MAY 2026

F1B2A From One Brain To Another



"Have you ever wondered how your brain works? We have, too. We'd like to share what we have learned-- from our brains to yours!"

Welcome back to *From One Brain to Another*, a student-run neuroscience newsletter at York Univeristy, Toronto, Ontario, Canada. This newsletter is dedicated to its curious readers who would like to learn about the intricate, alluring discipline that is neuroscience. Join us this month as we explore the effects of social media on brain health! This newsletter serves as a platform for passionate students of all disciplines to obtain research experience and grow into becoming specialists of their fields. It brings together students from different universities, and countries! Information about programs, such as that of neuroscience, its faculty, ongoing research and opportunities at York University are sprinkled within these pages for the benefit of our audience and future students. **It should be noted that all articles and content contained within this issue are not to be taken as medical advice; the information is collected research communicated by students strictly for educational purposes.**

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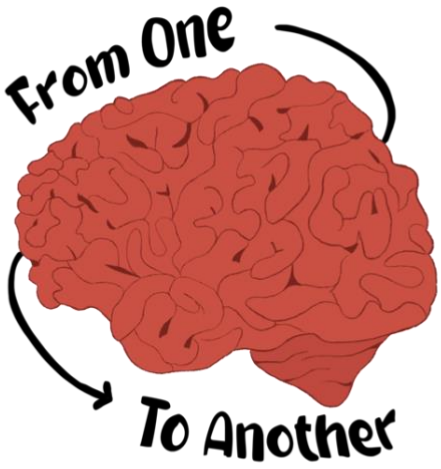
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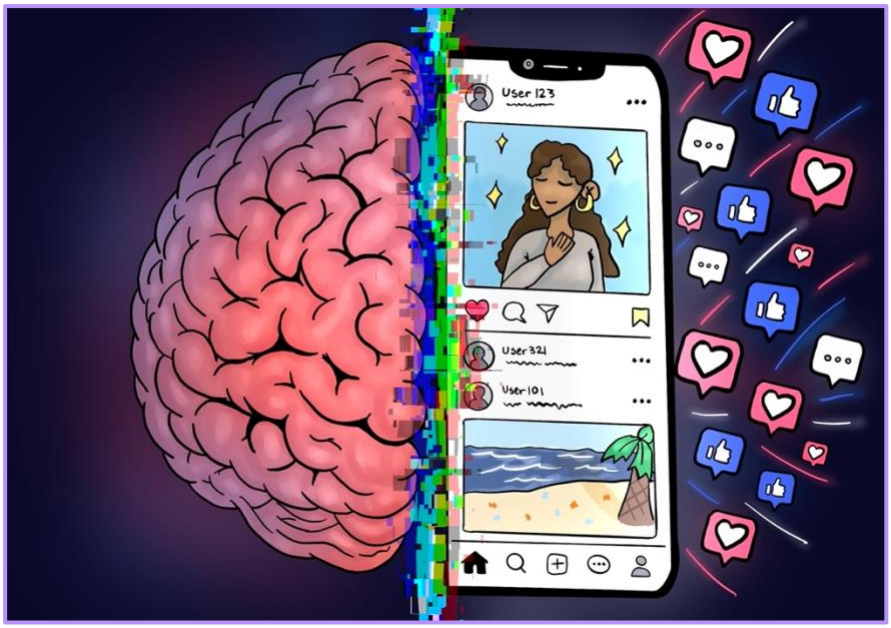
Student Research Article

Written by: Laila Saidi | American University of Beirut

Edited by: Jana Alagha

The Dopamine Loop: Understanding the Neuroscience of Social Media Addiction

Imagine a slot machine that you check 58 times a day on average, and that fits nicely in your pocket. For millions of people, this is their smartphone, so it's not just hypothetical. Social media platforms are carefully designed in order to draw your attention in, which frequently results in behaviours that resemble substance abuse (Tural et al., 2014).



Illustrated by Nicole Pitkis (2026).

