with learning in their children. Families will be randomly assigned to the online intervention, or to an educational provision which will teach them what autism is, how to obtain support for their children, how to advocate for their children, and what treatments are available to them while they wait for more traditional autism intervention. We will measure both groups change in autism symptoms and adaptive behaviour (how they function in their daily lives) as our primary outcomes, and parental stress and coping as our secondary outcomes. This study will be completed online, thus allowing for a large sample from across Ontario (including underserved rural populations), and will provide important services to families who would otherwise be waiting for services and thus not be treating their children at those critical early developmental stages.

CIHR Grant Recipient



Dr. Pat Stroman

Dr. Stroman did his undergraduate degree in Physics at the University of Victoria and a PhD in Applied Sciences in Medicine at the University of Alberta, where he focused on magnetic resonance imaging (MRI) technology. He did a postdoctoral fellowship at Laval University in the Quebec Biomaterials Institute, and then worked in the MR Technology group at the Institute for Biodiagnostics, National Research Council of Canada in Winnipeg. In 2004 he joined the Centre for Neuroscience Studies, Queen's University, as the Director of the MRI Facility. He is now a Professor in the Centre for Neuroscience Studies, and is in the Department of Biomedical and Molecular Sciences, and the Department of Physics. His research remains focussed on the development of innovative functional MRI data acquisition and analysis methods for studying neural activity related to pain processing at all levels of the central nervous system. He was abruptly removed as Director of the MRI Facility in December 2008 and is still quite bitter about that.

GRANT TITLE:

INVESTIGATING THE NEUROBIOLOGICAL BASIS OF HEIGHTENED PAIN AND DYSFUNCTION IN FIBROMYALGIA, BY MEANS OF FUNCTIONAL MAGNETIC RESONANCE IMAGING

LAY ABSTRACT: Fibromyalgia (FM) is a chronic pain condition that affects roughly 1 million people in Canada, predominantly aged 30-50 years. In spite of its prevalence and impact, our understanding of the physiological basis of FM is still developing. Research to date has provided evidence that there are differences in the central nervous system in the way that pain is processed in people with FM compared to people without FM. It appears that people with FM may be in a constant state of heightened sensitivity, similar to a normal reaction to stress or fear. With the proposed research we aim to further characterize the neural basis

of altered pain sensitivity in FM in the brainstem and spinal cord, using recent innovations in our methods for pain research that are based on functional magnetic resonance imaging (fMRI), and also recent new insights into FM. Specifically, we will test the ideas that heightened pain experienced by people with FM is the result of altered natural regulation of pain signaling, and/or a state of heightened responsiveness in the spinal cord, and/or heightened sensitivity in the periphery where sensory or pain signaling originates. We will test relationships between neural signaling and pain sensitivity, and a wide range of psychological and health characteristics. We will also identify natural variations in pain processing in relation to individual differences in pain, and differences between sexes. This will enable us to identify neural changes that are specific to FM, and cannot be attributed to other sources of variability. The results will reveal the key characteristics of FM, and may reveal ways to improve FM diagnosis, and potentially provide evidence of new ways to treat FM.

CIHR Grant Recipient



Dr. Gavin Winston

Dr Gavin Winston is an Associate Professor in the Department of Medicine at Queen's University with a cross-appointment to the School of Computing and a faculty member of the Centre for Neuroscience Studies. He has a clinical practice at Kingston Health Sciences Centre as a neurologist specialising in first seizure and epilepsy, and runs a research lab at the Centre for Neuroscience Studies employing neuroimaging, cognitive assessment, robotics and machine learning to assist in the diagnosis and treatment of patients.

GRANT TITLE:

PREDICTING WHO WILL HAVE FURTHER SEIZURES AFTER A FIRST SEIZURE TO HELP TREATMENT DECISIONS

LAY ABSTRACT: 1 in 10 people have a seizure during their life. Usually no cause is identified which is called unprovoked first seizure (UFS). Most of these people do not have further seizures. Those that do are diagnosed with epilepsy, a neurological condition with recurrent seizures.

After UFS, there are several things that can increase the risk of further seizures. These include a cause such as head injury, abnormal brain scan findings or the seizure occurring during sleep. Most people with UFS do not have any of these so it is difficult to know who will have more seizures.

Being able to predict the risk of more seizures as soon as possible is helpful so doctors can decide whether to suggest treatment. Giving treatment to people with a high chance of more seizures can reduce that risk. Equally, doctors can avoid giving medications with side effects to people with a low chance of more seizures.

Studies show that seizures are associated with changes in brain structure and function. These are difficult to detect with standard assessments but can be detected with advanced techniques. Changes in connections between brain regions are also linked to subtle problems in thinking and mood.

We will examine brain connections (using detailed brain scans), thinking and mood in 150 people with UFS. We will then develop an accurate method for calculating the risk of further seizures. This study will be carried out by two epilepsy centers with clinics dedicated to seeing people with UFS. It will be the first study to combine many advanced techniques to estimate the chance of more seizures.

We hope that a reliable method for predicting further seizures after UFS will enable better treatment of people in this common clinical situation.



Welcome to the Neuroscience Graduate Program at Queen's University!

The Centre for Neuroscience Studies (CNS) Graduate Program at Queen's University is celebrating another remarkable year of accomplishments and growth. Throughout the year, the CNS Graduate Program has continued to thrive as a Centre for neuroscience excellence. Our students have excelled in their research endeavors, consistently demonstrating the highest levels of academic excellence and scientific inquiry. Their commitment to pushing the frontiers of knowledge is reflected in their numerous publications, presentations at prestigious conferences, and receipt of prestigious awards and scholarships.

The success of our program would not be possible without the exceptional researchers who are an integral part of the CNS Graduate Program. Their expertise, dedication,

and mentorship have played a pivotal role in shaping the success of the Graduate Program. This year we welcomed an additional 5 new researchers to our growing list of graduate supervisors and received a record-breaking 260 new graduate applications!

As we reflect on the past year's achievements, we also want to recognize our program's commitment to diversity, equity, and inclusion which has been at the forefront of our efforts. We remain dedicated to ensuring an inclusive and supportive environment for all. We are proud of the achievements of our students, staff, and researchers who continue to push the boundaries of neuroscience research, education, and innovation. Their dedication and excellence has solidified our program's position as a global leader in neuroscience.

Meet Our PhD Students

Hanin Alsaadi Kawaja Lab
 Rafaella Araujo Goncalves de Silva . Munoz/De Felice Labs
 Robyn Binsfield Walia Lab
 Aleks Biorac Vazquez Lab
 Celina Caesar-Chavannes Snelgrove-Clarke Lab
 Brandon Caie..... Blohm Lab
 Olivia Calancie Khalid-Khan Lab
 Maude Champagne Reynolds Lab
 Arthi Chinna Meyyappan Milev Lab
 Jonathan Coutinho Blohm Lab
 Benjamin Cuthbert Blohm Lab
 Guilherme de Freitas Munoz/De Felice Labs
 Natalie Deschenes..... Walia Lab
 Sydney Dore Blohm Lab
 Arefeh Farahmandi Najaf Abadi Blohm Lab
 Adriana Farcas Iftene Lab
 Ashleigh Forsyth Groll Lab
 Evan Forth Milev Lab
 Kathleen Harrison..... Cook Lab
 Shima Hassanpour Stroman Lab
 Po Huang Munoz Lab
 Natasha Jawa Boyd Lab

Dure Sameen Khan Alkins Lab
 Jasmine Khan Boyd Lab
 Ryan Kirkpatrick Khalid-Khan/Munoz Labs
 Elena Koning Brietkze Lab
 Matthew Laporte..... Blohm Lab
 Mark Lindsey MacKenzie Lab
 Angela Luedke..... Munoz Lab
 Emils Matiss Blohm Lab
 Michael McGarity..... Gullivan Lab
 Blake Noyes Khalid-Khan Lab
 Kayne Park..... Scott Lab
 Karys Peterson-Katz..... Reynolds Lab
 Brianna Quinville Walia Lab
 Eve Racette Walia Lab
 Heidi Riek..... Munoz Lab
 Scott Robson..... Kuhlmier Lab
 Cassandra Sgarbossa Milev Lab
 Scott Squires Poppenk/Milev Labs
 Troy Webster..... Walia
 Rachel Yep Munoz Lab
 Tianyao Zhu Gullivan/Flanag
 Theodore Aliyianis Winston Lab

Meet Our MSc Students

Hannan Algitami..... Stroman Lab
Parsa Balalaie Scott Lab
Hayley Bromley Milev Lab
Honey Bryant Chu Lab
Tina Chalhoub Walia Lab
Camilyn Cheng..... Walia Lab
Andrea Ellsay..... Winston Lab
Adam Mizied Falah Winston Lab
Salma Farag Freire Lab
Colleen Fleury..... Scott Lab
Ian William Good-Halliwel Smallwood Lab
Surbhi Gupta Ghasemlou/Talbot Labs
Dominique Hancock Andrew Lab
Julia Hellas Andrew Lab
Kaitlyn Hoesterey Blohm Lab
Kim Mary Huynh..... Cook Lab
Matthew Townsend Jacobs Scott Lab
Jasleen Kaur Jagayat Alavi Lab
Miruna Jurj..... Sjaarda Lab
Edwin Kiarie Andrew Lab
William Jude Lawton Bongers Lab
Georgina Layzell Alavi Lab

Marian Lazaj Shukla Lab
Bernie Longange Kingiela Kawaja Lab
Jack Lott Scott Lab
Aditii Nayan Makwana..... Shukla Lab
Bruce Andrew Masotti Cook Lab
Isabelle Mastantuono Baharnoori/Scott Labs
Maria Camila Mayorga Palacious Boyd Lab
Bridget Mulholland Smallwood Lab
Tesla Peretti..... Walia Lab
Isabell Christine Pitigoi Munoz Lab
Alba Ramos Chavez Reynolds Lab
Kiran Reehal Appireddy Lab
Lydia Reid Scott Lab
Emma Rose Schincariol Cook Lab
Tishani Sritharan Milev Lab
Elise Stevens Magoski Lab
Kabeer Thaker Rullo Lab
Maxwell Topley Kawaja/Hendry Labs
Sachitha Wijekoon Scott Lab
Sophie Rose Wolkoff..... Andrew/De Felice Labs
Rebecca Wood Chu Lab

PhD Graduate Student Award Recipients



Aleks Biorac (PhD)

– MCLAUGHLIN BRACKEN FELLOWSHIP

Aleks completed his BScH majoring in Life Sciences at Queen's University in 2019. He began his PhD studies the same year under the supervision of Dr. Gustavo Vazquez, a psychiatrist at Providence Care Hospital. Currently, his studies focus on the characterization of treatment resistant depression and the exploration of experimental ketamine treatment on clinical and behavioural outcomes.



Guilherme de Freitas (PhD)

– WEBBER & GIBSON ENDOWMENT AWARD

Guilherme is a Neuroscience PhD candidate in the Graduate Program at Queen's University. He completed his Master's in Biochemistry (2017) and Bachelor's in Biological Sciences, with a minor in Microbiology and Immunology (2014), at the Federal University of Rio de Janeiro. Co-supervised by Prof. De Felice and Prof. Munoz, his research investigates minimally invasive biomarker approaches for Alzheimer's disease and long COVID.



Maude Champagne (PhD)

– LATHAM ENDOWMENT AWARD

Maude Champagne is a Neurosciences PhD Candidate under the supervision of Dr. James Reynolds. Maude has an MSW with a thesis on the Experience of parents raising children with FASD and developmental trauma during the Dyadic Developmental Psychotherapy (DDP) from Université du Québec en Outaouais. Her research interests include Fetal Alcohol Spectrum Disorder, neurodevelopmental disorders, aggression towards family members, program evaluation and developmental trauma. She recently won the PhD National Award for Science and Innovation from Mitacs and her work was featured in several Newspapers.

