

STARTUP PROTOCOL

by Scott Butterworth

> **Entrepreneur Erik Schluntz '11 is transforming the face of security...one robot at a time.**

photos: Yana Mostitsky

Achieving success with a startup is anything but assured. An entrepreneur must have a great idea, along with plenty of capital and stamina. Timing is also key, so that the idea can be developed and brought to market just when customers have begun to recognize a need for the product or service.

Fitting these pieces together quickly and neatly is no simple trick. If only one element doesn't materialize as planned, the fledgling business will almost certainly sputter, stall, and die. Every day becomes a race against time to finish the project and find an eager customer base.

Even for the most experienced executives, taking a startup from brainstorm to vibrant business is no easy feat. But Erik Schluntz '11 has done it twice, and both well before his 30th birthday.

Near the end of his freshman year of college, Erik and a classmate teamed up to co-found a business, Posmetrics, that immediately interested investors and would ultimately be acquired by a larger firm. His latest company, Cobalt Robotics, does business around the world after just six years of operations, with clients on five continents using its physical-security robots. Valued by its investors at more than \$300 million, Cobalt's success is generating considerable buzz.

Along the way, Erik has formed connections with some of the biggest names in Silicon Valley. He interned at Elon Musk's SpaceX, Cobalt's lead investors include Sequoia Capital and Coatue, and *Forbes Magazine* included him on its highly prized 30 Under 30 list in 2018.

Erik credits Potomac with helping him catch the entrepreneurial fever. The inspiration came in large part from an alumnus, Drew Durbin '04, who

returned to speak at the Upper School while Erik was there.

Erik reflects, "At the beginning of high school, I was most interested in mechanical engineering and building things with my hands. I thought I might want to be an architect or a civil engineer." And when he heard Drew speak about his business building low-cost tools for African farmers, Erik thought, "I can use engineering to help people all over the world."

A couple years later, he reached out to Drew about an internship. Drew agreed, and that's how Erik got his first lessons in startup culture.

He says, "I showed up at the address of this company, and it's this apartment! What I thought was this big company was, like, four people in a kitchen." He adds, "I had a blast that summer. That experience got me really interested in branching out of just pure engineering to entrepreneurship."

> MAJORING IN STARTUPS

When Erik headed off to college, he brought his newfound interest with him.

He says, "I knew I would be around a ton of amazing people working in technology, so I came in looking for startup opportunities. It was in my mind that once you graduate, it becomes much harder to start a company because then you have to have a steady income and your commitments pile up. College is this amazing time where you have a lot of flexibility."

The other passion Erik brought from Potomac was technology. He recalls, "I went into high school knowing that I loved engineering and science, but I didn't know where I wanted to take that. My freshman year, a friend of mine said, 'Hey, we're trying to start this robotics team,' and I said, 'Oh, definitely. Sign me up.'"

Robotics, Erik explains, is "about solving a problem and pulling together all these pieces from different fields – mechanical, electrical, software. From Potomac to now, that's still what I love about robotics. In so many fields, they push you to specialize and focus, but robotics is the opposite. To stay successful, you need to stay very broad and understand the full scope of things."

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At Harvard, Erik became friends with fellow freshman Merrill Lutsky. They teamed up on the final project for their Introduction to Computer Science course, which would quickly turn into their first big thing: Posmetrics, an in-store survey service.

Erik says, “Businesses kept asking us to complete surveys, but nobody did them. We figured, ‘If everyone wants customer feedback but no one’s giving it, there must be some opportunity here.’”

Erik and Merrill recognized that a new tech device, the iPad, could help improve response rates. Although tablet computers had been around since the early 2000s, the iPad’s introduction in 2010 made them mainstream.

Also, data analysis had recently exploded into an industry that could provide even mom-and-pop businesses with the ability to mine customer perceptions for profitable insights. The trick was getting customers to share those perceptions.

Posmetrics enabled companies to ask for customer reactions at checkout, and it simplified the survey process, allowing

the customer to finish the Q&A on a spiffy new iPad in about 20 seconds.

“We were originally thinking, ‘This is good for feedback for the dining hall,’” Erik says. “Then we realized it would be useful for other businesses, too.”

Erik and Merrill signed up for a student startup competition – i3, the Harvard College Innovation Challenge – and their business plan and working prototype took home a major award. That drew the attention of angel investors, who financed a rollout of Posmetrics to a dozen locations in summer 2012.

At the end of that summer, the founders applied to Y Combinator, a highly competitive startup accelerator in Silicon Valley. Posmetrics was one of only 47 businesses accepted for the winter 2013 class, and Erik and Merrill both decided to leave Harvard for California.

“Harvard makes it incredibly easy to come back if you leave,” Erik says. “So there was not a lot of risk in leaving for a startup because, if it didn’t work, I knew I could come back. It’d be like taking a gap year.”



SILICON VALLEY CONNECTIONS

In California, the business grew to more than 70 early-testing locations. Hotels turned out to be a particularly promising industry.

