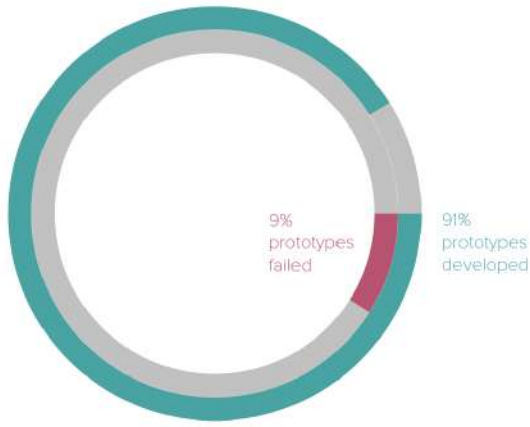
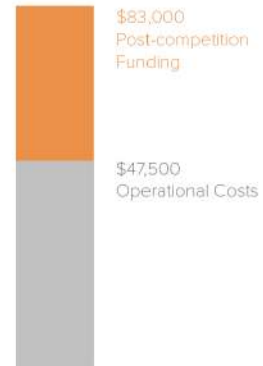




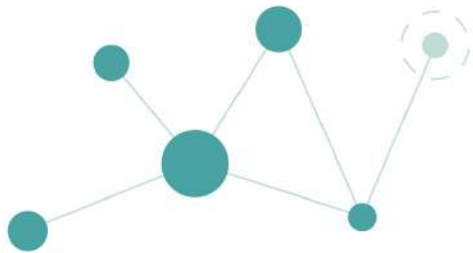
2019 IMPACT REPORT



91%
prototyped



\$83k
raised



5+
career
connections

ORGANIZERS' MESSAGE

Thank you for your interest and support of Neuro Nexus. It's because of sponsors, partners, and champions in the ecosystem that not only make a program like this possible, but allow it to surpass our every expectation.

Neuro Nexus is a multidisciplinary competitive design program that results in the rapid development of solutions to brain and mental health challenges. Based on the Innovation 4 Health model, developed by graduate students in the Biomedical Engineering Graduate Program at UofC, the program begins by identifying highly-qualified personnel with deep knowledge of challenges within the neurosciences, and the diagnosis and treatment of neurological disorders and mental health conditions. In parallel, top technical talent is recruited and matched with challenges to form teams. Supported with access to mentorship, rapid prototyping tools, and workshops, teams formulate an approach and then implement their ideas in just six weeks. Teams network with the health innovation community, and top solutions get awards in the hope that they will take their projects further towards impact.

The 2019 program engaged over 150 participants to facilitate over 20 projects. Solutions related to stroke diagnosis as well as treatment, ALS, rehabilitation for brain injury, community mental health, and engineering of novel tools for basic neuroscience research. Demo Day saw in excess of 300 attendees. Since the competition, over \$80k in grants from third-party sources have been secured, spurring 5 confirmed hires of competition participants.

This report contains statistics on the 2019 Neuro Nexus competition as well as findings from our recent follow-up on team activities since the competition. Compiled are the final project and participant numbers, event attendance data, and measurements of online engagement (pgs. 2-3), and details of the activities of winning projects and teams in the months since the competition (pgs. 4-5). Finally, findings from a recent survey on continuity of teams is presented, which probed for team status and makeup, change in objective(s), and post-competition funding (pg. 6). Building on the 2019 program, Neuro Nexus 2020 will engage innovators and challenges from across Alberta to leverage the unique strengths of neuroscience institutes in Calgary, Lethbridge, and Edmonton in what's to be the largest event yet (pg. 7).

With your support, we are addressing complex brain and mental health challenges and catalyzing solutions towards clinical impact, providing rare opportunities to young innovators to develop hands-on skills and become health ecosystem leaders, and inspiring the general community to join us as we build the neurotechnologies of tomorrow.

We hope you'll join us.