PhD Graduate Student Award Recipients



Arthi Chinna-Meyyappan (PhD)

– CIHR

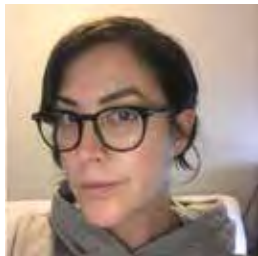
Arthi Chinna-Meyyappan is a Doctoral candidate in Dr. Roumen Milev's Lab with the Centre for Neuroscience Studies and Department of Psychiatry at Queen's University. For her PhD, Arthi is running a multi-site clinical trial to investigate the efficacy of an oral microbial therapeutic in alleviating symptoms of depression and anxiety in comparison to a placebo alternative, otherwise known as the METDA study, at Providence Care Hospital in Kingston, Centre for Addiction and Mental Health in Toronto, and St. Joseph's Hospital in Hamilton. Arthi's PhD Project also involves some time in Ireland, at University College Cork, working with Dr. John Cryan and team to investigate the prebiotic effects of polyphenols, a common compound in coffee, on the gut microbiome and further effects on stress resilience and cognitive performance. In her seven years in clinical research, Arthi has developed a particular interest in the fields of clinical neuroscience and psychiatry, particularly the effects of innovative treatments for mood and anxiety disorders. Outside of the hospital, Arthi teaches clinical psychology to undergraduate students at Queen's University, is a peer reviewer for various journals, and works with Correctional Service Canada as a clinical interviewer. In her free time, Arthi enjoys painting, reading, and getting outside as much as she can!



Sydney Dore (PhD)

– MCLAUGHLIN BRACKEN FELLOWSHIP

Sydney is a second year PhD student in the Computational Sensorimotor Neuroscience lab under the supervision of Dr. Gunnar Blohm. She completed her undergraduate degree in Psychology at Queen's, where she first became interested in eye movement research as a thesis student in the Blohm lab. Currently, her research focuses on studying human eye movements to investigate saccade-pursuit coordination when tracking motion in a naturalistic context.



Ashleigh Forsyth (PhD)

– WILSON FELLOWSHIP

MI A Veteran of the Canadian Armed Forces, Ashleigh has dedicated her academic career to researching mental health among the military. She completed her undergraduate degree in psychology through Thompson Rivers University and her Master of Science in Rehabilitation Science at Queen's University. Ashleigh is currently completing the fourth year of her PhD at the Centre for Neuroscience Studies at Queen's under the supervisor of Dr. Dianne Groll. Her focus is on treatment programming for posttraumatic stress disorder among military and public safety personnel.

PhD Graduate Student Award Recipients



Tasha Jawa (PhD/MD)

– CIHR

Tasha is a third-year MD/PhD candidate supervised by Dr. J Gordon Boyd. Prior to entering the MD/PhD program, Tasha completed an honours BSc in neuroscience and psychology at the University of Toronto, and concurrently completed her MSc at the University of Toronto while working as a clinical research manager in the Division of Nephrology at SickKids. Tasha's PhD work combines her passion for neuroscience, nephrology, and patient safety, by investigating short- and long-term neurological, neurocognitive, and functional changes in critically ill adults treated with dialysis in the intensive care setting.



Jasmine Khan (PhD/MD)

– VANIER

Jasmine is a 5th year MD/PhD candidate in Dr. Gord Boyd's lab. She is currently exploring the impact of impaired cerebral perfusion in critically ill patients in the intensive care unit (ICU). She is conducting a multi-centre clinical study to understand the relationship between cerebral perfusion, delirium, and long-term cognitive outcomes in ICU survivors. In doing so, Jasmine hopes to gain insight into the underlying processes that lead to poor recovery from critical illness.



Ryan Kirkpatrick (PhD/MD)

– VANIER

Ryan is completing her fourth year in the MD/PhD Program and is supervised by Dr. Doug Munoz, Dr. Linda Booij and Dr. Sarosh Khalid-Khan. Ryan completed her undergraduate degree at Queen's in Life Sciences and Psychology and completed a mini-master's in the CNS in 2019. For her doctoral studies, Ryan is running a multi-site study aimed at increasing knowledge surrounding cognitive control of saccadic eye movements in youth with eating disorders. The end goal of Ryan's project is to identify objective, rather than subjective, measures of eating disorders and treatment response in youth. Ryan's research is funded by a CIHR Vanier Scholarship.

PhD Graduate Student Award Recipients



Emils Matiss (PhD)

– MCLAUGHLIN BRACKEN FELLOWSHIP

Emils Matiss is a first-year PhD student, working with Dr. Gunnar Blohm and a team of researchers focussing on Spiking Neural Networks in the field of Computational Neuroscience. His research primarily centres around the exploration of thalamocortical networks through models — delving into the intricate relationship between cytoarchitecture, cortical hierarchy, and their contributions to sensorimotor control.



Blake Noyes (PhD)

– QEII-GSST, LATHAM ENDOWMENT AWARD

Blake received her BSc in Psychology at Queen's University in 2018 and began her PhD in the Centre for Neuroscience in the fall of 2021, where she is co-supervised by Dr. Doug Munoz, Dr. Linda Booij, and Dr. Sarosh Khalid-Khan. Her research focuses on using eye-tracking to characterize subthreshold depression and major depressive disorder in adolescents at Kingston Health Sciences Centre.



Bri Quinville (PhD)

– WALLACE ENDOWMENT

Bri Quinville joined the Walia lab as an undergraduate thesis student in 2017 while completing her BSCh in Biology (Psychology specialization) here at Queen's University. She then joined the Centre for Neuroscience Studies in 2018 as an MSc student, completed a mini-MSc in 2020, and her PhD comprehensive exams in 2022. Now a PhD candidate, Bri is continuing her preclinical research in Dr. Walia's lab working on a gene therapy treatment for Sandhoff and Tay-Sachs disease. Her research involves determining an optimal treatment dose and route of administration for these fatal, neurodegenerative diseases using a mouse model of Sandhoff Disease. She is also working to develop a more accurate animal disease model for Sandhoff disease.

PhD Graduate Student Award Recipients



Heidi Riek (PhD)

– PARKINSONS SOCIETY, LATHAM ENDOWMENT AWARD

Heidi is a PhD student under the supervision of Dr. Doug Munoz. In her work with the Ontario Neurodegenerative Disease Research Initiative, Heidi uses video-based eye tracking to characterize saccadic eye movement behaviour in several neurodegenerative disease populations. Heidi is also interested in the effect of genetic variants on eye movements. Prior to doctoral studies, Heidi received her BScH from Queen's University (2017) and completed a mini-master's in the CNS (2019).



Cassandra Sgarbossa (PhD)

– BOAG ENDOWMENT AWARD

Cassandra obtained her BA in Psychology and a minor in Neuroscience at the University of Guelph, where she also developed her research interests for understanding the neurological mechanisms underlying psychiatric disorders. She started her MSc in Neuroscience in 2020 and then transitioned to the PhD program via the mini-master's track. Her research currently focuses on a new microbial therapeutic product as treatment for depression and its associated long-term effects, under the supervision of Dr. Milev. Cassandra's current research interests are focused on gut health, microbe therapy, clinical neuroscience, and depression.



Scott Squires (PhD)

– OGS

Scott completed his BSc (hons.) in Psychology and Medical Sciences in 2014 at the University of Western Ontario. Afterwards, he spent two years at Western as a research assistant among three labs, studying visuomotor neuroscience (under Dr. Jody Culham), cognitive risk factors for depression (under Dr. David Dozois), as well as suicide risk and resilience factors in elderly individuals (under Dr. Marnin Heisel). From 2016-2019, Scott completed his MSc in Clinical Psychology at Queen's, studying the associations among types of childhood maltreatment, frontoamygdala functional connectivity at rest, and depression symptom severity (under Dr. Kate Harkness). Scott is in the second year of his PhD at the Centre for Neuroscience Studies, under the co-supervision of Dr. Jordan Poppenk & Dr. Roumen Milev. Here, he is using psychometric analysis and functional MRI to study the links between life stress, emotion, brain functional connectivity, and rumination (i.e. the tendency to dwell on negative thoughts, feelings, or events) in psychologically healthy individuals and in individuals with a recent history of prolonged psychological distress (e.g. depression, anxiety, etc.)

MSc Graduate Student Award Recipients



Ian Good-Halliwell (MSc)

– BRACKEN FELLOWSHIP

Ian is a 2nd year MSc student under the supervision of Dr. Smallwood in the Thoughts in Context Lab (THinCLab). He has a BSc (Honours) from Queen's University in Life Sciences but has transitioned to research in theoretical cognitive neuroscience. His research is centered around mapping between manifolds of subjective experience and brain activity using machine learning techniques. Ian is interested in pushing this research further and developing accurate methods of bridging the gap between thought and neural activity. Outside of academics, he is interested in programming, game design, and park skiing.



Dominique Hancock (MSc)

– MCLAUGHLIN BRACKEN FELLOWSHIP

My name is Dominique Hancock, I am a master's student at Queen's University in the Centre for Neuroscience Studies. I am part of Dr. R. D. Andrew's lab where my research focuses on ischemic stroke. My project is aimed at investigating the cellular and molecular mechanisms underlying tissue damage and edema following a stroke. After graduation from my master's degree, I am moving to Victoria BC to start my PhD and where I will be continuing my research in the field of ischemic stroke.



Julia Hellas (MSc)

– OGS, BOAG ENDOWMENT AWARD

Julia Hellas completed her undergraduate degree in Life Sciences at Queen's University with a specialization in neuroscience, and is currently a 2nd-year MSc candidate in neuroscience working under the supervision of Dr. R. D. Andrew. Her MSc project is in cellular neuroscience and aims to identify what initiates the irreversible brain damage caused by ischemic stroke. Julia's research has been supported by the Boag Family Endowment award and the Ontario Graduate Scholarship.

MSc Graduate Student Award Recipients



Jasleen Jagayat (MSc)

– OGS

Jasleen completed her bachelor's in science (honours neuroscience) at McMaster University. After taking a year to work as a research assistant and enjoying her work in online psychotherapy, she decided to continue her academic career. She is currently completing her Master of Science in neuroscience at Queen's University under Dr. Nazanin Alavi's supervision. She is investigating the incorporation of a stepped care model into online Cognitive Behavioural Therapy for depression. She's hoping to continue to learn and make changes to the mental health care system.



Jack Lott (MSc)

– CIHR

Jack completed his BHSc Honours degree at McMaster University in 2021 and is now completing his MSc in Neuroscience under the co-supervision of Dr Stephen Scott and Dr. DJ Cook. Jack's research focuses on Kinarm-based assessment of neurological impairment in brain tumour patients.



Isabelle Mastantuono (MSc)

– BRACKEN FELLOWSHIP

Isabelle joined Dr. Stephen Scott's lab in September 2021. She graduated from Queen's University with a BSc in the Life Sciences Program with a specialization in biomedical sciences and is now a MSc student in the Neuroscience program under the co-supervision of Dr. Moogeh Baharnoori. Her research focuses on Kinarm-based assessment of neurological impairment in patients with Multiple Sclerosis.



Bridget Mulholland (MSc)

– NSERC

Bridget Mulholland (she/her/hers). BSc (Hons) Kinesiology. 2nd year MSc in the THinC Lab. Queen's Women's Basketball.

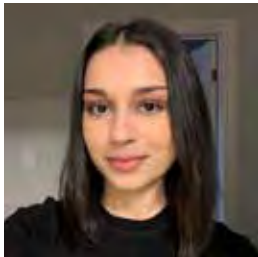
MSc Graduate Student Award Recipients



Isabell Pitigoi (MSc)

– CIHR, LATHAM ENDOWMENT AWARD

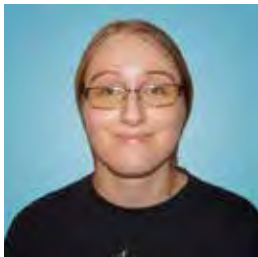
Isabell is a first-year Master's student in Dr. Doug Munoz's lab. Her research is devoted to studying eye blink behaviour in order to understand its relationship to cognition and social interaction. She is passionate about developing eye-tracking tools for detection of preclinical deficits in neurodegenerative and psychiatric disease populations.



Kiran Reehal (MSc)

– QUEEN'S GANG ENDOWMENT AWARD

Kiran Reehal completed her Honours Bachelor of Science degree from the University of Toronto Scarborough in 2021. She is currently completing her Master of Science degree in neuroscience under the supervision of Dr. Ramana Appireddy. Her research aims to determine the association of pre-stroke frailty with post-stroke disability at 3 months.



