

Samantha Johnson, BS and MS'21, Bioengineering

FOUNDER, TATUM ROBOTICS

Tatum Robotics is a robotics company developing the first independent assistive communication tool for DeafBlind people by focusing on tactile American Sign Language (ASL). The tool translates English text media into tactile signs via an anthropomorphic 3D printed robotic hand and arm system to enable DeafBlind individuals to communicate independently rather than being reliant on holding the hands of communication partners.

NORTHEASTERN'S ENTREPRENEURIAL ECOSYSTEM

Through the Michael J. and Ann Sherman Center for Engineering Entrepreneurship Education, Northeastern University Center for Entrepreneurship Education (NUCEE), and the mosaic of entrepreneurial resources across the university, Samantha Johnson, BS'21 and MS'21, bioengineering, developed, launched, and is scaling her startup, Tatum Robotics. The Sherman Center offers experiential learning opportunities to all Northeastern innovators at any stage in their venture or product development. With support, mentoring, and networking resources, as well as academics, student groups, and co-ops, it furthers the development of both the individual and their ideas.

"As an engineering student starting a business, one of my first steps was looking towards Northeastern's resources to ensure that my technology could be successful commercially."
- Samantha Johnson

VENTURE GROWTH AND SUCCESS

- Used Northeastern entrepreneurship resources as an alumna
- Three full-time employees and several Northeastern co-ops
- Awarded \$250,000 National Science Foundation Small Business Innovation Research grant
- MS thesis prototype is now a beta model and can fingerspell with a 90-98% recognition rate
- Conducting pilot studies of DeafBlind people using the device in their homes as part of their daily lives
- Developing a robotic arm to do full ASL, expanding from just fingerspelling
- Established collaborations with the Helen Keller National Center, Perkins School for the Blind, and Boston's Deaf-Blind Contact Center



I've been amazed by the resources Northeastern has to help build out a business. As an alum, they're very accessible, and I often still take part in events and mentoring sessions."

Samantha Johnson, BS'21, MS'21

Northeastern University Entrepreneurship



Tatum Robotics

ENTREPRENEURSHIP JOURNEY

Spring 2019

- Took ASL 101 class which taught her American Sign Language (ASL) and gave her direct interaction with the Deaf community. She also met another student in the class that ultimately became her first company hire in Spring 2022.

Fall 2019

- Collaborated with the Deaf-Blind Contact Center in Boston during COVID to develop a communication tool as services for the DeafBlind community largely stopped due to social distancing. Began developing prototypes of a signing robotic hand for her master's thesis.

Spring 2020

- Worked at Perkins School for the Blind for her third co-op developing the robotic hand for her master's thesis. Her first two vastly different co-ops helped her confirm her career ambitions.

Fall 2020

- Used the Northeastern University **Institute for Experiential Robotics (IER)** as a resource for her master's thesis. The IER is dedicated to integrating human experience into the design and development of autonomous and robotic systems to ensure seamless collaboration.

Summer 2021

- **Northeastern Global News** highlighted the robotic hand in a news article. The Canadian National Institute for the Blind (CNIB) saw the article and provided a small grant to continue development work.

Spring 2022

- Founded Tatum Robotics, using CNIB funding to hire first employee, a Northeastern alumna, with a linguistic skillset.
- Structured the development of the company's business plan and market research using **IDEA**, Northeastern's student-led venture accelerator that fosters the development of entrepreneurs in the Northeastern community through the educational experience of developing a business from concept to launch.
- Received **Origin's** Alpha Fund of \$5,000, Northeastern's advanced prototype fund designed to support the development of early-stage products, systems, and services.
- Hired first Northeastern co-op.
- With the support of Northeastern's **IER**, began working with MassRobotics, a collaborative space where startups in the robotics field network and share valuable tools and knowledge.
- Featured in Northeastern's Narrative video podcast.

Summer 2022

- Received the **IDEA** Gap Fund of \$10,000 to make early robotic hand models and proof of concepts, which helped validate the business plan.
- Engaged the **Venture Mentoring Network**, which pairs Northeastern entrepreneurs with high-quality, experienced mentors that can help address business challenges and make ventures more successful. Mentors helped her with engineering, management, and business strategies.
- Won first place and \$22,000 at Northeastern's **Women Who Empower** Innovator Awards for passionate innovators working for the betterment of the community.
- Sponsored a Northeastern capstone project to help promote additional assistive technology for the DeafBlind community with a project focused on developing a haptic wearable to support independence in rowing.

Fall 2022

- Joined the **Women's Interdisciplinary Society of Entrepreneurship (WISE)** and became a Tier 2 Mentor, which pairs students with professionals. WISE is a Northeastern student-led group dedicated to helping women and non-binary students develop an innovative mindset through interactive workshops, a thought-incubator, mentorship pairings, and a venture catalyst.
- Collaborated with **Scout**, Northeastern's student-led design studio, for website design and branding.
- Participated in the Northeastern cohort of the **National Science Foundation Innovation Corps**, focusing on market research with a mentor provided by the program. The NSF I-Corps program is an immersive, entrepreneurial training program that facilitates the transformation of invention to impact.
- Received second **IDEA** Gap Fund award of \$10,000.
- Exhibited the company product at the Experience Powered by Northeastern: Entrepreneurship Showcase to students, faculty, and donors in the Northeastern ecosystem.

Spring 2023

- Became a **Generate** client. Offered through the Sherman Center, Generate is a student-led product development studio, which developed a proof-of-concept for a doorbell for a DeafBlind person, which will let DeafBlind users know who is at their door using customized haptic signals.
- Received second round of **Origin's** Alpha Fund of \$5,000.

Institute for Experiential Robotics at Northeastern University



WOMEN *who* EMPOWER

