Launching Alaska's commercial space boom: Ben Kellie '10

By Theresa Bakker

Photos courtesy of Ben Kellie unless otherwise noted. Above: SpaceX's floating landing platform, called Just Read the Instructions, gets a visit from Ben Kellie (second from left).

Ben Kellie '10 stands on the SpaceX rocket launch pad he helped design. He's 27 years old. It's 3 a.m., and he's supervising a team of 25 people as they coordinate the rollout of a new 220-foot rocket.

The goal is to transport this million pounds of steel — in the dark, through a thick fog — from the hangar to the launch site, where it will be hoisted into vertical position for a 6 a.m. launch.

This is just the beginning of his shift, the start of a 14-hour day which comes after 18 months of 14-hour days spent building the site.

“Every day is Wednesday,” Kellie recalled years later, in a December 2020 phone interview. “You don’t remember the last weekend and don’t know when the next weekend is coming.”

Back on that morning at the launch pad, the fog obstructs his view so that he can’t see from one end of the assembly to the other. The trolley turns around a sharp corner to get to the pad.

“I felt really calm,” Kellie said. “Because I knew that eating the elephant happens one bite at a time. We were following the procedure, all 60 pages of it. Taking it step by step. There’s not a lot of room for getting worked up because then you’ll miss a detail.”

When it’s time for the launch, Kellie is the leader of the red team. He’s standing on the edge of the launch area with the fire department, ready to rush to the pad if something goes wrong.

“And I just feel the weight come off,” he said. “After 18 months of extremely long days, it all comes to fruition. I soon realized that as much fun as that was, it wasn’t

sustainable. I want to accomplish big goals without having adrenal fatigue and a total breakdown of my personal life."

Kellie launched his career in the commercial space industry after graduating from UAF with an engineering degree. As a new employee, Kellie rose rapidly at SpaceX, the American aerospace company founded in 2002 by entrepreneur Elon Musk. SpaceX was the first private company to successfully launch and return a spacecraft from Earth's orbit.

"At SpaceX every day was a rush," Kellie said. "Working there required fast decisions, creative solutions and the confidence to try to make things work that had never been made before. It was like flying as a bush pilot or hiking and hunting in Alaska when the weather is coming in fast and you have to decide whether to go home or keep going."

Photo caption: Ben Kellie.

Today, Kellie is the CEO and founder of a space supply chain provider called The Launch Co., based in Anchorage. Though it's important to Kellie and his wife to be in Alaska, he also has the flexibility to take on projects that might teach him something new. He wants to help create a new commercial space industry in Alaska.

"We'll try our best, anyway," Kellie said. "But the dream may evolve. It's that conversation with reality. Thank God everything you think should happen doesn't happen."

An education based in experience

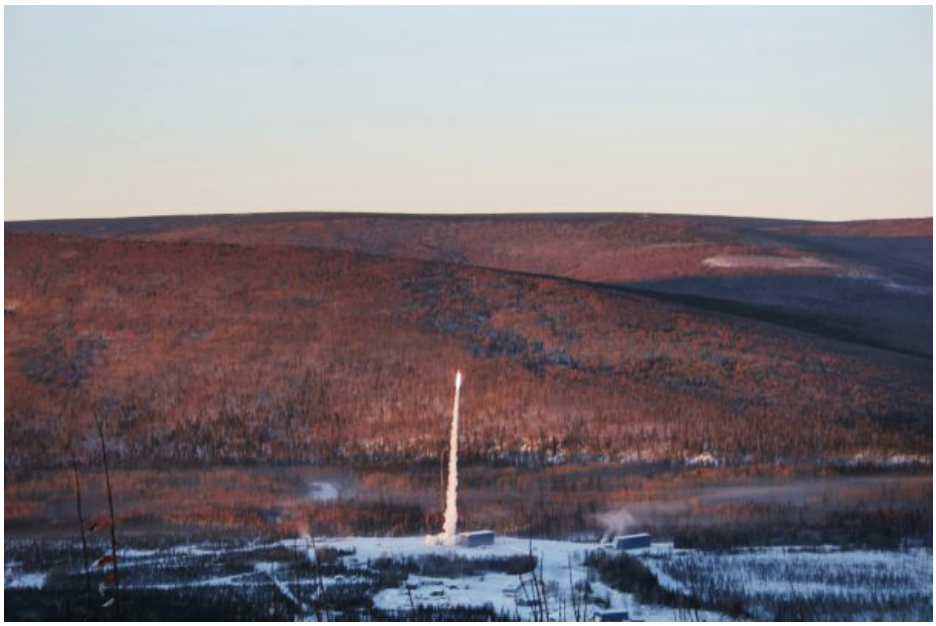
Working at SpaceX, Kellie supervised the launch of a new generation of rocket from a pad that he helped build. He also led the field team creating the barge where the company landed its first rocket for reuse.

And he said he has UAF to thank.

“There are a lot of smart young people coming out of universities every year,” Kellie said. “When it comes to engineering, we all learn the same math and science. What SpaceX needed was people who could apply that knowledge and then go build it.”

That attitude put him on the front lines of at least a dozen rocket launches at a time when the pace of change in the industry is exponential. Rockets previously launched once every couple years, but Kellie said SpaceX has helped accelerate that rate.

As a student at UAF, he participated in the student rocket project, SRP-5, in collaboration with a university in Japan. Kellie learned how to apply a natural talent for thinking on his feet — honed during bush pilot flying lessons with his dad — when he led a team in building a simplified wind turbine for rural Alaska locations.