Elise Stevens (MSc)

– BOAG ENDOWMENT AWARD

Elise is a part of Dr. Magoski's lab and is researching a current in the bag cell neurons of the marine snail, *Aplysia californica*, that is activated by the phospholipase C pathway. In her free time she enjoys reading, cooking, and watching cat videos.



Sophie Wolkoff (MSc)

– OGS

Hi! My name is Sophie and I'm a master's student in the CNS. I was awarded the Ontario Graduate Scholarship for the 2022-2023 academic year. After completing my bachelor's degree in Life Sciences at Queen's, I started my MSc in September under the supervision of Dr. David Andrew, conducting research in cellular neuroscience. Our lab strives to understand the mechanisms underlying stroke, and subsequent brain injury. My thesis focuses on how temperature plays a role in this process. I am also working to optimize the protocol for performing rodent brain slicing, a common method used in this field.

MEET OUR POSTDOCTORAL FELLOWS



Daniel Armstrong

PHD: UNIVERSITY OF WATERLOO
WATERLOO, ON

Currently working with Dr. Stephen Scott.

RESEARCH INTEREST:

Daniel's work aims to investigate the mechanism explaining how muscular co-contraction aids in our ability to respond to perturbations, where the relative contributions of increased muscle stiffness and neural mechanisms are poorly understood. He will use a combination of human experiments and musculoskeletal control modelling to explore this question.



Jolande Fooker

PHD: UNIVERSITY OF BRITISH COLUMBIA,
VANCOUVER, BC

Currently working with Dr's Jason Gallivan and Randy Flanagan.

RESEARCH INTEREST:

Jolande's research focusses on eye and hand movement control during naturalistic tasks that require quick sensorimotor predictions and decisions. In particular, she is interested in understanding the underlying mechanisms of the interplay between eye and hand movements at different stages of sensorimotor decisions and how the two systems work in synergy during everyday tasks.



Janis Kan

PHD: QUEEN'S UNIVERSITY
KINGSTON, ON

Currently working with Dr. Douglas Munoz.

RESEARCH INTEREST:

Janis' research interests include how the brain processes information to affect eye-movement behaviors in healthy and clinical populations. Currently, she is working on translating this knowledge into clinical application by spearheading the development of an objective and easy-to-use tool to help doctors diagnose and monitor neurological disorders using eye-tracking and machine learning.



Adarsh Kumar

PHD: INDIAN INSTITUTE OF TECHNOLOGY
GANDHINAGAR, GUJARET, INDIA

Currently working with Dr. Stephen Scott.

RESEARCH INTEREST:

Adarsh is a postdoctoral fellow in the lab of Dr. Stephen H. Scott, following the completion of his PhD in Motor Learning at IIT Gandhinagar in India. His doctoral research focused on understanding the mechanisms and neural substrates involved in transfer of motor memories across effectors. Currently, his work in Dr. Scott's lab centers around investigating the neural processes underlying sensorimotor control in non-human primates. Additionally, he is involved in a brain stroke project, where they explore optimal parameters and locations for utilizing Transcranial Magnetic Stimulation (TMS) to treat stroke in non-human primates. Adarsh's research interests include but not limited to sensorimotor control, learning and memories.

MEET OUR POSTDOCTORAL FELLOWS



Gabriel Ramirez

PHD: NATIONAL AUTONOMOUS UNIVERSITY OF MEXICO, MEXICO

Currently working with Dr. D.J. Cook.

RESEARCH INTEREST:

Gabriel's work is mainly focused on identifying stroke biomarkers using multimodal MRI, structural and functional, in order to develop and assess novel rehabilitation therapies and validate stroke recovery. He is currently working with a nonhuman primates stroke model to optimize, validate and evaluate a neuromodulation interface for stroke rehabilitation.



Ehsan Sherafat Kazemzadeh

PHD: SHIRAZ UNIVERSITY OF MEDICAL SCIENCES, SHIRAZ, IRAN

Currently working with Dr. D.J. Cook.

RESEARCH INTEREST:

Ehsan was the Principal Investigator in two large international clinical trials in Iran (CRASH-1 and CRASH-2, supervised by the London School of Hygiene and Tropical Medicine in England, 2002-2009). Moreover, Ehsan was involved in more than 14 major research projects as PI or Co-PI, and has more than 28 publications and presentations, mainly in epilepsy surgery, functional neurosurgery and neuro-trauma.



Brian White

PHD: JUSTUS LIEBIG UNIVERSITY GIESSEN, GERMANY

Currently working with Dr. Doug Munoz.

RESEARCH INTEREST:

Brian studies the circuits and processes associated with eye movements using specialized tasks and single/multichannel extracellular recording in brain areas such as superior colliculus and the primary visual cortex. He is also developing an analysis pipeline to study the differences in free-viewing behaviour between various psychiatric and neurological patient groups, as well as changes across development and aging.



Student Leadership

- Resurrected in Feb 2023 without assigned roles
- Leaders of CNS through committees brought together to discuss future of SLC
- With limited time and resources, alongside other leadership commitments, tried best to focus on socials, fundraising, building community among peers, and understanding current struggles/concerns
- Wanted to focus on engaging the student body

This year's SLC differed from previous years because the 2022-2023 academic year began with no established SLC. The Centre for Neuroscience Studies has faced numerous adjustments post-COVID, and while there were many representatives and student leaders present within the centre, a disconnect emerged between the representatives and the student body due to a non-existent SLC. With the assistance of the administrative staff, current student leaders were united to discuss the resurrection of the SLC and assess the feasibility of this task with the limited time remaining.

STUDENT LEADERSHIP

Beginning in February 2023, a pseudo-SLC was created to focus on the student body for the remainder of the academic year and to establish a foundation for the following year's SLC. As a team, we concentrated on addressing the lack of a cohesive community within the centre, and made efforts to implement a few initiatives while planning the direction of the future committee. Despite having limited funding and resources, we did our utmost to give back to the CNS students by organizing social events and facilitating communication through multiple platforms.

We are hopeful that the work we have invested in over the past few months will serve as a strong foundation for next year's SLC.

We had the pleasure of working with CNS students, faculty, and staff to achieve the following accomplishments:

1. Bi-weekly Bake Sale: Building on the existing Monday Coffee Breaks, we established a bake sale to raise funds for student events and encourage students to take a break from their busy schedules and engage in conversations with their peers.
2. Resurrected the CNS Slack Workspace & Created a Facebook group for CNS students: We revised the usage of the Slack platform for communication, as it had been highly underused by students previously. Now, it is being used more frequently, and we share upcoming events and opportunities through this channel. Additionally, we created a Facebook group to provide an alternate means of communication for those who are not as active on Slack.
3. Socials: Despite limited time and resources, we successfully organized three major social events, including outings to The Grizzly Grill, The Mansion Restaurant & Bar, The Ale House, as well as smaller gatherings at the Grad Club for casual socializing, particularly on Friday evenings. Furthermore, we are currently planning a baseball game for students who will be around during the summer.
4. Anonymous Feedback Form: We placed significant importance on gathering feedback from students, and to facilitate this, we reintroduced the anonymous feedback form. This form allows students to share their concerns, suggestions, or any comments regarding any aspect of the centre.
5. Restructuring of future SLC: Given the neglect of the SLC in the post-pandemic period, our primary objective for the conclusion of the 22-23 academic year was to set the stage for a well-structured and functional SLC for the upcoming 23-24 academic year. This involved creating roles and positions within the SLC that would best address the needs of current and incoming students, as well as gathering relevant information to help students track their academic progress and milestones effectively.

To build on this momentum, the SLC has the following goals for next year:

1. Fundraising for Students: With the severe budget cuts across the university, our goal is to implement various fundraising initiatives for the students. These initiatives will not only support the execution of SLC events but also foster a strong sense of community within the centre. Some fundraising ideas include: more frequent bake sales, stickers/pins, silent auctions, and the creation of CNS merchandise.
2. Continued Hosting of Socials: The socials we have hosted thus far have received very positive feedback from both students and faculty. Therefore, we aim to continue organizing more social events in the upcoming year. These events will not only provide an opportunity for incoming students to connect with their peers but also facilitate the development of a support network.

3. Organize a Town Hall Meeting: We plan to arrange a Town Hall Meeting, where students can express their concerns and engage in discussions regarding current student issues and provide feedback.

Sincerely,

The SLC

Hayley Bromley
Scott Squires
Jasleen Jagayat
Theodore Aliyianis
Isabell Pitigoi
William Lawton
Kabeer Thaker
Emma Schincariol
Miruna Jurj
Andrea Ellsay
Isabelle Mastantuono
Jack Lott
Kim Huynh

Our Student Leadership Team



Theodore Aliyianis



Jack Lott



Hayley Bromley



Isabelle Mastantuono



Andrea Ellsay



Isabelle Pitigoi



Kim Huynh



Emma Schincaroil



Jasleen Jagayat



Scott Squires



Miruna Jurj



Kabeer Thaker



William Lawton

MISSION: To develop and maintain consistent, long-term community projects focused on general neuroscience education, as well as issues including mental health, aging, and physical rehabilitation.

As an interdisciplinary program with graduate students located at many sites across the Queen's campus and within Kingston, it can be difficult to feel like part of a community. NOP was formed by students looking for a way in which to interact with each other, the department, and the Kingston community in a social and purposeful manner, and we strive to maintain this same purpose each year in all our initiatives.

The Neuroscience Outreach Program (NOP) in the Centre for Neuroscience Studies (CNS) nationally-acclaimed outreach program aimed at improving the Kingston community's understanding and awareness of neuroscience. All our outreach programs are student-led and student-driven and designed to engage both researchers and the community.

Public Education Lectures/ Seniors Courses

LED BY SCOTT SQUIRES

Starting in March 2007, the Neuroscience Outreach Program has hosted free public educational lectures to the people of Kingston. Topics are presented by research experts, and range from Childhood Development, Physical Rehabilitation, to Aging and Mental Health. The purpose of these lectures is to help educate and engage the local public about current neuroscience research occurring at Queen's University, and empower the public towards better health. Importantly, each lecture is designed to identify beneficial information for persons of diverse backgrounds.



For example, identifying the importance of concussion identification in youth but also in the elderly. To facilitate public interaction, and promote ongoing local research, we encourage attendees to talk with local researchers afterwards.

Brain Bee LED BY JACK LOTT

Think spelling bee, but neuroscience-themed questions! Brain Bee is a neuroscience competition for high school students that is held in more than fifty countries worldwide!

In addition to the top three winners being awarded cash prizes, the first-place winner advances to the Canadian National Brain Bee at McMaster University! The Brain Bee volunteers are responsible for recruiting student participants from local high schools, advertisement, and promotion, as well as organizing competition day.



Brain Reach

LED BY JASMINE KHAN AND KABEER THAKER

Brain Reach is a graduate student initiative created to stimulate learning and curiosity-driven education for grade 5 students. Once a month, dedicated volunteers from Queen's University go into their assigned classroom to lead sessions on different aspects of the brain's mysterious machinery. Our volunteers are passionate scientists who want to share their experience and love of learning. By using interactive experiments, videos, demonstrations, and activities, volunteers engage the students in the world of neuroscience and thinking outside the box.



NEUROSCIENCE OUTREACH PROGRAMS

Brain Awareness Day

LED BY JASMINE KHAN AND KABEER THAKER

As a culmination of the Brain Reach program, the Centre for Neuroscience Studies plays host to approximately two hundred grade 5 students from local elementary schools every May. The students enjoy a day-long event where they are engaged in demonstrations, activities, and hands-on experiments to teach them all about neuroscience research. The day of the event, the students are asked to submit research posters to us which are put on display; the top posters are even rewarded with prizes!



the workforce, and mentoring future female scientists in the community. All women-identified and non-binary CNS students are invited to join as members!

KEY OBJECTIVES:

- 1. Provide an environment for supportive research discussions**
 - The primary objective of the NOP is to provide a supportive atmosphere for women at the Centre for Neuroscience Studies (CNS), which is integral to research success. The NOP will promote discussion of students' research projects at large (from ideas to fine-tuned projects) and provide a space for students to practice research posters and talks and get feedback from their peers.
- 2. Coach students to navigate academia and the workforce**
 - The NOP will host female-identified academics, industry professionals, and career counsellors to have informal discussions with our members and give advice on how to navigate graduate school, academia, and industry as women.
- 3. Mentor future female scientists** - The NOP will mentor Grade 11 and 12 girls in the Kingston community who are interested in pursuing post-secondary education in neuroscience or related fields.