Understanding the biological processes behind our "scrolling" behaviours is important for protecting our mental health as digital consumption becomes an important part of our everyday lives. Even while these apps keep us connected, they mostly work by appealing to our natural need for social validation and the brain's primary reward system. The dysregulation of the dopaminergic reward system, the overstimulation of social processing centers, and the loss of executive control are what drive social media addiction, revealing that our digital habits are a neurological issue rather than simply a lack of self-control.

The release of dopamine in the brain's reward regions, the ventral striatum and nucleus accumbens, is the main factor influencing social media use. The brain interprets a "like," "comment," or notice as a social reward, which causes a hormonal sensation of pleasure (Montag et al., 2019). Variable ratio reinforcement was introduced by B. F. Skinner in his work on operant conditioning. It refers to a reward pattern where a behaviour is reinforced after an unpredictable number of actions, making it highly persistent.

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This is why it is often linked to social media use, where likes and comments come at irregular times, encouraging repeated checking and posting, which explains this process. Similar to a slot machine, the benefits we receive from social media are not always predictable. Users are forced to keep scrolling in anticipation of the next dopamine rush due to this uncertainty, which produces a "craving" mood. According to an fMRI study conducted by Turel et al. (2014), the brain's "impulsive" system, the amygdala-striatal system, gets hyper-sensitized in heavy social media users, reacting to app icons with the same intensity as a person with an addiction to drugs or alcohol reacts to drug signals.

Evolution has wired humans to seek social acceptance. Being a member of a tribe was once necessary for survival. Thus, this "social brain" is very sensitive to acceptance, rejection, and social rank. Social media effectively taps into this system by turning social interaction into quantifiable metrics, such as likes, views, shares, followers, and comments, that serve as visible signs of social approval and perceived popularity. In this way, these metrics start looking like a basic kind of social status, where a post that receives more engagement might be perceived (either consciously or unconsciously) as having greater social value or importance, while low engagement might feel like social invisibility or a lower status within a circle of friends.

When using social media, the medial prefrontal cortex (mPFC), a brain region involved in self-referential thinking and understanding how others perceive us, becomes highly active. This means individuals are not only thinking about what they are posting, but also continuously evaluating how they are being perceived through these metrics.

For example, a student posting a photo that receives significantly fewer likes or comments than a friend's similar post may begin to interpret this difference as a reflection of attractiveness, popularity, or social acceptance, even if the content itself is not objectively different. Comments, in particular, can carry extra weight because they feel more personal and socially meaningful than passive likes, so positive comments can strongly boost validation, while the absence of comments can feel like being overlooked.

Similarly, influencers or everyday users may track follower counts, likes, and comment activity as a form of "social ranking," adjusting their behaviour, appearance, or content style in response to what performs better. Over time, these numerical indicators and interactions can subtly shape self-esteem and social comparison, reinforcing the idea that online engagement equates to social standing within a peer network. Users engage in "self-presentation" behaviours when they publish content, meaning they actively curate and display aspects of themselves in a way that shapes how others perceive them, such as choosing specific photos, editing images, writing captions in a certain tone, or sharing achievements and lifestyle moments.

This goes beyond simple discussion because posting content places the individual in a position of social evaluation, which activates the brain's reward system more strongly.

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However, this creates a biological double-edged sword: positive feedback (likes, comments, views) triggers dopamine release and reinforces the behaviour, while negative comparison, lack of engagement, or perceived social rejection can activate the brain's "social pain" network, including the dorsal anterior cingulate cortex, which is associated with feelings of exclusion and distress. Over time, this creates an emotional rollercoaster, where users may repeatedly return to the app in an attempt to regain positive feedback or "fix" the negative mood caused by low engagement or comparison (PMC, 2025).

The primary driver of social media engagement is the release of dopamine within the brain's reward centre, specifically the ventral striatum and nucleus accumbens. When we receive a "like," comment, or notification, the brain perceives this as a social reward, triggering a chemical rush of pleasure (Montag et al., 2019). This process is intensified by a psychological concept known as "variable ratio reinforcement."