The SRP-5 rocket rises from UAF's Poker Flat Research Range in 2009.

Denise Thorsen, UAF Alaska Space Grant Program director, did not have Kellie as a student because he was a mechanical engineering major, but she met him when he participated in a program that brings students from different backgrounds together.

"Ben participated in one of the microgravity projects involving free-fall experiments on a jet known as the Vomit Comet," she said. "When he came to the lab as a young student, he was looking for something to do besides washing beakers in the chemistry department. He wanted to do something real."

As a UAF student, Ben Kellie joins the Alaska Space Grant crew testing a new cube satellite design. They're aboard a special jet dubbed the Vomit Comet because it simulates the zero-gravity conditions of space. Photos courtesy of NASA.

After Kellie went off to grad school, Thorsen kept track. She watched him find work at SpaceX, which she found interesting.

When he came back to Alaska, she talked to him about mentoring students and asked him to speak at the national Space Grant meeting.

“He gave the best talk I have ever seen,” she said. “His talk hit the tone of his experience at UAF and showed how it’s bigger than a homework set or a one-semester project.”

Since returning to Alaska, Kellie has worked with interns placed by the Alaska Space Grant Program at his company.

“He’s done a great job with mentoring those students,” Thorsen said. “I knew him as a student, and now I know

him as an entrepreneur who is giving back. It all goes around in a big circle.”

Photo caption: This quick disconnect fitting used to fuel rockets and spacecraft was designed by The Launch Co. Photo courtesy of The Launch Co.

Building things better

Kellie started The Launch Co. two years ago with a plan to get new space commercial companies' hardware into orbit faster by helping them design launch sites and by building parts for their rockets.

"If every airline had to build its own airport, that would be a nightmare," he said. "It would mean plenty of reinventing

the wheel, which would come out square a lot of times. We make the wheels round. We help these launches run more like airport takeoffs, which is the ultimate goal."

Today, Kellie manages a team of 12. They are all Alaskans, either by birth or as graduates from the University of Alaska.

"The thing about our three lead engineers," he said, "is that one guy grew up in commercial fishing. Another grew up around heavy construction equipment. These are hands-on people who are used to being dissatisfied with how things work and wanting to build something better."

An example of a recent project included working with a company 3-D printing a rocket, a 120-foot instrument made of metal. The rocket was printed in sections, even parts of the engine. Kellie helped get the factory set up and running.

Jacob Powell, a UA Anchorage alumnus and engineer at The Launch Co., assembles a high-pressure helium skid, an example of the kind of mobile launch infrastructure the company is developing. Photo courtesy of The Launch Co.

"It's just one part of the puzzle I am working on, this piece of it. I thought, why not? I get to see what works and help get my client to orbit faster," he said.

Kellie observes each project like an experiment. He's asking if this might be the future of manufacturing. He observes problem-solving by other companies to see if his team members can improve their own thinking.

At 34, Kellie knows he's still early in his career, but he has a passion for convincing Alaskans that we have something

special here in this state. It's important to Kellie that his business succeeds in Alaska.

"Selfishly, I want to live in a place we love. I only love Alaska, and I have lived in a lot of places," he said. "The nonselfish reason is we are from Alaska. We want to bring new opportunities to Alaska. I don't want Alaska to be reliant on one or two industries going forward. There's room for more."

The state has the highest per-capita ownership of airplanes in the U.S. UAF manages the only university-owned rocket launching facility in the country. The National Oceanic and Atmospheric Administration's facility near Fox, just north of Fairbanks, downlinks more satellite data than anywhere else in the world. Thorsen said Alaska is the place to be for launching satellite hardware to outer space.

"If you want to put things into polar orbit, you need to launch north-south," she said. "If I want to look at the entire world, I want to be in a polar orbit because the world orbit's beneath me. Over time, I'll see the entire globe."

Reality is going to have its say

Kellie is an outspoken advocate for Alaska's university system. To him, it's a simple investment.

"Why would you pour sugar in your economic engine's gas tanks?" he asked. "If you want to support jobs and growth, how are people going to do this unless they have an education? They are going to need training."

He advises students to jump in and get their hands on anything and everything.

"I've been heartened to meet a lot of like-minded young people who want the chance to make Alaska theirs," he said. "What is the future, what do we want Alaska to be? I don't have the answer, but our version of the answer is to build a new business and operate it in Alaska."

While his path is exciting, Kellie's story doesn't have to be unique. **Bill Schnabel '00**, dean of the UAF College of Engineering and Mines, said the university's Space System Engineering Program offers a pathway to a similar experience.

"While classroom learning is essential, we recognize that providing students supplemental opportunities to engage outside the classroom can greatly enhance their ability to work on their own, work with their hands and become effective task-oriented leaders," Schnabel said. "That sort

of activity yields huge benefits to the students and to the engineering profession itself."

Kellie said learning how to try — and fail — was the best lesson from his experiences at UAF and in the space industry.

"Steve Jobs and Elon Musk were usually wrong, but the difference is they take the failure as a data point and they pivot," he said. "No matter what happens, that data point is very useful."

"The way I've been thinking, we are going to use math and science to make our best attempt," he said. "Whether that's a business, launch site or a hike across the mountain, reality is going to have its say."

The SpaceX Falcon 9 makes its first launch from Vandenberg Air Force Base in California. UAF alumnus Ben Kellie helped design and build the infrastructure to launch the rocket. Photo courtesy of SpaceX.