CNS Podcast Series

LED BY ELENA KONING

Podcasts are one of the best ways to communicate modern science, making research more accessible to both experts and non-experts all over the world! The Centre for Neuroscience Studies Podcast Committee is a new student-led outreach program which will launch this year! Our goal is to design, produce, and publish podcast episodes on a variety of science-related topics. We want to share cutting edge research, educate, debunk, spread awareness, and stimulate interesting discussions with individuals from the neuroscience community.



Research Rundown

LED BY BLAKE NOYES

Women in Neuro is a CNS NOP that aims to encourage academic confidence in women pursuing neuroscience research and make neuroscience more accessible to women interested in the field. We have organized a casual research talk initiative, "Research Rundown" (similar to the "Friday Fights" style initiative in past, where students can sign up to chat about their research or practice a research presentation in a supportive group environment. Research Rundown is open to all students to participate (regardless of gender identity) and is held every other Friday from 3-4 PM based on interest.



Women in Neuro

LED BY BLAKE NOYES

The CNS is excited to announce the newly established 'Women in Neuro' Neuroscience Outreach Program! The 'Women in Neuro' NOP was established with the objectives of providing an environment for supportive research discussions, coaching women-identifying students to navigate academia and



List of Speakers for 2022/23

May 4, 2022

Jeff Schall - York University

Academic talk: Laminar recordings in agranular and granular areas of macaque: relation to event-related potentials

May 11, 2022

Denise Henriques - York University

Academic talk: Proprioception and prediction in visuomotor learning

May 18, 2022

Jill Goldstein - Harvard University

Academic talk: Fetal Programming of Sex Differences in Comorbidity of Disorders of the Brain and Heart: Shared Circuitry & Pathophysiology

May 25, 2022

Jason Gallivan - Queen's University

Academic talk: How social environment shapes the brain

June 15, 2022

Frederic Charron - McGill University

Academic talk: Wiring the nervous system: axon pathfinding in normal and pathological conditions

September 21, 2022

Joanne McLaurin - University of Toronto

Academic talk: Comorbid diseases and potential mechanistic links to Alzheimer's disease risk

September 28, 2022

John W. Krakauer - Johns Hopkins University

Academic talk: Some thoughts on the motor system in health and disease

October 5, 2022

Jean-Jacques Orban de Xivry - Katholieke Universiteit Leuven

Academic talk: Does structure and function of the cerebellum decline at the same pace with aging?

October 19, 2022

Jessica Grahn - Western University

Academic talk: Rhythm, movement, and the brain

November 9, 2022

Joel Watts - University of Toronto

Academic talk: Strains of Pathological Protein Aggregates in Neurodegenerative Diseases

November 16, 2022

Jason Tetro (GUI)

Academic talk: Growing Up in Science

November 23, 2022

Daniel Gale - Queen's University

Academic talk: Monkey business: Reflections on the challenges of nonhuman primate neuroimaging and beyond

December 7, 2022

Claire Davies - Queen's University

Academic talk: Can design of BCIs and eye-tracking for communication systems benefit from participatory co-design?

December 14, 2022

David Nutt - Imperial College London

Academic talk: Psychedelic neuroscience

January 18, 2023

Jolande Fooker - Queen's University

Academic talk: Acting while perceiving: Adaptive eye-hand coordination in multi-tasking

February 8, 2023

Signy Sheldon - McGill University

Academic talk: Exploring how and why there are differences in remembering

February 22, 2023

Raymond Lam - University of British Columbia

Academic talk: Light therapy for depression: Chronobiology or not chronobiology, that is the question

March 15, 2023

Sukhvinder Obhi - McMaster University

Academic talk: Social power, status and self-other processing

March 22, 2023

Steven Prescott - University of Toronto

Academic talk: Somatosensory coding gone wrong: The origins of neuropathic pain

March 29, 2023

Sheena Josselyn - University of Toronto

Academic talk: Making memories in mice

April 5, 2023

Vera Vine - Queen's University

Academic talk: Cardiovascular effects in emotion experience and dysregulation

April 12, 2023

Gerome Manson - Queen's University

Academic talk: The Effect of Spinal Stimulation on Brain Activation Patterns During Lower-limb Movements

April 26, 2023

Shernaz Bamji - University of British Columbia

Academic talk: Posttranslational palmitoylation in synaptic plasticity, brain development, and disease

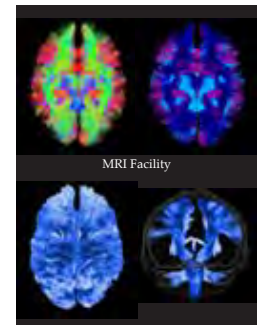


MR Facility Annual Report 2022-2023

The CNS MR Facility continues to recover from the pandemic, with usage increasing and the start of several new projects. Highlights of 2022-2023 include:

- 3 CIHR Imaging-Focused Project Grants were awarded to CNS members: Dr. Douglas Cook, Dr. Patrick Stroman, and Dr. Gavin Winston. We congratulate these investigators on their successful proposals, and we are excited to help them and their teams meet their research goals on our state-of-the-art MRI. This represents 25% of all CIHR Project Grants awarded at Queen's University.
- The initiation of two incentive programs that offer significant discounts to our standard scanning rates. One program is aimed at high throughput users and offers progressive rate reductions for high-volume usage. This automatically applies to all users of the facility. The second program is a continuation of our pilot-time competition. This annual competition for significantly rebated MRI time is designed to support the collection of neuroimaging data that will be used as pilot data and/or support pilot projects expected to lead to and strengthen applications for external funding agencies. This incentive program was recently converted to a need-based, continuing competition with no deadline. Please see our website for more information.

The CNS and CNS MR Facility congratulate the successful applicants of our second MRI pilot time competition. The CNS has funded 3 successful research endeavors through the 2022 MRI pilot time competition:





Amer Jorhi

QUANTIFYING PLAQUE COMPOSITION OF THE CAROTID ARTERY THROUGH DYNAMIC CONTRAST-ENHANCED MRI

Cerebrovascular disease is a leading cause of death in Canada, and improvements in diagnostic imaging have improved prognosis for patients with atherosclerosis. Dr. Jorhi will use dynamic contrast-enhanced MRI to study the composition of plaques of the carotid artery and compare those results with ultrasound imaging. Because the composition of the plaques relates to the likelihood of cerebrovascular emergencies, these imaging techniques may help predict ischemic heart disease and stroke.



Chris McGlory

NUTRITIONAL ATTENUATION OF SKELETAL MUSCLE LOSS IN WOMEN IN RESPONSE TO KNEE SURGERY

Skeletal muscle-disuse atrophy, a major problem associated with illness, injury, or elective surgery, is known to precipitate a whole-host of negative health outcomes that range from insulin resistance and the accrual of body fat to the risk of falls and increased hospital stays. Dr. McGlory will investigate the use of a novel nutraceutical intervention after knee surgery with the goal of expediting recovery of muscle function. Together with other biomarkers of muscle function, MRI will be used to assess leg skeletal muscle size pre- and post-surgery. Dr. McGlory anticipates a significant attenuation of muscle loss and a faster recovery of gait metrics through this intervention.



Tim Salomons

(NEURO-)IMMUNOLOGICAL MODELS OF CHRONIC LYME DISEASE TO ELUCIDATE THE MYSTERY OF LONG COVID

The symptom profiles of Long COVID show many parallels to those seen in chronic Lyme disease. Dr. Salomons will use Magnetic Resonance Spectroscopy (MRS) to investigate possible central-inflammatory mechanisms shared by these two chronic disorders. The findings from this work could support the use of targeted immunotherapy or changes in health policy to support the well-being of people with these conditions.

If you are interested in adding MR to your research platform, please do not hesitate to reach out to our MR Manager, Donald Brien, at briend@queensu.ca



IT Infrastructure

Over the past year, there has been a shift from predominantly remote support to a more balanced hybrid model. While the return to in-person support is a positive development, it presents the challenge of ensuring seamless remote assistance as well. As we adapt to this new hybrid work model, the demand for user support continues to rise. Additionally, our support services now encompass new laboratories, each with their own High-Performance Computing requirements and the need for robust infrastructure to handle the substantial data they generate.

To meet these evolving demands, our IT unit has been proactive in upgrading computer desktops, laptops, and server operating systems as required. We have also successfully renewed server warranties, securing hardware protection for the next two years. Our current IT

infrastructure comprises a comprehensive set of resources:

- 33 servers from reputable brands such as IBM, Dell, and Lenovo
- A combined data storage capacity of 600 terabytes
- 740 CPU cores to ensure optimal processing power
- 5 terabytes of RAM for efficient memory management
- 4 Robotic LTO tape libraries for both local and offsite backups
- All hosted in a secure location with strict environmental and access controls.

By continually enhancing our IT infrastructure, we aim to provide reliable and efficient support to our users, whether they are working remotely or in-person.

MEET OUR ADMIN TEAM

Don Brien

MR MANAGER

RESPONSIBILITIES:

Manages the daily operations and staff of the CNS MRI Facility.

Adrian Conway

FINANCIAL COORDINATOR

RESPONSIBILITIES:

Provides an advanced level of organizational, administrative and financial support to the Centre for Neuroscience Studies.

Mike Lewis

SYSTEMS ADMINISTRATOR

RESPONSIBILITIES:

Manages the network and server infrastructure for the Centre for Neuroscience Studies. Provides technical support to Faculty, Staff and Students within the centre.

Kelly Moore

OPERATIONS MANAGER

RESPONSIBILITIES:

Oversees finance and operations of the Centre and provides expertise with external funding opportunities.

Lucy Russo

GRADUATE ASSISTANT

RESPONSIBILITIES:

Provides administrative support to the Faculty Graduate Coordinator, graduate students and the graduate faculty in the CNS and acts as a liaison between this graduate program and the School of Graduate Studies (SGS).

Kim Suffron

ADMINISTRATIVE ASSISTANT

RESPONSIBILITIES:

Provides secretarial support in the research environment for research faculty, staff and trainees. Kim provides support for all administrative bodies and committee within the Centre, the Neuroscience Lecture Series and the Neuroscience Outreach Program.



From Left to Right: Kim Suffron, Don Brien, Mike Lewis, Lucy Russo, Roumen Milev, Kelly Moore

**Missing from the photo is Adrian Conway*

MEET OUR RESEARCH TEAM



Brooke Beattie

RESEARCH TECHNICIAN

RESEARCH RESPONSIBILITIES:

Identifies and recruits research participants, assists with data acquisition and administrative tasks in relation to the ongoing research project.



Helen Bretzke

COMPUTER PROGRAMMER/
DATABASE ADMINISTRATOR

RESEARCH RESPONSIBILITIES:

Manages research data for the Scott Lab. Writes analysis, data entry, and reporting software.



Brian Coe

SENIOR RESEARCH SCIENTIST

RESEARCH RESPONSIBILITIES:

Specializes in the use of eye movements and neurophysiology for the study of decision-making (Coe et al., 2002), computational modeling (Coe et al., 2019), and neurodevelopment & neurodegeneration (Coe et al., 2017)).



Ethan Heming

DATA ANALYSIS SOFTWARE
DEVELOPER

RESEARCH RESPONSIBILITIES:

Supports Kinarm robots and Kinarm training for new members across the CNS. Develops Kinarm tasks and analysis code for Kinarm data. Services the Scott Lab website and webapp. Supports Scott Lab data collection.



Sean Hickman

MECHANICAL TECHNOLOGIST

RESEARCH RESPONSIBILITIES:

Support the development and production of novel research apparatus. Provide maintenance and adaptation support to ensure ongoing data collection.



**Natalia
Lyra e Silva**

RESEARCH ASSOCIATE

RESEARCH RESPONSIBILITIES:

Involved in various projects related to the neurobiology of Alzheimer's disease and the role of extracellular vesicles as intercellular communicators and as disease biomarkers. This includes creating new experimental design and tasks, analyzing experimental data, implementing experimental tasks/paradigms, data analysis and research communication in the form of publications, abstracts and presentations.



