Researchers creating AI-powered chatbot to help families living with neurodevelopmental disabilities

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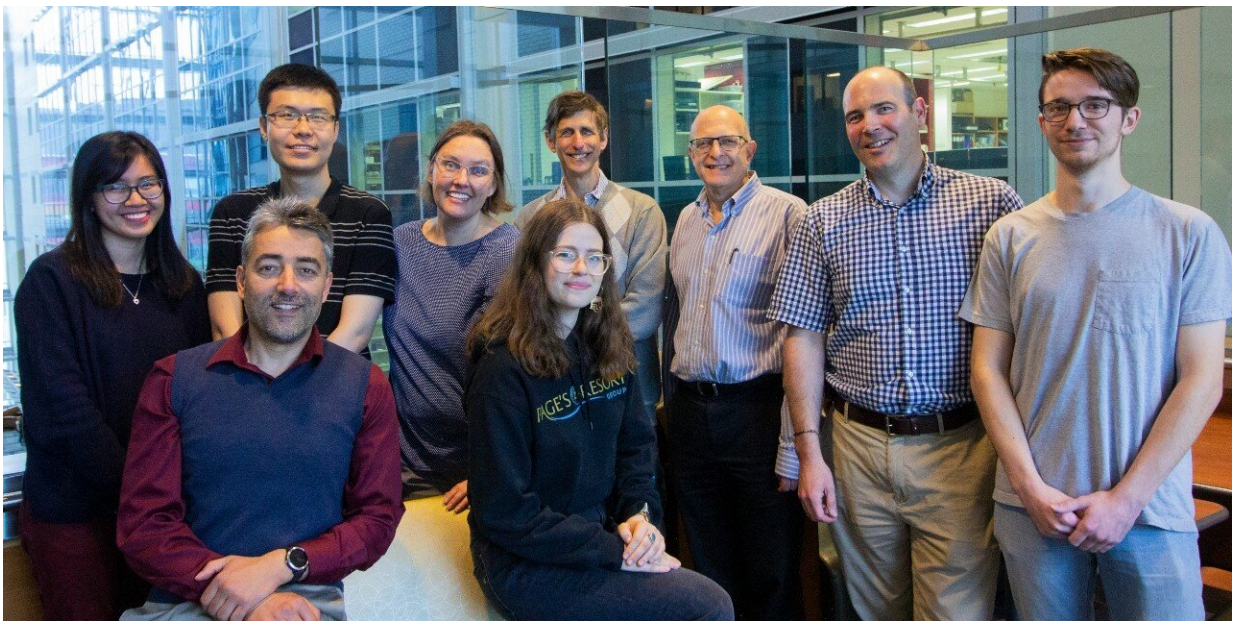

François Bolduc (second right) and his team are developing an AI-powered chatbot that will connect families living with neurodevelopmental disabilities to needed online information and resources. Credit: Jordan Carson

A research team at the University of Alberta is using artificial intelligence to build a chatbot—a computer program that can simulate a human conversation through text or voice—to help families living with neurodevelopmental disabilities find the best information and resources

available online.

"There is a real need for families that are struggling with kids with disability and have few resources they can access until they see a specialist, which can take anywhere from six months to a year after the initial referral," said François Bolduc, a pediatric neurologist at the U of A who is leading the project.

Neurodevelopmental disabilities affect about 13 percent of Canadians. Most with NDD will live with their conditions—such as impaired motor function, learning, language or non-verbal communication—throughout their lives. According to Bolduc, finding quality information about NDD online can be difficult, and what is available is often commercially biased or hard to access.

Artificial intelligence tools can now help with that. With AI specialists from the Alberta Machine Intelligence Institute, social scientists and AI education experts from across Canada, the researchers have assembled a team able to tackle this complex issue.

The vision is to create a chatbot program that is easily accessible for families, educators and clinicians, and that directly integrates into a major site such as Facebook or Google search.

The program would direct users to curated resources and fact-based information from credible sources on the internet. The chatbot would go far further than being a simple search engine, said Bolduc.

"It wouldn't just point users to the top-ranking hit on Google. It's being designed as more of an expert system. It would actually mimic the discussion you would have with health, education or social science experts."

Bolduc's team is supported by a $1.5-million grant over three years from the Canadian Institutes of Health Research and Natural Sciences and Engineering Research Council of Canada for the project. Their work is also supported by a Kids Brain Health Network team development grant.

The team is working with researchers at the University of Calgary, McGill University and York University to identify resources in their regions that the chatbot could direct users to. They are also mining the internet for valid sources of information that are medically and academically relevant. The aim is to automate the program so it could constantly sift through the available information and identify the best websites and resources.

"There's a lot of biased and inaccurate information online that we don't want to be recommending to our users," said Bolduc. "Plus things change over time. Websites disappear, websites get modified, organizations change their focus or their bias. So we need to be constantly updating that database."

The team hopes the project will provide resources to families in need at the outset of NDD and before problems snowball into more difficult-to-reverse symptoms later in life. The chatbot could also allow health providers to progress their efforts more quickly and help a greater number of patients.

"We repeat the same information over and over in the clinic," said Bolduc. "But those simple tasks can now be automated and done online or at home. That way the next appointment with the specialist can be at a more advanced level. A chatbot is perfectly suited for that. It's there 24-7, you can access it when you have time, you can quit it and come back to it."

Bolduc sees the chatbot being especially valuable for rural families who

have limited access to specialists. The AI program could allow them to keep up to date on new research discoveries and validated therapies between appointments.

Using artificial intelligence would also allow the chatbot to take advantage of comments from users to make personalized recommendations based on what others facing similar situations thought was useful to them.

The team is working on an early prototype of the chatbot and hope to refine and improve it over the next few years before making it available to the public.

And though the end product is not yet in sight, Bolduc is clear on what it needs to become: "We need to make it very common so that most people know about it. We want the chatbot to be the starting point for NDD," said Bolduc.

"This is not an Alberta problem, but together we are making an Alberta solution."

Provided by University of Alberta

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