DASSAULT SYSTEMES

SOLIDWORKS

CHANGING THE GAME IN WEARABLE TECH

THALMIC LABS ENTREPRENEUR'S SPOTLIGHT

Matthew Bailey has always been curious about how and why things work. This ambition led him to cofound a company immediately upon graduating from the University of Waterloo (Canada) with a degree in a brand-new field called mechatronics, a discipline that combines mechanical, electrical, and software engineering. Matthew is considered a leader in creating functional, beautiful, and simple wearable technology.

Matthew teamed up with Stephen Lake and Aaron Grant, both fellow classmates, to create Thalmic Labs, a successful hardware startup. The company melded Stephen's knowledge of electrical engineering and business with Matthew's knowledge of mechanical engineering and Aaron's software engineering skills. This combination of skills and experience enabled them to execute the complexities of designing and producing a wearable gesture-control technology that enables people to interact with computers using natural hand and finger movements. Their product, the Myo™ Gesture Control Armband, is one of the first wearable technologies to deliver elegant, functional interaction with computers.

THALMICLABS™

FROM ROCKY ROAD TO STREETS OF GOLD

Every entrepreneur has a story about the inspiration for their venture. Thalmic Labs' origins and the Myo product concept were rooted in a design project that Matthew and Stephen worked on during their last year at the university. Their project was to create a wearable device for the blind so they could better navigate their environment. The desire to extend the concept of using technology to interpret human movement and control a computer interface was the driving force behind creating Thalmic and the Myo armband. Shortly after the company was formed, Chris Goodine joined as Developer Evangelist. His passion for wearable technology and the natural movement concepts really excited him.

The first several months of Thalmic's existence were rough as the founders repeatedly pitched the product to small incubators and were rejected. Fortunately, with the trio's grit and determination, they were successful in earning seed money through participation in the Creative Destruction Lab, based in Toronto, Ontario. Matthew adds, "After that we got into Y Combinator and we did a preorder (or a prelaunch) for the product, to gain interest. It went viral! After graduating from Y Combinator and leveraging the market demand from the preorder, we raised our Series A funding, which was USD $14.5 million. That has brought us to where we are today."

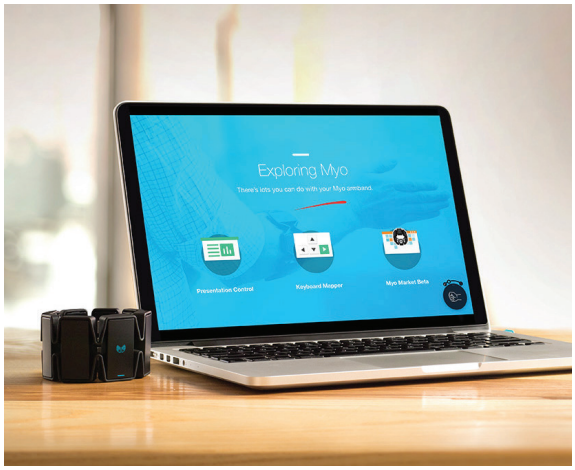
> **"Thalmic moves really quickly and we need to maintain that with a software design platform that's quick to pick up, especially for our co-op students. SOLIDWORKS fits that bill."**
>
> **— Chris Goodine, Developer Evangelist**

NEVER COUNT YOURSELF OUT

Part of the experience of working in the Creative Destruction Lab was the final pitch day, when Matthew and his team competed for investor money. The night before that final day, nothing was working. They had no prototype of the Myo. Matthew noted, "We didn't have anything to show these people. We were really worried about what they would say about us and that they might kick us out of the competition."

With some good fortune and imaginative thought, Matthew came up with a way to build a pod-like structure that could be held together with elastics. "I CAD'ed something in SOLIDWORKS® that night," Matthew recalled. "We printed it that night and, in the morning, I put it all together. It worked to a tee." After Aaron coded some basic software, they were able to use hand gestures to demonstrate the Myo rotating a cube on a computer screen. The audience of investors was so impressed they offered to provide funding immediately following the meeting. Matthew credits their success in that meeting to hard resolve and finding ways to "make it work."

SHARING EXPERIENCE



In his time at Thalmic, Matthew has gained solid experience and knowledge about perseverance through the trials and tribulations of managing a hardware startup from its early stages to releasing a product for consumer use. When asked about advice for budding entrepreneurs, he says, "Number one is to be frugal. It's a mentality you need to have in order to have any longevity, because if you start to spend money on things that aren't going to move your company forward, then you will run out of money, and having no cash is painful. Another thing is to be confident in your capabilities as an engineer. If you encounter problems, whether they are technical, personal, or business-related, you need to have the confidence that you can figure out a solution. Otherwise you will end up with a poor solution. The third thing is that you have to iterate quickly. You have to prototype it, test it, and validate it. You have to get people to use it and iterate some more. That cycle has to be as quick as possible to get your product to the point at which you can release it and eventually create something awesome that people will want." Chris Goodine explains why SOLIDWORKS plays such a crucial role in their iterative design cycles: "Thalmic moves really quickly and we need to maintain that with a software design platform that's quick to pick up, especially for our co-op students. SOLIDWORKS fits that bill."

WEARABLE REMOTE CONTROL

Wearable technology has traditionally been obtrusive; either requiring unnatural movements for interaction, or being tethered to a pocket device. Chris Goodine describes the evolution of the Myo armband. "It's becoming more of a wearable remote control. That seems to be the resounding answer that makes sense to everyone, including my grandma. Basically, it's a way for you to interact with digital technology, using actions that are natural to you." Chris goes on to add, "A common use case that we are starting to see is music control while jogging. It may not be a big problem but it's certainly an inconvenience for you to take out your phone and change the track or to stop your jog just to change it. Now you can do that simply with a gesture!"

Thalmic sees a bright future ahead as the opportunities for wearable technology continue to grow. The company's developer community is steadily delivering innovative applications for Myo. Future applications potentially include medical (substitution for EMG diagnostics), military, and virtual surgery. With the sharp minds of Matthew, Chris, and the rest of the Thalmic team, it's a safe bet some very exciting and innovative updates are yet to come.

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