Dana Mika

RESEARCH TECHNICIAN

RESEARCH RESPONSIBILITIES:

Performs a variety of duties related to the daily care of non-human primates including preparation of experiments, training, surgery, and anesthetics. Dana is responsible for enabling the advancement of research and protocols in the Munoz laboratories.



Jordan Miller

RESEARCH ASSISTANT

RESEARCH RESPONSIBILITIES:

Performs administrative tasks, data collection as well as data entry in the Scott Lab. Jordan also handles the care of non-human primates which includes behavioural training, surgical preparation, anesthetic administration, and health monitoring.



Kim Moore

RESEARCH ASSOCIATE

RESEARCH RESPONSIBILITIES:

Kim has been part of the Queen's community since 1992. She worked as a student with Dr. Scott at that time during his PhD then worked for him when he returned to Queen's in 1995 in a faculty position. She is responsible for the day to day operations in the lab and data collection across multiple platforms.



Maya Um

LAB MANAGER

RESEARCH RESPONSIBILITIES:

Maya performs administrative tasks as well as assists with data collection, data entry, and data analysis in the Stroman Lab. Her research is focused on chronic pain, specifically identifying consistent features in human nociceptive processing using fMRI.



Lydia Wan

RESEARCH ASSISTANT

RESEARCH RESPONSIBILITIES:

Coordination of the molecular and non human primate research studies. This includes setting up protocols, conducting experiments as well as analysis of research data.



Martin York

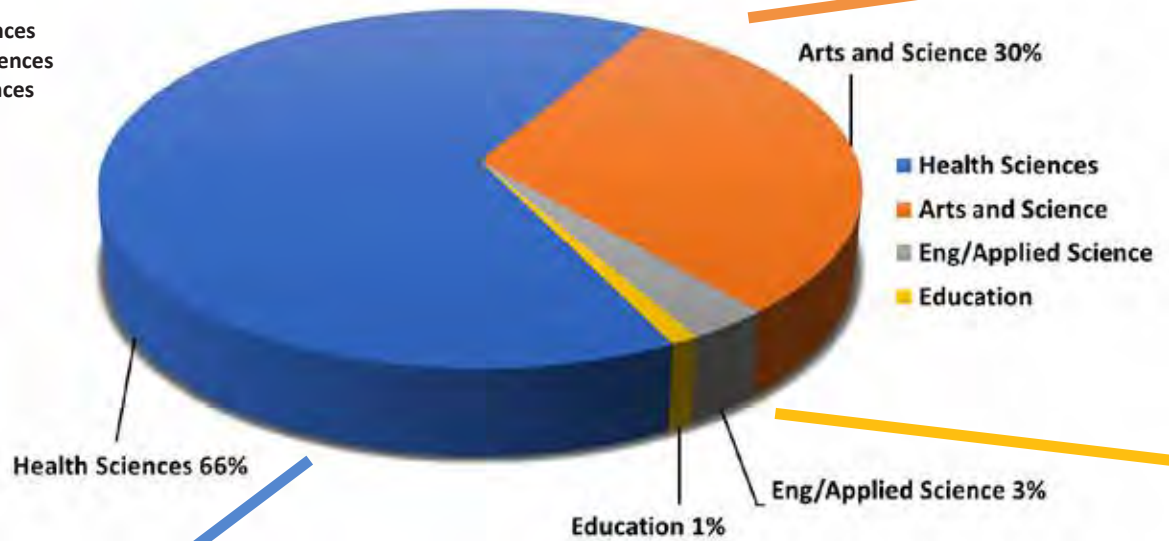
COMPUTER PROGRAMMER

RESEARCH RESPONSIBILITIES:

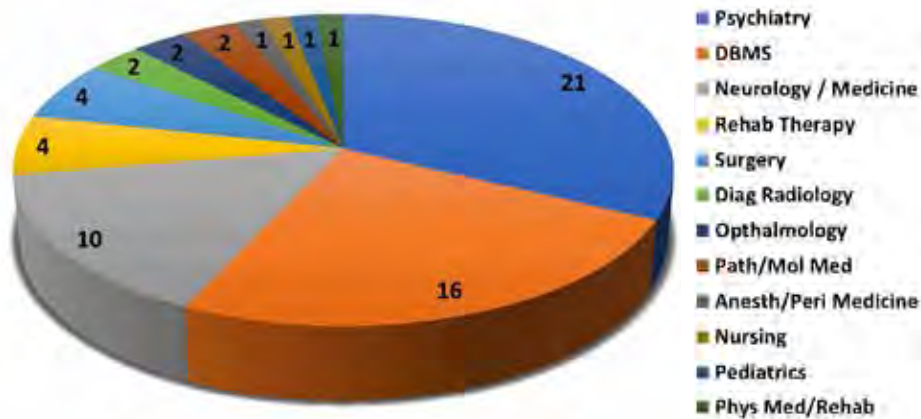
Martin is responsible for developing software used to run sophisticated experiments involving robotic devices and virtual reality displays in the Flanagan and Gallivan labs. In addition, he carries out electronics work and manages the labs. Martin is responsible for training students and contributes to the design and implementation of experiments.

99 Members (20 department / 4 Faculties)

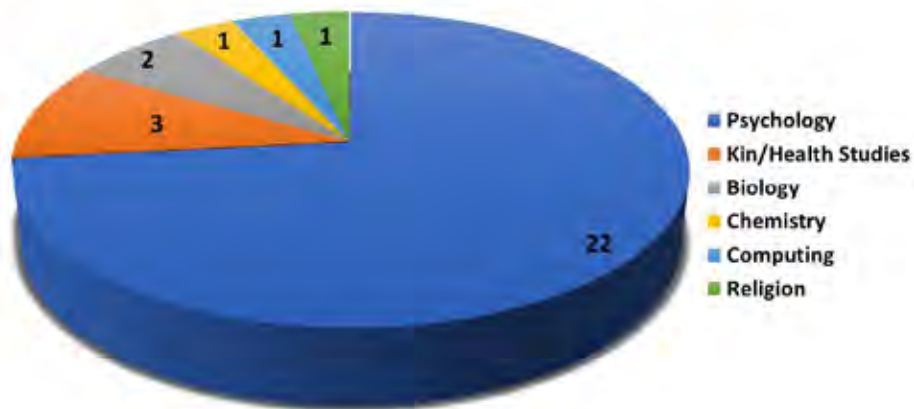
65 Health Sciences
30 Arts and Sciences
3 Applied Sciences
1 Education



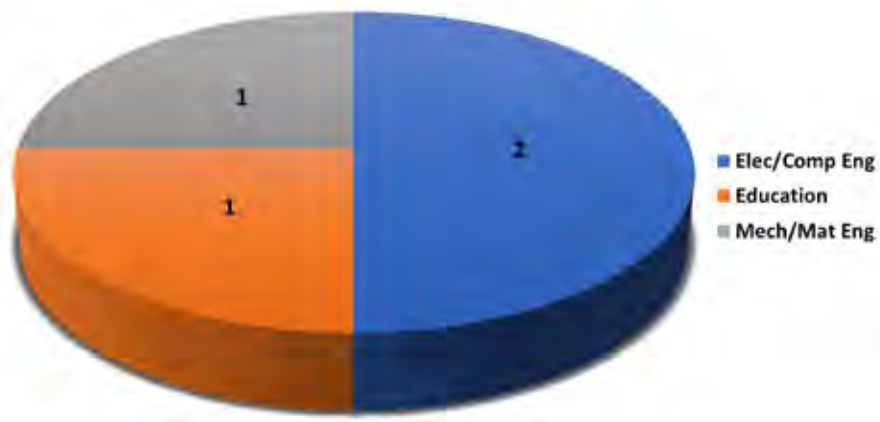
CNS Membership by Department
Faculty of Health Sciences



CNS Membership by Department
Faculty of Arts and Sciences



CNS Membership by Department
Faculties of Education and Engineering and Applied Sciences



MEET OUR FACULTY



Nazanin Alavi Tabari

ASSISTANT PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Alavi's Research focuses on digital Mental Health. She works on developing a machine learning algorithm that can identify the intensity of care an individual needs. She is also interested in combining online psychotherapy with other therapeutic techniques (e.g. combining online CBT with Ketamine to address treatment resistant depressive disorders), to find the best care combination for each individual patient.



Ryan Alkins

ASSISTANT PROFESSOR
SURGERY

RESEARCH INTEREST:

Dr. Alkin's is interested in ultrasound for therapeutic interventions, particularly in combination with ultrasound contrast agents (microbubbles), with a focus on malignant brain tumors and stroke recovery.



Shideh Ameri

ASSISTANT PROFESSOR
ELECTRICAL AND COMPUTER
ENGINEERING

RESEARCH INTEREST:

Dr. Ameri's research interests are in developing electronic devices, sensors and circuits using novel nano materials for realization of highly reliable sensors and systems with applications in biosensing, mobile health care, internet of things and human-machine interfaces.



David Andrew

PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

Dr. Andrew studies the early minutes and hours when brain tissue is deprived of blood, as during stroke, head trauma, or sudden cardiac arrest. The common catastrophic process during these events is called *spreading depolarization* which swells and kills neurons and causes vasoconstriction.



Ramana Appireddy

ASSISTANT PROFESSOR
MEDICINE

RESEARCH INTEREST:

Dr. Appireddy's research focuses on examining the role of social determinants of health in affecting access to stroke care and stroke outcomes.



William Bendena

PROFESSOR
BIOLOGY

RESEARCH INTEREST:

Dr. Bendena uses *Caenorhabditis elegans* as a genetic model to dissect neuropeptide signaling pathways.



Andrew Bickle

ASSISTANT PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Bickle's research interests are in Transcranial Direct Current Stimulation applied to risk factors for offending behaviour, such as abnormal impulsivity and substance misuse. Otherwise interested in research conducted within criminal justice system settings.



Etienne Bisson

ADJUNCT ASSISTANT
PROFESSOR
ANESTHESIOLOGY AND
PERIOPERATIVE MEDICINE,
SCHOOL OF REHABILITATION
THERAPY

RESEARCH INTEREST:

Dr. Bisson's research aims to improve clinical care of adults living with chronic pain by studying the relationships between factors (e.g. pain, fatigue, mobility) contributing to disability and how these affects treatment response and outcomes.



Michael Blennerhassett

PROFESSOR
MEDICINE

RESEARCH INTEREST:

Dr. Blennerhassett examines factors influencing development and plasticity of postnatal enteric neurons, and promotion of survival in the face of challenge. This increases the understanding of inflammatory damage and can find ways to reduce the impact of disease on intestinal motility.



Gunnar Blohm

PROFESSOR
DEPARTMENTS OF BIOMEDICAL & MOLECULAR SCIENCES, PSYCHOLOGY, MATHEMATICS & STATISTICS, AND SCHOOL OF COMPUTING

RESEARCH INTEREST:

Dr. Blohm's lab uses a combination of mathematical modeling, computer simulations and human experimentation to understand brain function through studying sensory-motor processes. Our goal is to uncover general neurocomputational principles underlying healthy and impaired brains.



Susan Boehnke

ASSISTANT PROFESSOR
BIOMEDICAL AND MOLECULAR SCIENCES

RESEARCH INTEREST:

Dr. Boehnke has extensive research experience in the fields of sensory, motor, and cognitive neuroscience. Current funded research examines the effect of social experience and isolation on neuroimaging and molecular biomarkers. She also studies the ethical, legal and social implications of emerging neurotechnologies, and is Director of the Neurotechnology Micro-credential Program.



Amanda Bongers

ASSISTANT PROFESSOR
CHEMISTRY

RESEARCH INTEREST:

Dr. Bongers leads the Queen's Chemistry Education Research Group, studying learning in chemistry and science. They are using eye-tracking and EEG to explore how the brain encodes and manipulates scientific models.



Christopher Bowie

PROFESSOR (PHD, CPSYCH)
PSYCHOLOGY, PSYCHIATRY

RESEARCH INTEREST:

Dr. Bowie studies determining the causes and correlates, and developing treatments

for, cognitive deficits in mental disorders such as schizophrenia and mood disorders. His lab designs experimental studies to better understand mechanisms involved and develop treatments to modify these mechanisms and improve outcomes. Currently he is leading multiple trials of cognitive remediation for severe mental disorders, developing new approaches to understand stigma and social exclusion toward psychosis, and examining the interactive effects of cognitive deficits and cognitive processes.