Much like a slot machine, social media does not provide a reward every time we check it; instead, the rewards are unpredictable. This uncertainty creates a "craving" state that compels users to keep scrolling in anticipation of the next hit of dopamine. Research by Turel et al. (2014) utilizes fMRI scans to show that the brain's "impulsive" system (the amygdala-striatal system) becomes hyper-sensitized in heavy social media users, reacting to app icons with the same intensity that a person with substance use disorder reacts to drug cues.

Frequent overstimulation of the reward system can cause physiological and functional alterations in the brain over time, especially in the prefrontal cortex (PFC). Cognitive functions, including impulse control, long-term planning, and decision-making, are controlled by this area. Studies show that people with high social media addiction scores had less grey matter density—composed of neuronal cell bodies and dendrites— in the PFC. This results in a "top-down" failure of control because the "bottom-up" reward signals are too powerful for the weakened PFC to overcome, even when the user is aware that they have been scrolling for too long (Tural et al., 2014). Teenagers are especially vulnerable to this imbalance since their prefrontal cortices do not fully mature until their mid-20s, which means that while their "brakes" of reasoning and control are still developing, their "gas pedal" of emotion and reward is fully engaged (Turel et al., 2014).

Even though social media is clearly addictive, other researchers argue that the brain is merely going through a phase of rapid neuroplastic development. They imply that the ability of our brains to process fast, multistream information is improving. However, the majority of long-term research indicates that this "multitasking" actually affects the quality of deep work and the brain's capacity to filter out irrelevant information. The question of whether "digital detoxification," giving up electronics, can effectively "reset" dopamine receptors, or whether more extensive cognitive behavioural therapy is required to address structural changes brought on by long-term overstimulation, is still up for debate.

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In conclusion, social media's addictive qualities are a direct outcome of how digital interfaces interact with our brain circuits rather than an accident. These platforms have the ability to produce a potent cycle of reliance by utilizing the dopaminergic reward loop, social validation cues, and flexible reinforcement schedules. According to this neurobiological viewpoint, social media addiction is characterized by both an increase in reward-seeking behaviour and a decrease in the brain's capacity to control impulses through the prefrontal cortex. Restoring our concentration, time, and digital freedom begins with realizing that our screens are rewiring our brains as we continue to live in a digitally connected world.

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Reference List

Montag, C., Lachmann, B., Herrlich, M., & Zweig, K. (2019). Addictive Features of Social Media/Messenger Platforms and Strategies for Change. *PLOS ONE*. https://doi.org/10.1371/journal.pone.0212173

PMC (2025). Social Media Algorithms and Teen Addiction: Neurophysiological Impact and Ethical Considerations. *PubMed Central.* https://pmc.ncbi.nlm.nih.gov/articles/PMC11804976/

Turel, O., He, Q., Xue, G., Xiao, L., & Bechara, A. (2014). Examination of neural systems sub-serving facebook "addiction". *Psychological Reports, 115*(3), 675–695. https://doi.org/10.2466/18.PR0.115c31z8

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Postdoctoral Fellows at York University

Dr. Alice Elizabeth Atkin



(Photographed by Noah Carson, 2026)

Thursday, March 12th, 2026
Interviewed by: Hana Sopel-Mizrahi

H: Would you please introduce yourself, tell us what is your research specialty, and which courses do you teach at York University?

Dr. A: I'm Dr. Alice Elizabeth Atkin.
I'm a postdoctoral fellow in the Connected Minds Program here at York University, working in the lab of Dr. Denise Henriques, who is a faculty member in the school of Kinesiology and Health Science. My main project here is part of this fellowship concerning a device that delivers tactile stimulation, that can be integrated with sensors that you can wear on your body, and that will measure your posture. The goal of this project is to devise a system that can be implemented in healthcare settings, where nurses and surgeons would wear these sensors and this device that delivers motor sensation. It will tell them when they're in a posture that's likely to cause them injury, so they can correct themselves.