The company debuted publicly in March 2013; within four months, Posmetrics had received and accepted a buyout offer from the hospitality technology company Revinat. The “exit” freed Erik to return to school and resume

his studies, albeit with a much improved network of professional contacts. Over the summers to come, he would intern with Google, then with SpaceX.

In 2015, as graduation approached, SpaceX offered Erik a full-time job. He turned it down, electing instead to team up with Travis Deyle, a roboticist he had met at Y Combinator.

Their startup would reverse the process that most new businesses follow, where the founders’ inspiration for a product or service drives everything. Erik recounts, “We had seen a lot of

people in the startup ecosystem get overly attached to an idea and end up building something that no one wanted.” So he and Travis determined to “focus instead on a real problem and then work backward to find a technology solution.”

They promised themselves that they would only commit to a project that could be brought to market in less than a year, and one that they could see themselves doing and loving for a decade.

Erik and Travis arranged dozens of meetings with business leaders to learn their pain points. Everything suddenly

clicked in one 2016 meeting with a Bay Area security executive who complained about the difficulty in hiring and retaining qualified guards.

“Initially, we thought that physical security must be about tackling a bad guy. But we learned that the security guard never actually tackles bad guys. They call the police and try to stay out of the way,” Erik says. Security is primarily about detection.

Erik and Travis recognized that the need for reliable security guards was a problem technology had the potential

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to solve, thanks to advances in artificial intelligence. It was possible for a computer to reliably notice the presence of a person just from visual images. Other sensors could provide the computer with additional, perhaps confirmatory information. And if a situation needed even more data, a person could remotely “step in” to ask questions of a building visitor or, if needed, call the police. Technology had also enabled the computer to go mobile: Autonomous devices had proven their ability to navigate corridors and avoid obstructions.

The solution for the security executive, Erik and Travis understood, was a robot.

Erik says, “Robots are good at doing things that are dull, dangerous, and monotonous. We realized that security involves all of these.”

As Erik and Travis explained all this to the security executive, he grew excited at the opportunity and immediately offered access to his professional network. After just a few follow-up meetings, Erik says, “we began to recognize the business opportunity.”

And so Cobalt Robotics was born.

Erik notes, “We focused on the core task that guards spend most of their time doing: observe and report. We felt very confident that this was possible with today’s technology and with putting a human in the loop to fill in the gaps where AI and machine learning weren’t quite there yet.”

The founders designed their robot to include cameras, ultrasound, thermal and LiDAR sensors, a video screen and microphone to communicate with employees and guests, an onboard

computer, and online connectivity. Each area presented its own challenge, as did the question of how to recharge the robot’s power supply.

A top priority was to make the Cobalt robot unthreatening. “A golden retriever,” in the words of one company executive, rather than a ferocious guard dog. Erik explains, “The job of security is to keep employees feeling safe and secure. If their security robot scares them, that’s the opposite of its job. So we had to balance providing security with being friendly and approachable.”

THE NUTS AND BOLTS OF BUILDING A ROBOT

With the blueprint in place, the time for startup speed and stamina had arrived.

The Cobalt founders hired two employees and, much as Drew Durbin had done, set up an office in Erik’s apartment. The living room was their workshop, while the dining room featured a wall of Post-it Notes detailing the scores of tasks to be done before the first robot could go to work for a client. Mealtime served as twice-daily stand-up meetings to review everyone’s progress.

“A lot of people who’ve only been at a big company have a very picturesque view of what a startup is like,” Erik says. “Then they start work and they’re totally unprepared for the grind of it. They’re thinking only about the upside.”

In their first month, the team constructed a prototype to establish proof of concept and met with a couple dozen potential investors. They successfully completed a \$3.5 million seed round of venture capital funding, led by Bloomberg Beta and Promus Ventures.

Further prototypes followed, to work out specific bugs in the design or address particular customer needs. Building each version themselves unavoidably stretched the team’s timeline. Even so, Erik and Travis stayed focused on shipping their first robots to customers as soon as possible.

“Literally for that first year, I had written on my bathroom mirror, ‘Why can’t we launch today?’ I stared at that every day while brushing my teeth,” Erik recalls.

In hindsight, it’s easy to see where the Cobalt crew could have avoided headaches by bringing in more help. Erik says, “Travis and I both had undergrad-level electrical engineering skills, so we were able to do a lot of this by ourselves. But if we had hired an electrical engineer much earlier, it could have delayed the first launch a little bit but saved us so much bandwidth that it would’ve certainly paid for itself.”

The bottom half of the Cobalt robot is essentially a self-driving car, able to maneuver 360 degrees through any office or warehouse setup and quickly establish the floor plan of its nightly “beat.” At the “head” of the robot is a touch screen that provides interactivity between a building guest and an employee at a remote location. Sensors allow the robot to learn of a liquid or chemical leak or a sudden change in temperature that might signal a fire in the building.

With the functionality in place, the final step was giving the robot the right look. For this, Cobalt did bring in outside help: The design firm fuseproject gave the device a sleek, tapered look while retaining its all-important stability.

