

NeurAlbertaTech & ISAIC: A Conversation About natHacks 2022  
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nathACKS is an event inspiring participants to develop practical neurotech skills and compete with other hackers over the span of two weeks during a 64-hour hackathon weekend.



*ISAIC: Welcome Eden. To start, maybe you can tell us a bit about yourself?*

**Eden Redman:** I'm Eden Redman, I am the Executive Director of [NeurAlbertaTech](#) (NAT for short), the nonprofit we're talking about today. The [natHACKS](#) event we're putting on in the next few days is a brain-computer interface hackathon.

I got started in that realm through the computational neuroscience side of things. With that, I had started with a BSc in psychology at the [University of Alberta](#) and graduated in 2018. I worked all throughout physiology, psychology, psychiatry and computational neuroscience research labs. The past few years have been marked by wanting to translate research findings outside of the laboratory, to that end I started a Bachelor of Arts in Fine Arts and Design.

*ISAIC: That's very impressive and we're grateful to have you in the community. So, natHACKS is going to be this weekend from July 29-31 2022, correct?*

**Eden Redman:** Yeah, it actually wraps up on August 1st with a [Closing Ceremony](#), so it extends into the Monday.

*ISAIC: Can you share the history behind natHACKS?*

**Eden Redman:** It's very much intertwined with the history of the non-profit. We started as a student group back in early 2019, essentially just as a project competition team, and from there we bootstrapped these neurotech workshops that aim to give people applied knowledge, typically focused on programming; how to interface with the hardware, cursory analysis, GUI building. We also hosted some more open-ended hack nights where people could come and throw stuff at the wall.

From those casual events, we had full-fledged programs form; workshops that are weekly throughout the semesters, a monthly speaker series, facilitating student project teams. natHACKS is the culmination of all those things rolled into a long weekend.

I also personally went to a bunch of in-person hackathons pre-Covid, so I saw the value in them as a participant. I saw it as a good opportunity to do some community-building around the neurotech.

*ISAIC: That's amazing, how you grew like this. Can you explain if you gathered volunteers, sponsors, in supporting the event and if it was part of the timeline you had made in organizing the event?*

**Eden Redman:** We have been going since the start of the year on planning the hackathon, several months now. It's been organic in that a lot of the sponsorship has come from casually with the heads of other organizations I've met at other local events in the start-up scene. For volunteers, I think we have three dozen for the weekend, mainly so many because it is an around the clock event. People can stay in space the entire 64-hours if they choose!

*ISAIC: Flipping the perspective to the students, why should they join natHACKS?*

**Eden Redman:** It's got pretty much everything the average hackathon has and then on top of that an eye towards the future development of projects. So we have partners such as [ISAIC](#) and a handful of others who are focused on supporting the winning teams and continuing with their projects over the 9-12 months after natHACKS.

*ISAIC: How many participants are we talking about here?*

**Eden Redman:** This year, we have 3 in-person sites. We have a dozen students at the [University of Lethbridge](#), four dozen signed up at the [University of Calgary](#), and around 200 at the [University of Alberta](#).

*ISAIC: Wow, that's impressive. That's not only university students, they can also be in highschool correct?*

**Eden Redman:** Yeah, we tend to only take ones that are on the cusp of graduating high school or some who are underage and coming into their first year of university. For the most part, it is those respective universities, but we have managed to get some people from [MacEwan](#) and [NAIT](#).

*ISAIC: For the students themselves, do they already have projects or what problem are they solving through the hackathon?*

**Eden Redman:** This year, we're piloting something called *Problem Providers*. Those are clinicians and academics who have real-world problems and they're fleshing out all the different aspects of those problems and are available to teams throughout the weekend as subject matter experts. We have 7 of those this year, so our team sizes are 2-5.

For the remaining participants, we have this internal list of *Starter Problems*, which is something we internally generated. We have 3 different tracks: rehabilitation, recreation, and research. Within each of those scopes, we provide 8 or 9 different problems they can start from, but if they have their own research or ideas, beyond a recommended feasibility check at the start of the hackathon, they are encouraged to work on what they're passionate about.

*ISAIC: If I may ask, what AI and ML technologies will the participants be using?*

**Eden Redman:** There's a lot of different forms/transforms of data. What I've used in my own research involves classifying different brain states, for which you can use a variety of different ML architectures for that.

Anything as far-flung as combining someone's brain data sentiment analysis with someone's social media feed could really rope in any aspect of AI/ML.

*ISAIC: ISAIC is also very proud to be one of your sponsors and to see this innovation from the students using AI/ML technologies.*

*ISAIC: My final question would be if you have any tips for the participants who might be watching this?*

**Eden Redman:** The last workshop in the *Education Sprint*, (a series of two weeks of workshops preceding the natHACKS hackathon weekend, which is essentially an hour of just pure tips for participants. Besides just hacking and the wealth of learning that can come from that, I encourage participants to view the event as professional development, there are a lot of different networking opportunities embedded throughout. Most notably, we have our sponsor [booth event](#) to directly interact with many of our sponsors.

*ISAIC: And the booths are on Saturday?*

**Eden Redman:** Yes, Saturday from 2-5pm, in-person at our Edmonton location (Student Union Building).

Otherwise, just utilize all the resources we have. We're making BCI and peripheral hardware available. Get hands-on experience of interfacing with equipment and other tech, and we have a variety of workshops if people aren't able to attend synchronously, we have all those recorded and posted on our participant portal, called *natPortal*, which is exclusive to registered participants. We also have a variety of boilerplates for participants to start their projects on so they are not starting from scratch.

*ISAIC: Thank you for the tips! We are really looking forward to the event and encourage everyone to try to come for the booths, opening and closing ceremonies, and the workshops.*

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The platinum sponsors of natHacks are [Alberta Innovates](#) and the [National Research Council of Canada](#).