However, we don't want their use of the system to interfere with the really important medical tasks that they're doing. We've devised an experiment where people detect this stimulation by itself. They do a motor task with their hands by itself. And then we combine the two. And we look to see, does their performance on either test get worse in combination? Because that could suggest either that, they can't use the information that we're providing them when they're doing a motor task, 'cause they just don't have the attention for it. Or if they are paying attention to it, it might make their performance worse in a way that's disruptive to their job.

H: That is incredible! Where did this idea come from?

Dr. A: The idea came from the surgeons themselves. We have collaborators at Sunnybrook Hospital who do surgery there. And they themselves are well aware of their own risk of these injuries- back and neck injuries are very common in healthcare professionals. It discourages people

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from entering surgical professions in particular. Medical students will do, their surgical rotation and say, “man, that's hard. I don’t want to do that.” People who do choose it often have their careers shortened or have their quality of life affected because they get injured. They either suffer like injuries, or they just experience chronic pain. It was the surgeons themselves who said, we want a system like this that can help us mitigate these injuries.

H: Then if I understand correctly, you're doing work in conjunction or collaboration with the University of Toronto and Sunnybrook.

Dr. A: Yeah, so that's that project. I do have some other collaborations, mostly leftover from my PhD. My PhD actually involved, uh, an assessment for predicting driving performance. People would perform these cognitive tests, and then based on their performance on those tests, we would try to predict, are they going to pass or fail a protest? Are they safe to drive or not? Also, quite applied. So, that was my PhD, but the company that made the assessments that we used in those studies, has a new version of their assessment, which you can do on a mobile phone. So, here's your smartphone. You don't need a tablet or desktop computer; you don't have to go into a lab or an office to do these tests. You can just do it on your phone, wherever you are, whenever you want. And we're doing some more studies to assess; first of all, does that version of the task, that more accessible version of the test has predictive value, and also, is it reliable? If you do this test repeatedly, are you going to get a reliable score, which allows you to just do it once and have that and, trust that that score is representative?

H: Oh, wow, gosh, you're doing a lot of work that's helping people.

Dr. A: Yeah, I hope so. I mean, I'm not totally sure how much it helps people when, of course, they fail the test, right? Because, of course, this has real stakes for people, right? If you fail these tests, if you fail a road test, you can lose your license or have it suspended. So, you know, some of the stuff has real stakes for people. I try- and it's very easy to think that this is like a fun experiment and that the people are just data, but ***I try to be conscious of the fact that they're, you know, they're people with real stakes for their health and for their mobility***. ***And that's actually a pretty important thing for everybody to have, isn't it?***

H: Can you tell us about your academic journey and what has led you to this point?

Dr. A: Sure. My academic journey, started at the University of Victoria. That was where I did my undergraduate. I started off on the west coast, and I actually went to university as a history student, because, my high school, they didn't have a psychology course, didn't have neuroscience. It wasn't integrated into the curriculum at all. I had never had any exposure to psychology or neuroscience. At the time, I liked history. I still kind of do. But that's what I went to school for. But I had to take psychology courses, for credits, and ended up enjoying them just as much. And when I got to my

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upper years, I realized there was a lot more that I could do with my psychology degree, especially since I was considering graduate school all the time, because ***I wanted to keep learning.***

Of course, you know, if you do a master's program, you need a research question, which is true in history too, right? ***You need a question, something that you want to learn.*** And I was really struggling to figure of, well, what question would I want to answer? ***What would I want to spend 2 or 3 years of my time answering?*** But with psychology, I had lots of questions. So, I decided to complete my major in psychology instead of history. And then I went to the University of Alberta for my graduate degree. I have a masters and a PhD from the University of Alberta. The masters are in psychology, the PhDs in neuroscience. But actually, my supervisor was the same for both programs. I just switched from psychology to neuroscience because they had different criteria for completing the program: different graduation, different courses. I wanted to do the neuroscience program. You know, I think I made choices, and, I'm content with those choices, but they were still fair. They were still choices, you know.

H: What kind of research work did you do for your master's degree?