Faizan Malik
Co-Executive Director



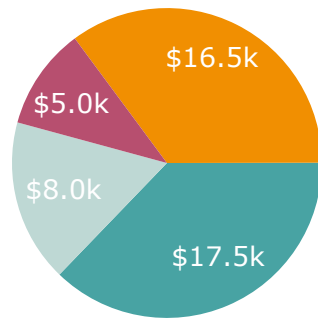
Kathryn Simone
Co-Executive Director

OVERVIEW + OUTCOMES

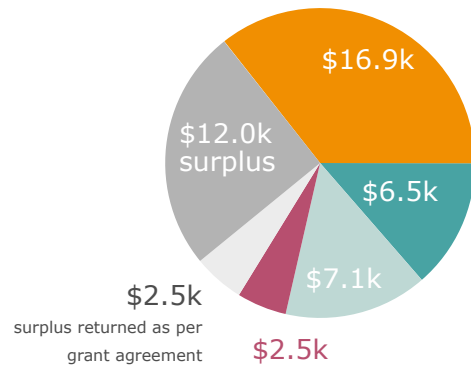
IN SUPPORT

- Events
- Awards
- Marketing
- Prototyping Materials

BUDGET

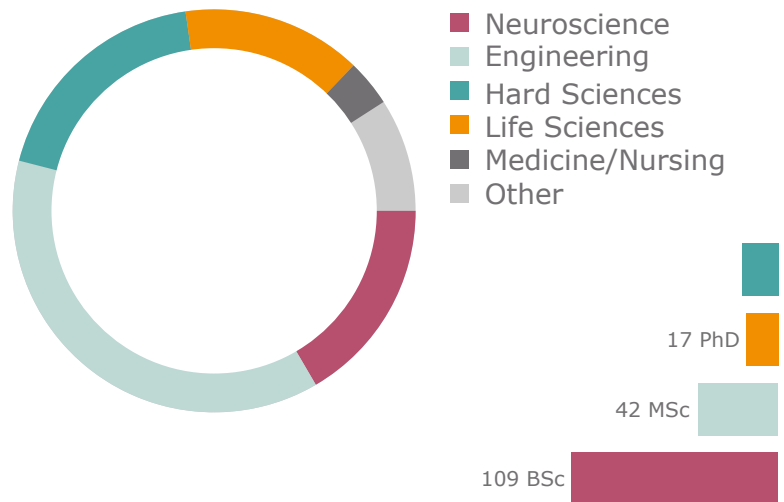
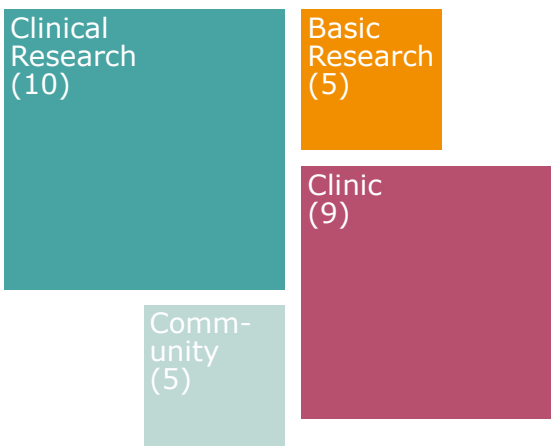