COBALT ROLLS INTO THE LIMELIGHT

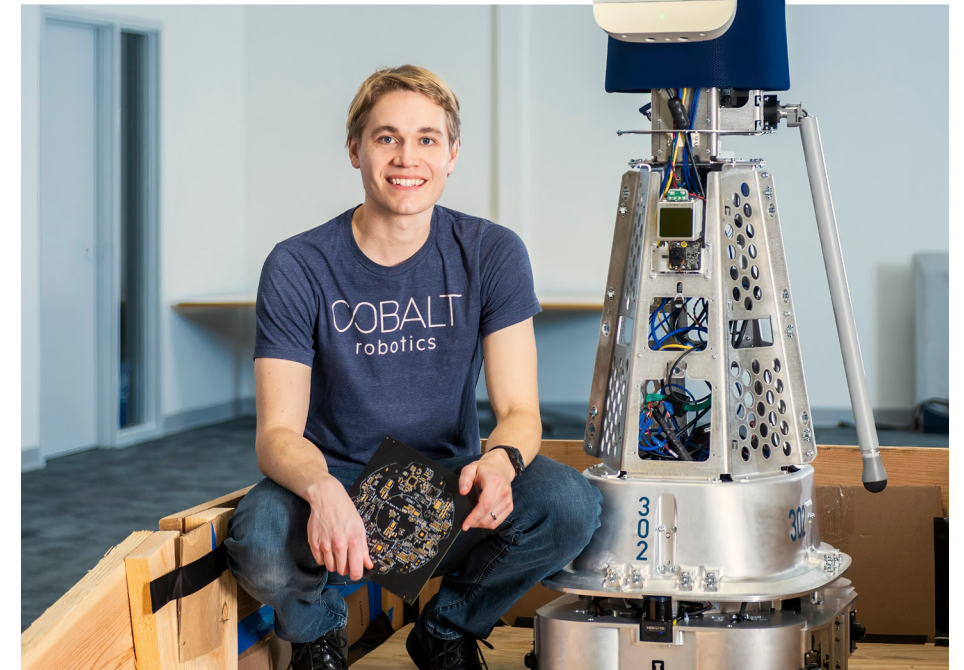
After a year of preparations, Cobalt Robotics was ready to go public in early 2017 with both its product and its business plan for providing corporate security in the office space.

TechCrunch highlighted that the robots “use the same kind of components you’d expect in a self-driving car” and praised “machines that look like gliding chess pieces – say, a bishop with a tablet screen in place of a head.”

Positive press is good for any new business, but positive customer response is even better. One way to gauge Cobalt Robotics’ success is to follow the investments in the company. Cobalt’s results were so encouraging within a year of launch that investors lined up for a Series A funding round at a valuation of \$45 million; the round was led by Sequoia Capital, perhaps the most-watched venture firm in the country. A Series B followed in 2019, this time at a \$220 million valuation, led by Coatue.

During the pandemic, when many big-city offices cleared out and people sheltered at home, Cobalt really proved its value to clients, who could still have on-premises security without risking the health and safety of employees.

Cobalt’s business model certainly suggests robots coming for people’s jobs, but Erik asserts that their products are intended to augment the role of human guards. Recall that, in the 2016 conversation that launched the company, the goal was not eliminating human guards but rather filling in the gaps created when qualified guards left or turned down jobs. And, six years in, Cobalt’s robots still rely on people to step in when situations exceed the machines’ limits.



Erik believes that American culture tends to get ahead of itself when it comes to technology. He points out that we get excited about future possibilities and assume their incarnation is right around the corner, but often fail to recognize the obstacles that will slow such advances. “Five years ago, everyone thought that by now truck drivers and taxi drivers would all be out of a job, replaced by self-driving cars,” Erik told *Machine Design* last year. “That clearly hasn’t materialized.”

He also notes that popular acceptance of robots and artificial intelligence in our daily lives remains a work in progress. The current conversation around ChatGPT and its implications for creative work and academic study is a sign of how much remains unresolved about the role of technology in our lives. He says, “People are just starting to experience AI for the first time, but they are going to become a lot more used to it.”

As artificial intelligence becomes ever more capable, tools like Chat GPT that

use large language models (LLMs) could transform robotics. LLMs make it possible for machines to take a command, break it down into discrete steps, and then execute each step autonomously, rather than waiting for a programmer to write each step manually in code.

Erik says, “The long-term dream of most roboticists is Rosie, the robot maid from *The Jetsons*, who can do everything. People have tried to go directly there, but it’s a hard thing and still a long way off.”

Cobalt’s maturation has meant more new hires, more markets, and more opportunities to address customer needs. It also has freed Erik to focus his time on what he has always loved best. He reflects, “Plenty of people will be a better day-to-day manager than I am. My passion is the technology and connecting all these dots from all these different parts of things – seeing how the pieces will fit together and understanding at a high level how to solve problems.”