Dr. A: That involved some motor tasks. Basically pointing, although, more, it's basically the reach component of reaching and grasping, which is something that neuroscientists study a lot. How people control their hands to reach for things… and then grasp for things. So, I was mostly investigating the reach component. And we had some questions. We had some hypotheses about how people make decisions about how to reach for one thing or another, or which hand they're going to use to complete task.

H: You taught PSYC3495: the Neuroscience of Aging last semester. How did you like the experience?

Dr. A: I enjoyed it. Of course, I never taught at York before. I taught plenty of times at the University of Alberta, but this is a different school, you know, a different university, different audience. But I never taught this topic before. So, I found it very interesting, as, you know, I'm not that old, but I was almost the oldest person in the room, right? Because they're mostly undergraduates. It's a 3rd year course, so they're mostly in their 20s, but like early 20s. I mean, it was a challenge talking about aging as something where I have a longer perspective on it than they do because I'm older than them. But I'm still not what people or society would typically classify as old, right?

Unless you're like a 15-year-old and you go, oh God, you're so old. But, yeah, so, it was, kind of, useful and fun personally, to look backwards as well as forwards at the same time, as to say, here are the experiences of aging that have already had. But here is also what I can expect to experience in the future, I guess. That's wonderful.

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H: Would you consider teaching another course at York?

Dr. A: Yeah, of course. I'm actually teaching a course right now. Oh, I'm not the course instructor though. Kinesiology has a data analysis course. There are actually 2 sections, with like 700 students across the 2 sections! So, it's gigantic. Because it's so big, I guess every health student has to take this course. They have both course instructors who actually go to class every day and give lectures. And then they have course coordinators who do all the back-end stuff. With preparing, you know, materials and maintaining the website and answering emails and all kinds of stuff like that. So, I'm actually doing the coordinator role for this course.

H: Congratulations. That sounds like a wonderful position.

Dr. A: Yeah, I've never done something like this before, so it's been interesting.

H: I was also wondering- you said to me that you went from history into psychology, then neuroscience, and that it interested you. Was there a particular moment that you knew this is what I wanted to do?

Dr. A: Yeah, I guess so. I guess it wasn't so much a moment as a course I took. It was a course on consciousness, and I ended up actually teaching a course on consciousness at the University of Alberta a few times. I made very good use of that course. I definitely got my money's worth. But, you know, consciousness, at least the way I think of it, is basically just a catchall term for everything the brain does. it's vision, and it's hearing, and it's sinking, and it's feeling, and it's- just sort of everything that we do and experience. But that makes it a really, really expansive topic where you can sort of follow your interest in any direction that it takes you. I'd never taken a course like that before, where... the different, sort of, topics of psychology, whether it's, you know, like cognition or emotion, or visual perception… were all sort of brought together in... like a sort of holistic way. And I just loved thinking about the brain and thinking about people that way. , so I was like, ***I really want to keep learning about this, and keep thinking about this, this field in this particular way.***

So that was when I said, "yeah, I think I can do this."

H: That's incredible. I have this question. I don't know if you'd be able to answer it, but it just makes me curious. When you're looking into cognition, and anything related to mental processes- well, I heard somewhere that we have over 100,000 thoughts a day. And my question is, how can we quantitatively study that? Do you have any ideas?

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Dr. A: Yeah, I don't know. I'd have to read the paper and learn what their methods are. I mean, how do you define a thought? Right? You know, if I say, "You know, this is my thermos, I'm holding it in my hand." It's the concept of, thermos holding in hand. Is that one thought or three, right? You know, is it one coherent idea, or is it a bunch of different ideas that are sort of tied together in a particular way? I'd have to know more about their conceptualizing the idea of thinking and thought. Presumably they're doing some sort of extrapolation, or, within a defined boundary of time. They're asking people to report their experiences and then extrapolating over the course of like a day or a week or a lifetime.

H: Can you also tell us, for people in their undergraduate studies, or even high school, and want to get to the same point as where you are, what would be your advice for them?