ACTUAL



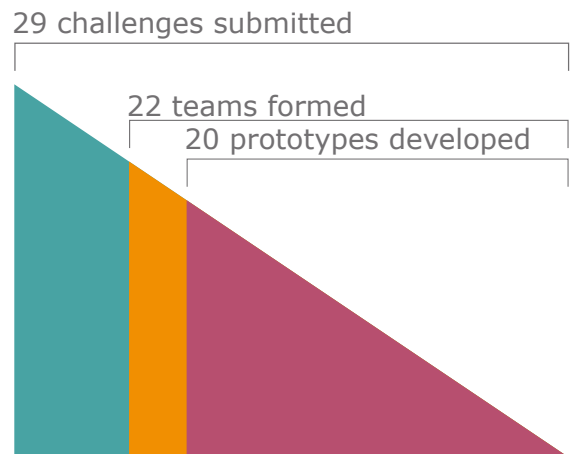
29 CHALLENGES RECEIVED

187 INNOVATOR APPLICATIONS

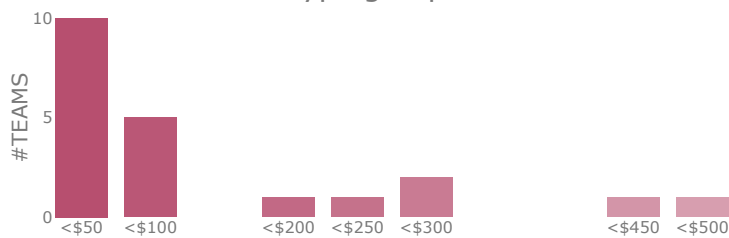


20 PROTOTYPES DEVELOPED

9 hardware 11 software



Team Prototyping Expenditures

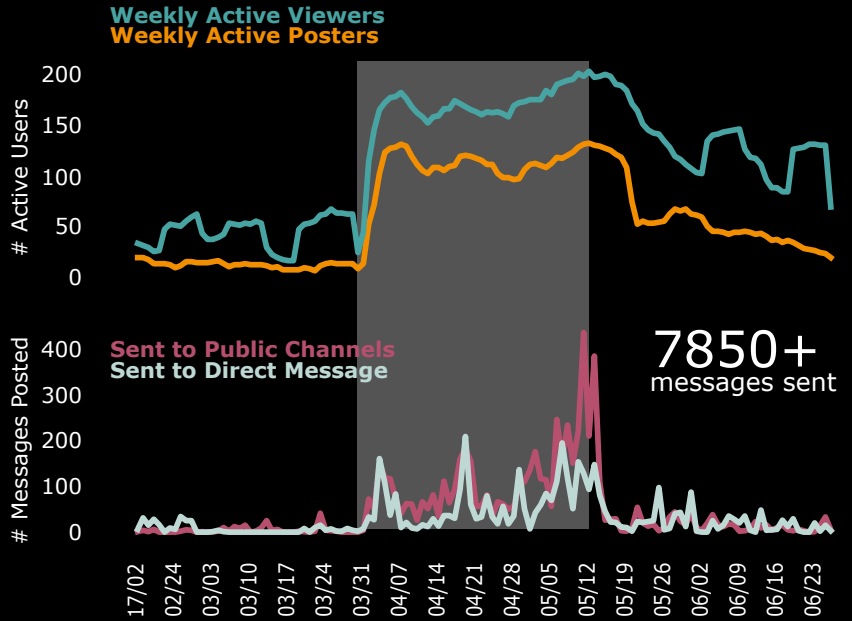


ENGAGEMENT + EXPOSURE

151 TOTAL PROGRAM PARTICIPANTS



■ Challenge Champions
■ Innovators



3173 site visits (2918 unique visitors) *
6946 page views *

* For the period March 1 - May 30

179 followers
90 prototyping story views *

162 followers
49.3k impressions *



Event Attendance

Icebreaker: **70**
Pitch Day: **167**
Health Hack Weekend: **110**
Demo Day: **345**

Coverage

660 News (City News)
CBC Homestretch
thegrowthop.com
Calgary Herald
cbc.ca

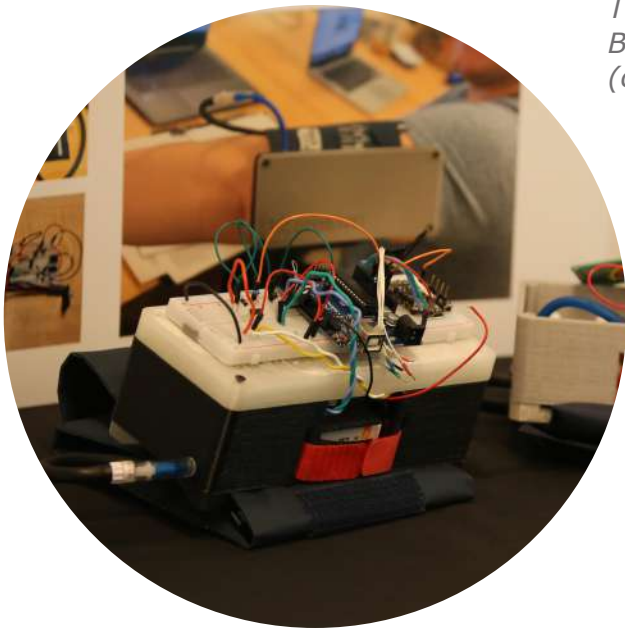


WINNING PROJECTS

Best Overall

RIC TECHNOLOGIES

Provides paramedics with a multi-limbed wireless device to mitigate the adverse effects of strokes.



Team (from left): Ryan Rosentreter, Noam Anglo, Brittney Herrington, Dr. Aravind Ganesh (challenge champion), Maliyat Noor, Kyle Guild.

The challenge: As a stroke neurologist, Dr. Aravind Ganesh was familiar with remote ischemic conditioning (RIC), a means to protect the brain after a stroke has begun. It involves inflating a blood pressure cuff on one or both arms and has been designed for an outpatient environment. Dr. Ganesh challenged innovators to develop a prototype for 4-limb RIC treatment that could be used in ambulances.