Gordon Boyd

ASSOCIATE PROFESSOR (MD, PHD, FRCP)
MEDICINE (NEUROLOGY) AND CRITICAL CARE MEDICINE

RESEARCH INTEREST:

Dr. Boyd's research group is interested in the neurological complications of critical illness, cardiac disease, and kidney disease.



Faith Brennan

RESEARCH INTEREST:

Dr. Brennan's lab focuses on i) Neuroinflammation after neurotrauma and ii) Peripheral complications around neurotrauma. She specifically studies trauma to the spinal cord.

MEET OUR FACULTY



Elisa Brietzke

PROFESSOR (MD, PHD)
PSYCHIATRY

RESEARCH INTEREST:

Dr. Brietzke is interested in the investigation of neurobiology of mood disorders, with a special emphasis on immune-inflammatory abnormalities, metabolic changes and domains of psychopathology, such as anhedonia and cognitive decline. She is also focused on the application of these findings to the development of innovative treatments for bipolar disorder and depression.



Inka Brockhausen

ASSOCIATE PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

Dr. Brockhausen studies glycosylation of proteins and lipids, aggregation mechanism of synuclein in Parkinson's and bacterial polysaccharide synthesis.



Monica Castelhana

PROFESSOR, CHAIR OF
COGNITIVE NEUROSCIENCE
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Castelhana's primary research interests are in the visual attention and visual memory and how they function in our everyday lives. Her lab is currently

studying these processes as they relate to real-world scenes. Across various studies they investigate how people perceive, explore, search through and remember information from complex, natural stimuli.



Meredith Chivers

ASSOCIATE PROFESSOR, PHD,
CPSYCH, QUEEN'S NATIONAL
SCHOLAR, CANADIAN
INSTITUTES OF HEALTH
RESEARCH NEW INVESTIGATOR
PSYCHOLOGY, CENTRE FOR
NEUROSCIENCE

RESEARCH INTEREST:

Dr. Chiver's primary research focuses on sexual attractions, sexual response, and sexual functioning, and the influence of gender and sex on these aspects of our sexualities. Her current work focuses on the neurocognitive factors associated with sexual response in women with and without sexual difficulties.



Elvina Chu

ASSOCIATE PROFESSOR
PSYCHIATRY, CROSS
APPOINTMENT WITH
NEUROLOGY

RESEARCH INTEREST:

Dr. Chu's research interests are allied to clinical neuropsychiatry and investigating psychiatric presentations and behavioural alterations that manifest in neurological conditions such as brain injury, stroke, epilepsy, Parkinson's and Huntington's disease.



DJ Cook

ASSOCIATE PROFESSOR
SURGERY

RESEARCH INTEREST:

Dr. Cook studies transitional stroke research, pre-clinical validation of stroke therapy, neuroplasticity and stroke recovery.



Nicholas Cothros

ASSISTANT PROFESSOR
MEDICINE

RESEARCH INTEREST:

Dr. Cothros studies behavioural and cognitive neuroscience related to human motor control.



Wendy Craig

PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Craig's current research projects include: understanding the biological, psychological, and social correlates of cyberbullying, peer victimization and peer defending; investigating the role of power in identity based bullying and teen dating violence; and evaluating knowledge mobilization of bullying research and its impact.



Susan Crocker

ASSISTANT PROFESSOR
PATHOLOGY AND MOLECULAR
MEDICINE

RESEARCH INTEREST:

Dr. Crocker is the Director of Cytogenetics at Kingston Health Sciences Centre (KHSC) and an Associate Professor at Queen's University in the Department of Pathology and Molecular Medicine. She is a certified cytogeneticist (FCCMG), with broad expertise in genomics, constitutional and acquired genetic disorders. Her research is in the study of neurodegenerative disease. She is passionate about advancing our understanding and improving care for individuals at risk and living with neurodegenerative disease. Her expertise in human genetics, genomic technologies and neuroscience provides a unique background that is applied to the field of neurogenomics, studying large scale to single base variation, and its influence on the neurological phenotype in humans.



Claire Davies

ASSISTANT PROFESSOR
MECHANICAL AND MATERIALS
ENGINEERING

RESEARCH INTEREST:

Dr. Davies primary research goal focuses on increasing independence of people with disabilities. Understanding the perceptual and physical responses of all the senses, primarily vision, haptics and sound, has provided insight into how design of devices should be undertaken to create human-machine interfaces that are easily navigated and accepted.



Fernanda De Felice

ADJUNCT ASSOCIATE
PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

Dr. Felice's research focuses on the investigation of targeted neurotherapeutics associated with physical exercise to counteract the causes of neurodegeneration and promote brain resilience and healthy aging. Another avenue of her research investigate early AD diagnostics.



Vincent DePaul

ASSISTANT PROFESSOR
SCHOOL OF REHABILITATION
THERAPY

RESEARCH INTEREST:

Dr. DePaul's research focuses on the development, testing, and translation of interventions for the recovery of walking in individuals with stroke, other neurological conditions, and in older adult populations. This work specifically explores how individuals optimally learn and re-learn gait and balance-related skills; and how therapeutic strategies such as such as instruction, feedback, guidance, and supervised and unsupervised practice impact motor learning.



Nandini Deshpande

ASSOCIATE PROFESSOR
SCHOOL OF REHABILITATION
THERAPY

RESEARCH INTEREST:

Dr. Deshpande's research focuses on vestibular and somatosensory functions; sensory integration process; impact of aging and diabetes on sensory functions and possible consequent modulation in sensory integration process and their impact on postural control during functional activities; other factors responsible for sustaining mobility in older adults with specific emphasis on fear of falling.



Anne Duffy

PROFESSOR (MD, FRCPC)
PSYCHIATRY

RESEARCH INTEREST:

Dr. Duffy studies the onset of mental illness in young people at variable risk including university students and children of mentally ill parents.

MEET OUR FACULTY



Ali Etemad

ASSISTANT PROFESSOR
ELECTRICAL AND COMPUTER
ENGINEERING

RESEARCH INTEREST:

Dr. Etemad is an Associate Professor in the Department of Electrical and Computer Engineering at Queen's University in Canada, where he also holds the title of Mitchell Professor in AI for Human Sensing and Understanding. He is a member of the Ingenuity Labs Research Institute and leads the Ambient Intelligence and Interactive Machines (Aim) lab. His primary research interests lie in machine learning and deep learning, with a focus on human-centered applications using wearables, smart devices, and smart environments.



Alastair Ferguson

PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

Dr. Ferguson operates an interdisciplinary Neuroscience research group studying the role of the central nervous system in autonomic processing, with a specific emphasis on understanding changes in brain function associated with hypertension and obesity.



Randy Flanagan

PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Flanagan's aim for his Cognition and Action Lab is to understand the cognitive and computational processes underlying movement control and learning. Visit the web site to learn how they use virtual reality and other tools to study eye-hand coordination, object manipulation, sensory-motor adaptation, and links between action and perception.



Luis Flores

ASSISTANT PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

The central theme of Dr. Flores' research is how close relationships and interpersonal functioning confer protection or risk in the development and clinical course of depression. His research program includes examining the role of altered neural response to social-affective interactions in depression.



Rafael Freire

ASSOCIATE PROFESSOR
(MD, PHD)
PSYCHIATRY

RESEARCH INTEREST:

Dr. Freire's research focuses on anxiety disorders and obsessive-compulsive disorder (OCD). He studies neurobiology, biomarkers, neurostimulation and

pharmacological interventions for anxiety disorders and OCD. He is also interested in studying provocative tests for anxiety disorders, such as exposure to carbon dioxide, pictures and virtual reality.



Jason Gallivan

ASSISTANT PROFESSOR
PSYCHOLOGY & BIOMEDICAL
AND MOLECULAR SCIENCES

RESEARCH INTEREST:

Dr. Gallivan's lab is interested in understanding the cognitive and neural mechanisms that underpin processes related to action, learning and memory, decision-making, and perception. The lab uses diverse methods and approaches that span functional and structural brain imaging, behavioural psychophysics, and robotics and virtual reality systems.



Nader Ghasemlou

ASSISTANT PROFESSOR
ANESTHESIOLOGY; BIOMEDICAL
& MOLECULAR SCIENCES

RESEARCH INTEREST:

Dr. Nader Ghasemlou is an Associate Professor in the Departments of Anesthesiology and Biomedical & Molecular Sciences, where he leads the Pain Chronobiology and Neuroimmunology Laboratory. His group seeks to understand how the nervous and immune systems interact at the molecular, cellular, and behavioural levels, using circadian rhythmicity as a tool to modulate both systems. His translational research program uses various animal

models of disease to study these outcomes including spinal cord injury, multiple sclerosis, postoperative wounds, and peripheral nerve injury; his group also studies how neuroinflammation contributes to pain outcomes in people using ecological momentary assessment (e-diaries) and biomarker analysis.



Ian Gilron

PROFESSOR AND DIRECTOR
OF CLINICAL PAIN RESEARCH
(MD, MSc, FRCPC)
ANESTHESIOLOGY &
PERIOPERATIVE MEDICINE, AND
BIOMEDICAL & MOLECULAR
SCIENCES (CROSS-APPOINTED)

RESEARCH INTEREST:

Dr. Gilron's work is on translational research on mechanisms and treatment of acute and chronic pain, clinical trials of pain management interventions, systematic review and meta-analysis of pain research studies.



Fabiano Gomes

ASSISTANT PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Gomes is interested in studying effective ways to implement evidence-based treatments as well as developing innovative therapeutic approaches to patients with mood disorders.



Dianne Groll

ASSOCIATE PROFESSOR
PSYCHIATRY AND PSYCHOLOGY
(CROSS APPOINTMENT)

RESEARCH INTEREST:

Dr Dianne Groll is an Adjunct Associate Professor with the Department of Psychiatry and a Senior Associate Researcher with Providence Care Hospital. She is currently working on a variety of projects including two CIHR funded studies looking at CBT and iCBT and one examining Correctional Officers mental and physical well-being across Canada. Her research interests are in population health, specifically in public safety personnel and military and Veterans.



Kate Harkness

PROFESSOR (PHD, CPSYCH)
PSYCHOLOGY, PSYCHIATRY
(CROSS APPOINTMENT)

RESEARCH INTEREST:

The goal of Dr. Harkness' research is to understand the role of stress and early trauma in the etiology and ongoing pathology of major depression in adolescence and adulthood. Her current work focuses on neurohormonal, social cognitive, and motivational/reward factors that increase the sensitivity to, and generation of, stress in major depression.



Tariq Hassan

ASSISTANT PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Hassan is a member of the Division of Forensic Psychiatry. He actively contributes to endeavours aimed at improving forensic services and integrating these services with the wider community. He has paved the way for the appointment of two forensic psychiatrists which put Queen's on the correctional psychiatry map in Canada. Since then, he has worked closely with Correctional Services Canada to increase the psychiatry complement, with an impressive financial envelop to the total value of \$6.6 million over three years.



Michael Hendry

ASSISTANT PROFESSOR
SURGERY

RESEARCH INTEREST:

Dr. Hendry's lab examines the regulatory pathways responsible for peripheral nerve regeneration with the aim to improve outcomes following nerve injury.

MEET OUR FACULTY



Felicia Iftene

ASSOCIATE PROFESSOR
PSYCHIATRY (CROSS
APPOINTMENT PSYCHOLOGY)

RESEARCH INTEREST:

Development of novel interventions in schizophrenia; Cognitive behavioral therapy for psychosis; Biological correlates of treatment response to psychotherapeutic interventions; Brain-immune interactions in neuropsychiatric illness and recovery; Neuroplasticity; Neurotrophic factors in pathogenesis, adaptive therapeutic responses, and recovery from schizophrenia; Creation, development, and applications of new neuro-technologies and biological monitoring techniques; Brain stimulation techniques; Neuro-cognition in Psychosis; Psychopharmacology.



