

How an Alberta entrepreneur built software to employ people with autism around the world

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Alberta and federal government innovation programs have been crucial in developing software that helps young adults with autism and other neurodiverse individuals find long-term employment, says the entrepreneur who created the technology.

Ling Huang, CEO of Technology North, an Edmonton-based information technology company, credits assistance from Alberta Innovates, as well as from the National Research Council's Industrial Research Assistance Program, in commercializing and marketing his company's software platforms.

Huang, a systems engineer and a certified internet security expert, said Technology North has received about \$1 million in government funding over the last 10 years. In addition to the money, the combined advantage of having the Alberta and federal governments support his endeavours led to crucial contacts in international markets.

"If you go overseas by yourself, it's one thing. But if you go with government people on a trade mission, you make a completely different impact," Huang said in an interview with Research Money.

For Huang, it's personal

Huang's youngest son, Brian, was diagnosed with Autism Spectrum Disorder (ASD) when he was four years old in 2004.

The doctor told Huang and his wife, Lian Sun, they should be prepared to have their son live in an institution for the rest of his life. Refusing to accept that prognosis, they learned everything they could about ASD. They read books on autism and used intensive behavioral modification therapy with Brian.

Huang described how Brian had a meltdown one day in Costco because the family went into the store through the exit rather than the entrance. "It was the end of the world," Huang said. For nearly two weeks, Huang's wife took Brian in and out of the entrance several times a day.

Autism learning seems hopeless, but you have to be patient because learning stops when there's intimidation, Huang said. "Sometimes you have to do things 10 times or 50 times or 100 times," he said.

The first product that Huang and his wife designed and developed was TN Active Care, a system to improve care of children with autism through better data collection, sharing and analysis. His company, Technology North (TN), received a total of \$193,000 from IRAP in 2011 to develop the software.

Robocoach was designed to address challenges of adults with autism

Huang said his greatest concern was how his child would survive when he was gone. Between 85 to 90 percent of autistic individuals who graduate from high school or college are either unemployed or underemployed, according to Alberta Innovates.

The "cliff of 20" is an age that's particularly difficult for young adults with ASD because "there is a big drop in terms of [school] support and a big rise in expectations" from potential employers, said Anne Kresta, chair of Neurowrx, a global alliance of corporations, non-profit organizations and individuals

working to foster and inspire employment for people with ASD in science, technology, engineering and math industries.

Most job interviews essentially are social experiments, she said. “If you don’t do well in that social experiment then you’re not going to get that job. It’s not fundamentally whether you can do the job, but it’s fundamentally [about] ‘Can you win me over and make me feel like your friend?’ on the part of the interviewer.”

Huang and his wife, using a trial-and-error procedure built on their foundation of reading and personal experience with repetitive and obsessive behaviors, and helped by grants from Alberta Innovates, developed a new software platform called RoboCoach.

Many junior and intermediary positions in the digital economy remain unfilled because they’re highly repetitive and require almost obsessive attention to detail. RoboCoach, which provides web- and mobile-mediated support, can be adapted to various companies’ requirements, Huang said. It provides a step-by-step, highly visual system to help a human coach supervise teams of up to 10 individuals with ASD or other special needs.

RoboCoach’s assistive technology is now being used by Autism CanTech, a three-year, Canada-wide program aimed at empowering autistic youth to gain long-term, meaningful roles in the digital workforce and helping employers create inclusive workplaces. The pilot project, funded by Economic and Social Development Canada’s Youth Employment Skills Strategy, will take place at sites in Alberta, British Columbia and Ontario.

Technology North is now used by Alberta Innovates itself

Dwayne Brunner, manager of media relations at Alberta Innovates, said the provincial research and innovation agency has a long history with Technology North. Huang “has been quite successful in our entrepreneurial investment programs,” including micro-vouchers, he said.

Micro-vouchers are small amounts of funding up to \$10,000, to help an innovator with a great idea build a business plan, shape it and bring it to life. As a company progresses, it can apply for more advanced and larger grants from \$10,000 to \$300,000 — as Technology North did, Brunner said.

TN also has participated in Alberta Innovates’ Global Partnership program, partnering with technology companies in Jalisco, Mexico and Zhejiang, China.

Huang noted that one of the problems in getting technology commercialized in Canada is lack of government procurement for made-in-Canada innovation. He successfully landed an agreement with Alberta Innovates, which now uses TN Digital Services, TN’s employment arm for youth with autism, to digitize its paper records.

Alberta Innovates sends boxes full of paper applications and other records to TN Digital Services, “and those young adults take them apart and they scan them all” efficiently and quickly, Brunner said. “They send us back the digital file and then we can get rid of the paper.”

Huang’s son, Brian, now works for TN Digital Services. “If you saw Brian today, you wouldn’t know he was autistic,” Huang said. “Life is about getting over hurdles.”

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