Dr. A: Something you wish you knew when you were an undergrad. I guess... It's not necessarily the advice that I would have given myself as an undergrad, but it's the advice that I would give undergrads now. And it's that... ***you think of science as a profession that's defined by ideas, right?*** Or concepts. ***But science is really a technical job.*** Right? It has methods. It's mostly performed on computers these days. It uses built devices, whether that's a computer or a tablet, or something you make yourself to measure some variable in a very different way. ***So, the technical skills. It's not necessarily very romantic, but they are extremely important.***

So, having some kind of technical skill that you can bring to your research, whether that's coding or whether that's building machines, being a computer scientist or an engineer, or anything like that… is really going to help you translate your ideas into workable research. It's very easy to get caught up in the romance of something and stuff, like batting ideas around. But you have to implement those ideas. So that's what I would say.

And the reason I'm saying that is because as an undergraduate, I very much did not do that. I've had to learn all of my technical skills, particularly with computers and coding and analysis as a PhD student. As the postdoc even. You're gonna make progress in your career much faster than I did if you had those skills, or you develop those skills in high school and undergraduate.

H: In your work right now with your fellowship, what types of technical skills do you have to apply there?

Dr. A: We have to program our experiments. We mostly use Python these days, which is a particular kind of programming language. We have to analyze our data. I also use Python to organize data because in our experiments, [it] spits out, 100's of files per participant. We look at single trial data. If they're doing hundreds of trials, that's 100's of files. So, we use Python to collaborate and collate data across all these files, and put it into a form that, can look at and interpret.

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Then we use R, which is a different programming language, to analyze the data. So, of course, there's all different kinds of analyses that you can do and that you'll learn about in your stats classes. But they're not pointing click interfaces for the most part, you know, they use programming languages that you need to know or at least understand if someone else gives you the code or you use, like those generative AI programs that are actually quite good at coding these days. *But you still need to understand what's what it's doing*, *and be able to interpret the information it's giving you.* Those are skills that I'm honestly still developing, because, like I said, you know, you don't need those skills in history. I didn't know that I was going to need them in psychology and neuroscience. And now I definitely do. So, that's great.

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Dissecting Brains at York University

It is with great pleasure that the Neuroscience Society at York University collaborated with the undergraduate program to fund this year's sheep brain dissection! What makes this event truly special, is seeing a new team of graduating upper year neuroscience students mentoring the new, open-eyed and curious second year students. Any future students can hopefully look forward to this experience, as it is special and unlike any other. This is a moment in which students can bridge between learning theory and experiencing its real-life applications through exploration.



Second- and third-year students of courses NRSC2100 and NRSC2200 had the opportunity to physically and visually explore the sheep's brain, whose structure is similar to that of a human brain.