Al Jin

ASSOCIATE PROFESSOR
MEDICINE

RESEARCH INTEREST:

Dr. Jin is an Associate Professor in the Division of Neurology with cross-appointment to the Department of Biomedical and Molecular Sciences, and is a specialist in cerebrovascular disease. Prior to joining the faculty in 2008 he completed residency training in Neurology at Queen's University and completed a Cerebrovascular Disease fellowship at the Calgary Stroke Program in Calgary, Alberta. In addition to his

clinical duties, he is the Medical Director for the Regional Stroke Network of Southeastern Ontario. He serves on a variety of Ontario Health committees including the Stroke Leadership Council, the Stroke Evaluation and Quality Committee, and is the chair of the provincial Stroke Unit Task Group.



Michael Kawaja

PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

The nervous system is viewed as having plasticity, that inherent ability to adapt both structurally and functionally to injury or disease. In Dr. Kawaja's laboratory, they are taking two approaches to address this issue. First, they are studying the role that growth factors and their receptors play during the generation of new axonal processes. Second, they are studying how grafting different cell types into the injured spinal cord of adult rats can enhance both axonal growth and functional recovery.



Beth Kelley

ASSOCIATE PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Kelley is interested in the social, cognitive, language, and mental health aspects of development in children and adolescents with neuro developmental disorders.



Sarosh Khalid-Khan

ASSOCIATE PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Khalid-Khan's areas of interest are: prevention of childhood anxiety disorders, psychotherapeutic interventions in adolescent mood and anxiety disorders, enhancing primary care capacity to treat childhood psychiatric disorders and transcultural psychiatry.



Najat Khalifa

ASSOCIATE PROFESSOR (MD,
MRCPSYCH (UK), FORENSIC
PSYCHIATRY, CORRECTIONAL
SERVICE OF CANADA

RESEARCH INTEREST:

Dr. Khalifa studies the use of non-invasive brain stimulation techniques to modulate impulsivity, empathy and decision making; mental disorder and offending behaviour; and risk factors for terrorism.



John Kirby

PROFESSOR EMERITUS
FACULTY OF EDUCATION, CROSS-
APPOINTED TO THE CENTRE FOR
NEUROSCIENCE STUDIES

RESEARCH INTEREST:

Dr. Kirby's research concerns the cognitive processes involved in reading, including phonological awareness, naming speed, orthographic knowledge, morphological awareness, and comprehension processes. he investigates the application of these processes to the diagnosis of reading disabilities and the design of instruction.



**Yuliya
Knyahnytska**

RESEARCH INTEREST:

Interventional psychiatry; clinical research trials; brainstimulation interventions (TMS, tDCS, PBM, MST, ECT, etc); innovative interventions for hard-to-treat conditions (ketamine, psilocybin); treatment resistant depression; treatment resistant psychiatric disorders; patient-oriented research; implementation science, qualitative and quantitative research methodology.



Dusan Kolar
ASSOCIATE PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Kolar's research interests include treatment resistant depression, bipolar disorder, ECT and rTMS, ketamine, anxiety disorders, comorbidity of mood disorders and personality disorders, multimodal treatment in psychiatry, and psychodynamic psychotherapy.



**Valerie
Kuhlmeier**
PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Kuhlmeier studies cognition from a developmental and evolutionary perspective. She examines the origins of our cognitive capacities in a comparative manner, studying infants, young children, non-human primates, and canines.



**Benjamin
Kwan**

ASSISTANT PROFESSOR,
ASSISTANT PROGRAM
DIRECTOR DIAGNOSTIC
RADIOLOGY RESIDENCY, CBME
LEAD, FACULTY RESEARCH
DIRECTOR RADIOLOGY

RESEARCH INTEREST:

Competency Base Medical Education – assessment and evaluation, program review, curriculum development, usage of natural language processing/machine learning in radiology reports and EPA assessments. High Resolution Scalp Vessel Wall MR Imaging - high resolution 3D scalp vessel wall MR imaging for Giant Cell Arteritis and epilepsy Imaging - epilepsy diagnosis including usage of PET/MRI.



Ron Levy
ASSISTANT PROFESSOR
SURGERY

RESEARCH INTEREST:

Dr. Levy's lab studies electrophysiology and novel electrical neuromodulation paradigms in patients with movement disorders, epilepsy, and chronic pain.



Lysa Lomax
ASSOCIATE PROFESSOR
MEDICINE NEUROLOGY

RESEARCH INTEREST:

Dr. Lomax's research interests include epilepsy genetics and epilepsy syndromes (such as North Sea Myoclonus Epilepsy), cardiac arrhythmia in epilepsy, and virtual clinical teaching tools for residents.



Alan Lomax
ASSOCIATE PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

Dr. Lomax's lab studies enteric neurons and nociceptive neurons to understand how neuroplasticity can lead to pain and altered function during disease. Their research on neurogenesis focuses on factors that suppress the generation of new neurons in the adult enteric nervous system.

MEET OUR FACULTY



Neil Magoski

PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

Dr. Magoski's research looks at the regulation of ion channel function and long-term changes to excitability in neuroendocrine cells that initiate reproduction. Electrophysiology, live-cell imaging, as well as cell and molecular biology are used to study both native and cloned acetylcholine receptors, non-selective cation channels, calcium channels, and gap junctions.



Alina Marin

ASSOCIATE PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Marin's research initiatives focus on the role of the context in shaping voluntary and automatic emotion regulation, as well as the mechanisms underlying these processes.



Gerome Manson

ASSISTANT PROFESSOR
DEPARTMENT: SCHOOL OF
KINESIOLOGY AND HEALTH
STUDIES

RESEARCH INTEREST:

The objective of Dr. Manson's research program is to understand the influence of sensory information on the planning and control of goal-directed actions.

In particular, he is interested in the underlying processes that differentiate a movement made toward a target located on the body (i.e. a somatosensory target) versus a movement to an external object. He uses a combination of sensory manipulations, motion tracking, and neuroimaging to answer these questions.



Chris McGlory

ASSISTANT PROFESSOR
KINESIOLOGY AND HEALTH
STUDIES

RESEARCH INTEREST:

The aim of Dr. McGlory's research program is to understand the cellular and molecular mechanisms underpinning the adaptive response of skeletal muscle to nutrition, exercise training, and immobilization. He specializes in the use of stable isotopic tracers to track skeletal muscle protein turnover combined with a variety of molecular biology techniques for measurement of enzyme activity, protein expression, and post-translational modification.



Janet Menard

ASSOCIATE PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Menard's research is concerned with the neural circuits responsible for mediating fear as a useful adaptation, as well as with how altered brain function might promote maladaptive levels of fear. They use animal models of anxiety

(rats being our animal of choice) to study how fear is regulated in the brain (e.g., what brain structures, neurochemicals and receptor types are involved?). They also explore how these neural systems and the defensive behaviors they regulate are modified by prior experience (e.g., maternal neglect in early life and/or chronic stress in adulthood).



Roumen Milev

PROFESSOR
PSYCHIATRY (CROSS
APPOINTMENT PSYCHOLOGY)

RESEARCH INTEREST:

Dr. Milev's research interests include biomarkers for treatment response in depression, psychopharmacological, neurostimulation treatments and microbiome manipulation for mood disorders, sleep architecture, and overcoming stigma because of mental illness.



Michele Morningstar

ASSISTANT PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Morningstar's research focuses on the development of emotional communication and social cognition from childhood to adulthood. She uses a variety of methods, including speech analysis and functional neuro imaging, to determine how these basic emotional skills contribute to social functioning and psychological well-being across development.



Doug Munoz

PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

Dr. Munoz's research is devoted to: understanding the neural circuitry controlling saccadic eye movements, pupil regulation, and eyeblinks, and using the knowledge of these circuits to probe a variety of neurological and psychiatric disorders such as Parkinson's Disease, Alzheimer's Disease, Huntington's Disease, Attention Deficit Hyperactivity Disorder, Bipolar Disorder, and Amyotrophic Lateral Sclerosis.



Jose Alberto Neder Serafini

PROFESSOR
MEDICINE

RESEARCH INTEREST:

Dr. Neder is a clinician scientist interested in the multiple mechanisms that interact to produce breathlessness(dyspnea) and exercise intolerance inpatients with cardiorespiratory diseases. Knowledge created by his research has been successfully translated into patients' care, ranging from early diagnosis to target therapy and innovative rehabilitation approaches.



Mary Olmstead

PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Olmstead's research is directed towards understanding the neural and psychological interface between motivation and cognition, or how rewarding stimuli influence learning. Her working hypothesis is that goal-directed behaviours and cognitive processes, as part of a dynamic interactive system, reciprocally modulate each other.



Martin Paré

PROFESSOR

RESEARCH INTEREST:

Dr. Paré's research interest is in visual cognition, attention, working memory, inhibitory control, brain evolution, sensory-motor processes, neurocomputation. Our visual experience rests not only the perception of visual information but also the efficient deployment of visual attention, working memory capacity, and the precise control of the movements of our eyes. These are fundamental processes in human cognition, and they are impaired in a range of disorders secondary to aging and stroke, neurodegenerative diseases and mental disorders. To elucidate the causes of these conditions and help design better therapeutic strategies, our laboratory investigates the neural circuitry and mechanisms underlying these processes using psychophysical, physiological and pharmacological methods.



Lucie Pelland

ASSOCIATE PROFESSOR
SCHOOL OF REHABILITATION
THERAPY

RESEARCH INTEREST:

Dr. Pelland's research aims to understand the development of sensory-motor control in both typical child development and in selected paediatric clinical populations. Visually-guided reaching is used as a model to explore the dynamic influences of neural maturation, cognition and limb mechanics on the development and learning of sensory-motor control.



Jordan Poppenk

ASSISTANT PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Poppenk researches the consequences of bringing memories to life. To this end, his studies frequently incorporate monitoring of human brain activity with fMRI. Using computational methods, he tracks neural evidence of memory reactivation within participants' brains, which he relates to other processes such as memory formation, forgetting, planning for the future, and perception.

MEET OUR FACULTY



Caroline Pukall

PROFESSOR, CLINICAL
PSYCHOLOGIST
PSYCHOLOGY, SCHOOL OF
REHABILITATION THERAPY,
DEPARTMENT OF BIOMEDICAL
AND MOLECULAR SCIENCES

RESEARCH INTEREST:

Dr. Pukall's work is in human sexuality, sexual dysfunction, vulvodynia, sexual arousal, psychophysics, psychophysiology, and brain/spinal cord and blood flow imaging.



James Purzner

ASSISTANT PROFESSOR
SURGERY

RESEARCH INTEREST:

Dr. Purzner's research interests are in neurosurgery and brain tumours.



Taras Reshetuka

ASSISTANT PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Reshetuka's research interests are in the fields of suicide, emergency psychiatry and PTSD.



James Reynolds

PROFESSOR
BIOMEDICAL AND
MOLECULAR SCIENCES

RESEARCH INTEREST:

Dr. James Reynolds' interdisciplinary research program has included both basic and clinical investigations on the mechanisms and consequences of prenatal alcohol exposure on the developing brain, and the resulting cognitive, behavioural and social-emotional deficits that may occur in children.



Benjamin Ritsma

ASSISTANT PROFESSOR
PHYSICAL MEDICINE AND
REHABILITATION

RESEARCH INTEREST:

Dr. Ritsma's areas of interest are stroke, virtual health care, ALS, peripheral nerve injury and electrodiagnostic medicine.



Francois Rivest

ASSOCIATE PROFESSOR
SCHOOL OF COMPUTING

RESEARCH INTEREST:

Dr. Rivest studies artificial intelligence, machine learning, reinforcement learning, animal learning, interval timing, dopamine, and computational neuroscience.



Mel Robertson

PROFESSOR
BIOLOGY

RESEARCH INTEREST:

Dr. Robertson's laboratory investigated how neuronal mechanisms underlying behaviour of model organisms (locusts and *Drosophila*) are affected by abiotic environmental factors (e.g. temperature or oxygen availability). His lab's current focus is on reversible neural shutdown in response to anoxia via a process of spreading depolarization of neurons and glia. Dr. Robertson hopes to close his lab after his final experiments are completed.



Jacob Rullo

MD, PHD
OPHTHALMOLOGY, BIOMEDICAL
AND MOLECULAR SCIENCES

RESEARCH INTEREST:

Dr. Rullo's research interest is understanding the relationship between small locally accumulating biomolecules and ocular disease. Optic neuropathy and neuroprotection.