The team: The challenge attracted innovators from neuroscience, mechanical and electrical engineering, and business backgrounds.

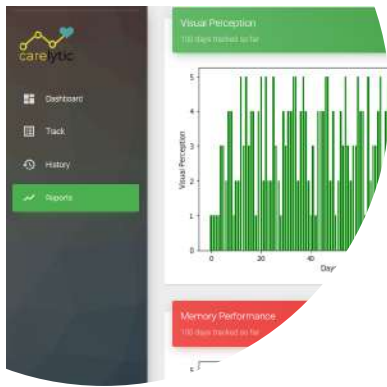
The prototype: Using microcontrollers, pressure sensors, solenoids, and silicone tubing, a prototype was developed for less than \$300.

The plan: After development of a second prototype, the device will be trialed in ambulances. Once validated, the team will expand provincially and ultimately target the 15M+ patients experience stroke each year worldwide.

What's Next?

Since Neuro Nexus, RIC Technologies has been using the award funding (\$7500) to develop a refined prototype of their solution. They've applied for funding from Campus Alberta Neuroscience Entrepreneurial Grants, and participated in W21C Innovation Academy at the end of October 2019. They are currently in the process of patent filing.





Best in Category: Data Analytics

Allows caregivers a way to simply track changes in behavior, medication, diet and aids in finding potentially clinically useful patterns with those who have dementia.

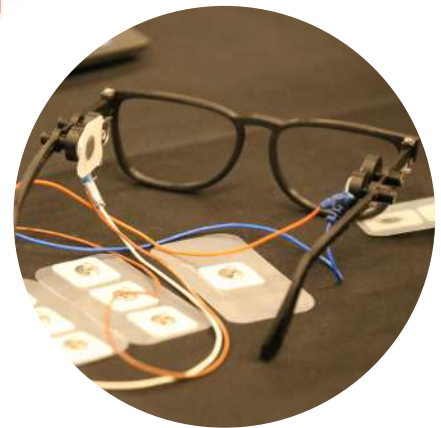
*Challenge from: Lisa Poole (Editor, Dementia Connections)
Team: Roxanne Howard, Gabrielle Gonzaga, Jenn Trinh, Pujarati Roy, Prince Okoli, Angela Li, Sam Joshva*

Best in Category: Research Impact



Sensor driven data gathering of tics in people with tourettes to accurately gauge effectiveness of treatment.

*Challenge from: Dr. Tamara Pringsheim, Nicolas Cothros
Team: Ewan May, Eric Fung, Alex Medina, Branko Bajic, Elaheh Nosrat, Jaden Spong*



Best in Category: Clinical Impact

A revolutionary stroke diagnostic tool that significantly reduces the time to diagnose a stroke and unburdens clinicians from using clumsy software currently available on the market.

*Challenge from: Dr. Christopher D'Esterre, Connor McDougal
Team: Kowther Hassan, Atika Syeda, Nigel Cox, Surbhi Sachan, Ali Hassam, Josie Khampeng*