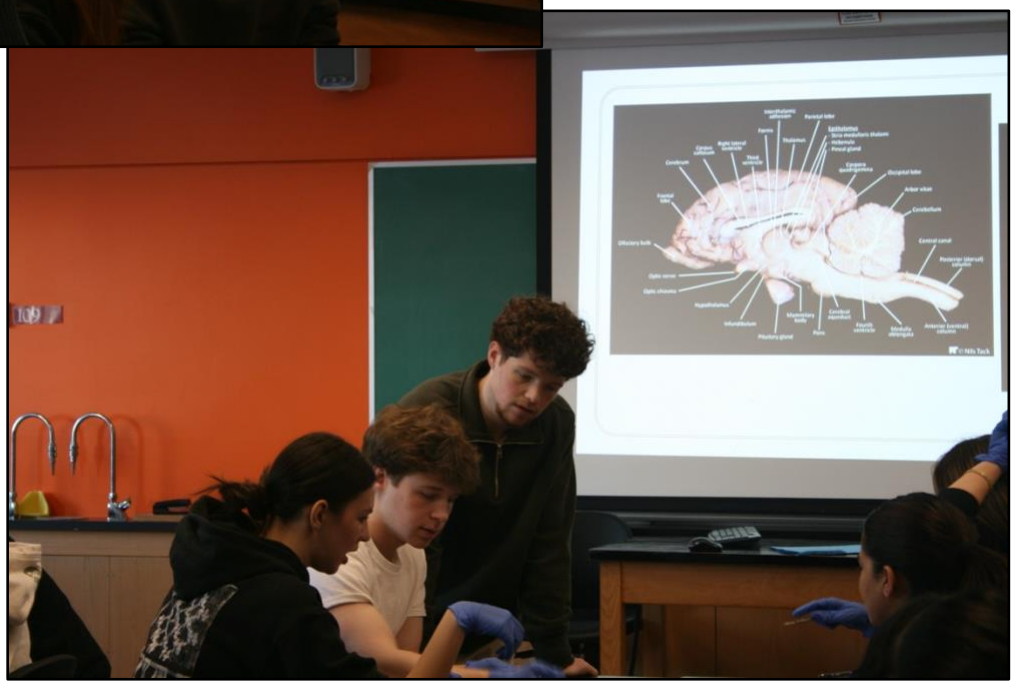


Natalie Brown, Thomas Shvekher & Donel Shvekher. Co-Presidents and Head of Education of the Neuroscience Society Team.

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Dr. Jeffrey Schall, who teaches NRSC2100: Systems, Behavioural, and Cognitive Neuroscience, guides his second- and third-year students.



This in-class experience was hosted for the learning benefit of the students with gratitude and respect to the brain tissues provided. An appreciation for these learning opportunities is a quality that the neuroscience students at York University strive to develop with each step of exposure to research.

Event photography supplied by the Neuroscience Society at York, with permission taken beforehand.

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Opportunities and Events at York University

CIAN – Centre for Integrative and Applied Neuroscience:
A neuroscience research group at York University; its aim is to collaborate as a unit on subjects including, but not limited to health, education, and the industry.

Upcoming Events:

- **Monday, June 1st- Wednesday, June 3rd, 2026** |
  The 2026 Annual Meeting of the Canadian Society for Brain, Behaviour and Cognitive Science (CSBBCS). Hosted by the Centre for Integrative and Applied Neuroscience (CIAN) at York University!

- **Thursday, June 4th- Friday, June 5th, 2026** |
  The 2026 CIAN Satellite Symposium. Listed below are upcoming lectures included in the event's program!

- Memory and Eye Movements, by Dr. Jennifer Ryan (Rotman Research Institute at Baycrest)
- Gaze and Navigation, by Dr. Julio Martinez-Trujillo (Western University)
- Error Monitoring in Frontal Cortex, by Dr. Amir Sajad (International Center for Primate Brain Research)
- Cognition and Grasping, by Dr. Claudia Gonzalez (University of Lethbridge)
- Representations of Objects and Actions, by Dr. Laurel Buxbaum (Thomas Jefferson University)
- Real-world object manipulation tasks: where action meets cognition, by Dr. Randy Flanagan (Queen's University)
- Parietofrontal Control of Sequences, by Dr. Theresa Desrochers (Brown University)
- Intelligence and Action, by Dr. Saurabh Vyas (Carnegie Mellon University)
- Decisions and Action, by David Thura (Lyon Neuroscience Research Center (CRNL) - CNRS / Inserm / Claude Bernard University / Jean Monnet University)

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A Grateful Thank You

This month's article, and the newsletter itself, would not have been made possible without the help of the following intelligent, talented, and passionate individuals who have dedicated time to present their original work and support the development of this month's issue. Please note that this will be our final issue before the summer break. Our next issue comes out in September 2026. We want to thank our readers for their dedication and interested minds! It has been our greatest pleasure to serve, and we hope to continue to educate.

If you are interested in joining our team as we develop our issues for September 2026 and further, please access the google form on our website here. Members of all disciplines and backgrounds are welcome to take part in this initiative.

- **Demi Patricia Lingas, Visual Media Designer**
  Illustration (ILS), Seneca Polytechnic
- **Hana Sopel-Mizrahi, Founder**
  Hons., BSc, Neuroscience, York University
- **Heshaan Prathapan, Editor**
  Hons., BSc, Neuroscience, York University
- **Jana Alagha, Head Editor** Hons., BSc, Neuroscience, York University
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Neuroscience Society at YorkU Media illustrated by Allegra Favaretto

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