Mark Sabbagh

PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Sabbagh's lab is focused on understanding the social, cognitive, and neurobiological bases of cognitive and conceptual development. In particular they are interested in the mechanisms that promote developmental change in preschool-aged children's social cognitive and language development.



Tim Salomons

PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Salomons is interested in how thoughts and feelings affect how pain is processed and how it is experienced, as well as how cognitive and affective factors sensitize some individuals to pain.



Stephen Scott

PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES, MEDICINE

RESEARCH INTEREST:

Dr. Scott's lab studies voluntary motor function, computational neuroscience, robotics, and neurological assessment.



Jessica Selinger

ASSISTANT PROFESSOR
SCHOOL OF KINESIOLOGY
AND HEALTH STUDIES CROSS
APPOINTMENT, MECHANICAL
AND MATERIALS ENGINEERING

RESEARCH INTEREST:

Dr. Selinger's research focus is on understanding the fundamental principles that underlie the neuro mechanics of legged locomotion, as well as the application of these principles to wearable technology that can improve human mobility and overall health.



Garima Shukla

MBBS, MD, DM, FRCPC

RESEARCH INTEREST:

Dr. Garima Shukla is a Professor of Neurology, specializing in Epilepsy and Sleep Medicine, at the Queen's University in Kingston, ON. Her prior appointment was as Professor of Neurology at the All India Institute of Medical Sciences, New Delhi, India.

Her research focus comprises the clinical and neurophysiological aspects of the sleep-epilepsy-cognition interface, epilepsy co-morbidities as well as sleep disorders in neurology. Currently a section editor of the journal Sleep Medicine, she has more than 150 peer reviewed publications and is a recipient of numerous academic awards and honors.



Calvin Sjaarda

ADJUNCT ASSISTANT
PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Sjaarda's research includes using bioinformatics, genomics, and big data to identify novel genetic, epigenetic, and environmental factors that contribute to the etiology of complex mental health disorders, genetic disorders, and infectious diseases.



Jonathan Smallwood

PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

The focus of Dr. Smallwood's research is the neural basis of higher order cognition. He uses machine learning and techniques such as EEG and MRI.



Erna Snelgrove-Clarke

VICE-DEAN (HEALTH SCIENCES),
DIRECTOR OF THE SCHOOL OF
NURSING
HEALTH SCIENCES

RESEARCH INTEREST:

Dr. Snelgrove-Clarke's areas of interest are healthcare, health care advocacy, maternal health, newborn health, and postpartum.

MEET OUR FACULTY



Claudio Soares

PROFESSOR
PSYCHIATRY

RESEARCH INTEREST:

Dr. Soares' primary research focus is on female-specific mood and anxiety disturbances, including: a) efficacy and safety of new treatments for premenstrual dysphoric disorder (PMDD); b) efficacy and safety of hormonal and non-hormonal strategies for the management of depression, sleep disturbances and other complaints (e.g., vasomotor symptoms) during the menopausal transition; c) risk factors associated with new onset of depression and anxiety during the menopausal transition.



Jeremy Stewart

ASSISTANT PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

Dr. Stewart's research focus aims to understand and quantify vulnerability to suicidal and self-injurious behavior in youth across distinct units of analysis (e.g., environmental circumstances, behavior, physiology). Our studies focus on how individual differences in executive functioning, trait impulsivity, stressful life events (particularly peer rejection), reward responsiveness, and other variables may contribute to the escalation from suicidal thinking to action in adolescents and young adults.



Patrick Stroman

PROFESSOR
BIOMEDICAL AND MOLECULAR
SCIENCES

RESEARCH INTEREST:

Dr. Stroman did his undergraduate degree in Physics at the University of Victoria and a PhD in Applied Sciences in Medicine at the University of Alberta, where he focused on magnetic resonance imaging (MRI) technology. He did a postdoctoral fellowship at Laval University in the Quebec Biomaterials Institute, and then worked in the MR Technology group at the Institute for Biodiagnostics, National Research Council of Canada in Winnipeg. In 2004 he joined the Centre for Neuroscience Studies, Queen's University, as the Director of the MRI Facility. He is now a Professor in the Centre for Neuroscience Studies, and is in the Department of Biomedical and Molecular Sciences, and the Department of Physics. His research remains focussed on the development of innovative functional MRI data acquisition and analysis methods for studying neural activity related to pain processing at all levels of the central nervous system; brain, brainstem, and spinal cord.



Donatella Tampieri

PROFESSOR
RADIOLOGY

RESEARCH INTEREST:

Dr. Tampieri's research interests are in the areas of cerebrovascular disease, stroke, aneurysm and arteriovenous malformation.



Martin ten Hove

PROFESSOR
OPHTHALMOLOGY

RESEARCH INTEREST:

Dr. ten Hove's research focus is on visual attention, ischemic optic neuropathies and AI application to clinical medicine.



Tracey J. Trothen

PROFESSOR
RELIGION, REHABILITATION
THERAPY

RESEARCH INTEREST:

Dr. Trothen is a social and biomedical ethicist who specializes in artificial intelligence, human enhancement, and spiritual health. She is interested in justice, what it means to flourish, and the social implications of technologies.



Anita Tusche

ASSISTANT PROFESSOR
ECONOMICS, PSYCHOLOGY

RESEARCH INTEREST:

Dr. Tusche's lab studies human decision-making in various domains (e.g. dietary behavior, altruism, consumer choice). To better understand the mechanisms that drive human decisions, they employ a variety of techniques (e.g., computer experiments, gaze pattern, functional and structural MRI) together with computational modelling approaches.



Sari Van Anders

PROFESSOR (CANADA 150
RESEARCH CHAIR IN SOCIAL
NEUROENDOCRINOLOGY,
SEXUALITY, & GENDER/
SEX, AND PROFESSOR OF
PSYCHOLOGY, GENDER STUDIES,
& NEUROSCIENCE) PSYCHOLOGY
AND GENDER STUDIES

RESEARCH INTEREST:

Dr. van Ander's explores sexuality, gender/sex and sexual diversity, and social modulation of hormones like testosterone, all with a feminist and queer (bio)science lens.



Gustavo Vazquez

PROFESSOR (MD, PHD, FRCPC)
PSYCHIATRY

RESEARCH INTEREST:

Dr. Vazquez's main scholarly activity is currently focused on the study of the clinical features, neuro cognitive characteristics and pharmacological treatments of unipolar depression and bipolar disorders.



Jagdeep Walia

ASSISTANT PROFESSOR
MEDICINE

RESEARCH INTEREST:

Dr. Walia has an active clinical and basic genetics research program. His lab is focused on developing novel gene therapy approaches for inherited and acquired neurodegenerative disorders. Currently they are focusing on GM2-gangliosidosis (Tay-Sachs, Sandhoff diseases and AB variant) and use adeno-associated virus vector (AAV) system as a tool for gene transfer to the central and peripheral nervous system.



Jeffrey Wammes

ASSISTANT PROFESSOR
PSYCHOLOGY

RESEARCH INTEREST:

The research in Dr. Wammes' lab uses behavioural, computational and neuroimaging methods to investigate how we learn, retrieve, and reorganize and strengthen information in memory. They are also interested in how mind wandering, attention and perception influence learning and memory.



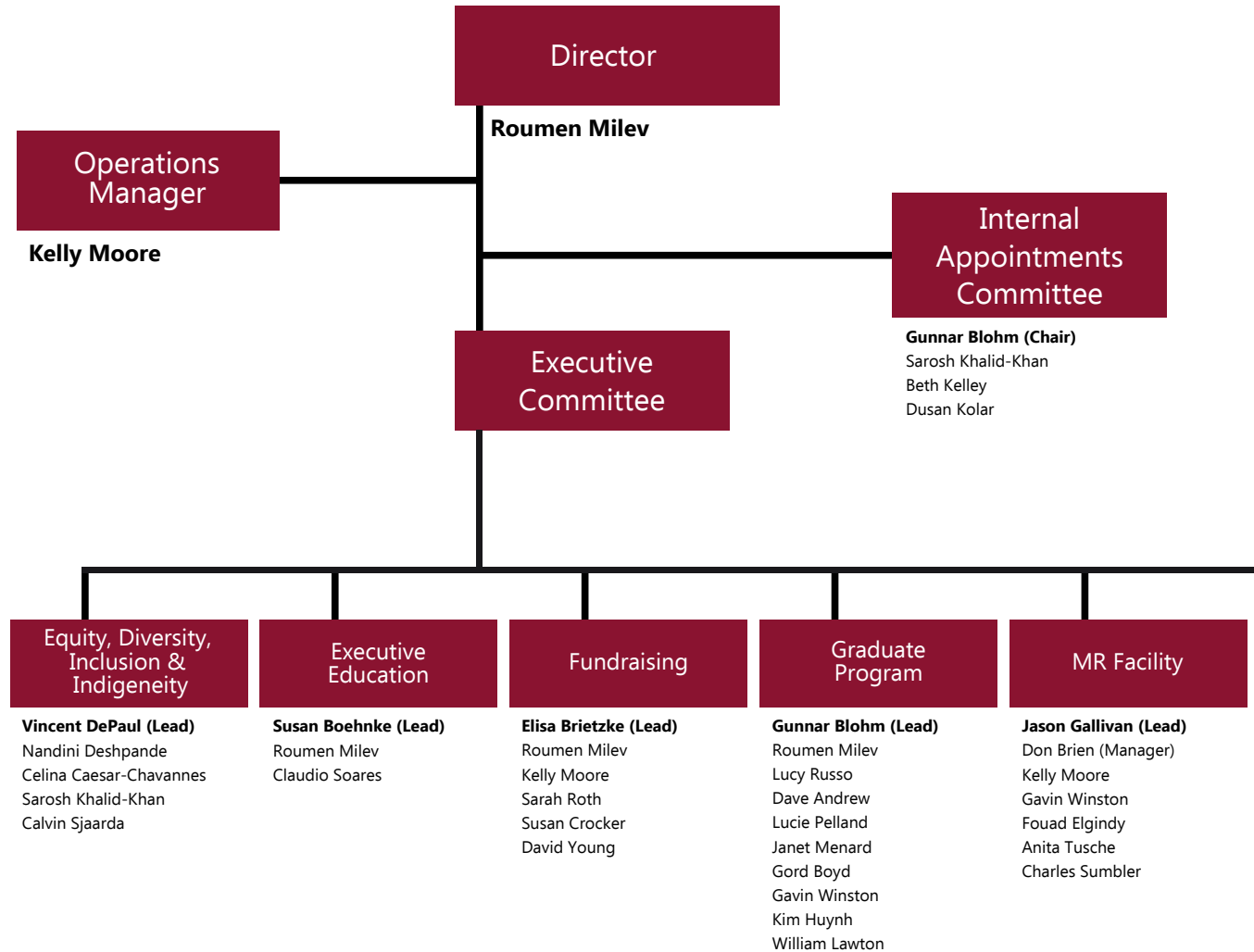
Gavin Winston

ASSOCIATE PROFESSOR
MEDICINE

RESEARCH INTEREST:

Dr. Winston studies people with epilepsy aiming to improve their diagnosis and treatment by employing computational neuroimaging, cognitive assessment, robotics and machine learning. Current projects include multimodal neuroimaging for surgical planning, robotic assessment and neuroimaging biomarkers of cognitive impairment and machine learning models for predicting recurrence risk after first seizure.

ORGANIZATIONAL CHART





Finance

Roumen Milev (Lead)

Dale Best
Kelly Moore
Lucy Russo
Gunnar Blohm
Nicole Hunniford
Kelly Hart
Andrew Bickle

Student Leadership

Scott Squires (Lead)

Jasleen Jagayat
Theo Aliyianis
Isabell Pitigoi
William Lawton
Kabeer Thaker
Emma Schincariol
Isabelle Mastantuono
Jack Lott
Hayley Bromley
Andrea Ellsay

Seminars

Michele Morningstar (Lead)

Isabelle Pitigoi
Andrea Ellsay

Safety

Kelly Moore (Lead)

Kim Moore (NHP)
Mike Lewis (Abramsky)
Don Brien (MRI)
Kim Suffron (Botterell 2)
Hayley Bromley

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