Peoples' Choice



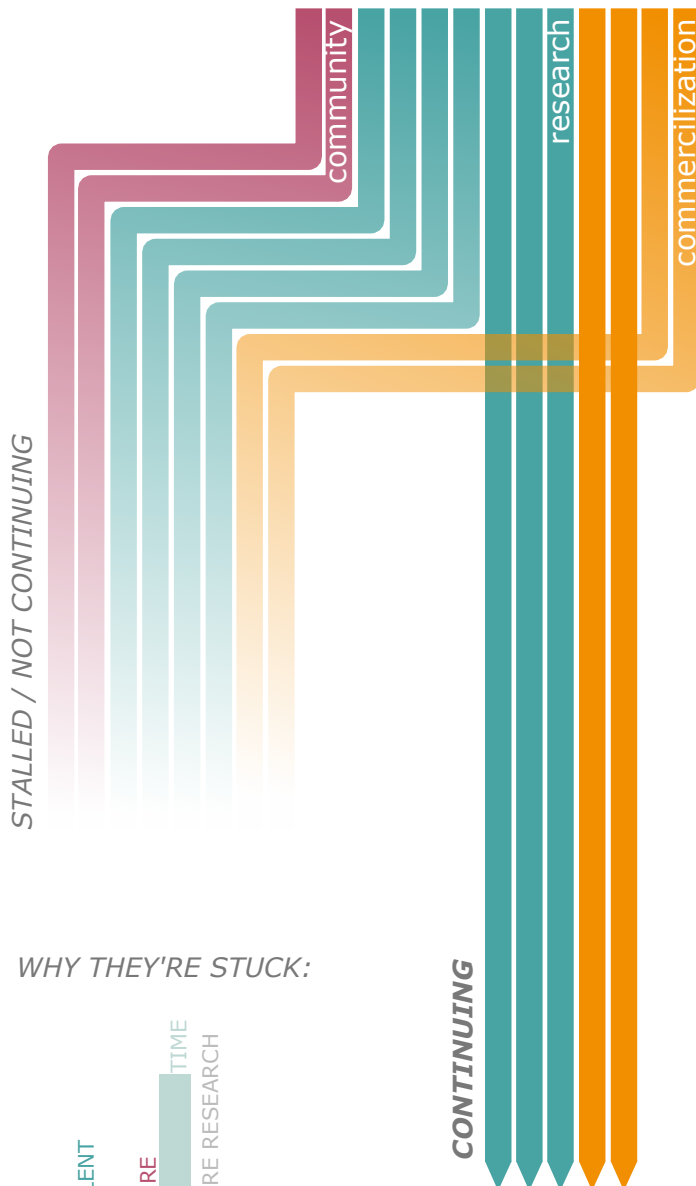
A system that aims to give children with severe motor impairment the opportunity to bypass their disability to play video games using only their thoughts.

*Challenge from: Dr. Ephrem Zewdie
Team: Dechen Wang, Gergely Juhasz, Gwen va der Wijk, Joan Stilling, Karson Fitsimons, Zeanna Jadavji*



PROJECT CONTINUITY

13 teams (65%) responded to a survey about their status 6 months after the end of the competition.



WHY THEY'RE STUCK:



WHAT THEY NEED:



Robustly continuing teams

RiC TECHNOLOGIES

→ intend to file a patent application and participate in NN 2020



→ intend to promote the now completed website
 → Dr. Brittany Finlay **hired** two NN participants for to complete the web application (which is now live)

sequence2script

→ Dr. Chad Bousman **hired** two NN participants for the development team
 → **secured** \$50k grant from Alberta Innovates



→ Dr. Chris D'Esterre **hired** two NN participants for the development team
 → **secured** \$20k grant from Campus Alberta Neuroscience



Post-competition funding raised: **\$ 83.0k**



LEARNINGS



Timing. The 2019 program ran from late March to mid-May which interfered with final exams. This compromised the quality of final prototypes, and resulted in some projects being abandoned altogether. In the future, the program dates will be set to accommodate the schedules of undergraduates, and if possible, avoid the academic semester altogether.



Pitch Quality. The quality of pitches from teams varied widely. Being able to explain a problem, solution, and its value is extremely important for the long-term success of the innovation, as a pitch is critical to engaging stakeholders. Continuing with the practice pioneered by the 2019 HHC organizing team, pitch training will be expanded to include both scheduled coaching sessions, as well as on-site mentors.



Talent Requirements. With over 50% of projects dealing with software, the demand for appropriate talent was high. We are in the process of remaking our brand to appeal to the developers, and will better engage industry to provide attractive mentorship opportunities. To bolster representation from neuroscience, we will allow for graduate students to submit a project with their supervisor, that is related to the lab work. In this way, the student's participation in Neuro Nexus is aligned with their research goals.

2020 OUTLOOK



Alberta-wide.

NN 2020 will bring together Edmonton's prowess in machine intelligence and neuroprosthetics, Calgary's medical imaging scene and basic science excellence, with Lethbridge's edge in memory and automated behavior analysis to foster incredible conversations & collaborations



New year, new workshops.

Specialized workshops on fundamentals and advanced topics taught by experts in their technical field, as well as new training modules to support team continuity and commercialization.

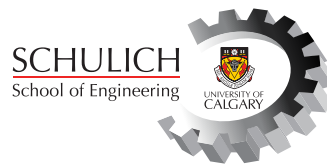


Industry appeal.

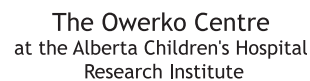
Unequivocally, participants want mentorship and networking opportunities with neurotechnology firms. Local, multinational firms, small and large alike will be invited to participate with flexible engagement possibilities designed just for them.

Thank you to our sponsors!

PRESENTING



GOLD



SILVER



COMMUNITY

