Alumni Profile: Gwynne Shotwell

Growing up, Gwynne Shotwell was always good at math and science, and she was always curious about how things worked. But when she began thinking about a career in high school, Shotwell couldn’t see herself using her strengths in engineering. She was terrified of becoming, well, nerdy.

So how did she go on to receive both an undergraduate and master’s degree from McCormick?

“That was my mom’s fault,” she says. Shotwell’s mother took her to a Society of Women Engineers panel for teenage girls, and there she met a female mechanical engineer who owned her own business. “I loved what she had to say, loved her perspective—and she wasn’t all that nerdy,” Shotwell says. “I thought, ‘It’s okay to be a woman and an engineer.’”

The choice has served her well: Shotwell is now president of SpaceX, one of the most innovative companies in the country. A space transport company started by PayPal founder Elon Musk, SpaceX (short for Space Exploration Technologies Corp.) has developed two space launch vehicles—Falcon 1 and Falcon 9—and the Dragon spacecraft, which will deliver cargo to the International Space Station for NASA. In December 2010 SpaceX became the first private company to successfully launch, orbit, and recover a spacecraft.

But back in 1982, Shotwell was a freshman navigating her way through introductory engineering courses. She can remember when the Wildcat football team broke its 49-game losing streak, and she can remember suffering a few setbacks in her engineering classes—specifically, 3-D Rigid Body Dynamics.

“I didn’t do great on the midterms,” she said. “But when I was studying for the final, it just clicked for me.” She got one of the highest grades in the class. “I remember the professor looking at me, surprised, in a way that said, ‘Well done.’ That was a great memory.”

While at Northwestern, Shotwell took advantage of the school’s wide-ranging opportunities to create her own version of what McCormick now calls a whole-brained engineering education. “I really wanted to go to a university that had a broad perspective on education,” she says. “I had great economics professors, I took an art class, I went to all of the theater events. It was a very well-rounded experience that helped me personally.”

After receiving an undergraduate degree in mechanical engineering in 1986 and a graduate degree in applied mathematics in 1988, Shotwell went on to work in space systems engineering and technology at the Aerospace Corporation, where she quickly moved up the ladder. She was recruited to be director of the space systems division at Microcosm before joining SpaceX in 2002 as vice president of business development. In that role, she developed SpaceX’s customer base and managed strategic relations. She was named president in 2008.

Shotwell’s career has evolved naturally from engineer to manager because she isn’t “that person who wants to sit at my desk and work without talking to anyone. I want to go out and be part of a team, work on projects, communicate,” she says. “I always wanted to talk with people and find the gaps between one person and another person. It’s bridging those gaps and interfaces where I felt like I could contribute the most.”

Shotwell was SpaceX’s seventh employee when it was founded in 2002—now the company boasts over 1,250 employees, three launch sites, a rocket-development facility in Texas, and a 550,000-square-foot factory with offices in Hawthorne, California. The company designs, manufactures, and tests the majority of the components of its space vehicles in house. Next, the company hopes to make its Dragon spacecraft ready for human transport, upgrade the engine for its rockets, and launch a new rocket for lifting heavy payloads into space.

“We’ve got a lot of development sitting in front of us,” she says. “We’re busy.” Yet Shotwell made time this fall to come back to Northwestern and speak to faculty and students at McCormick’s Dean’s Seminar Series. She was appointed to the McCormick Advisory Council, and she will come back this June as McCormick’s convocation speaker.

“I just loved what Dean Ottino had to say about whole-brain engineering,” she says. “That really struck a chord with me. That’s why I selected Northwestern.”

While visiting McCormick, Shotwell also met with students who were interested in interning at SpaceX, and she hopes to continue that recruiting relationship in the future. “It was just time to start reaching out,” she says. “Northwestern is an awesome school. We wanted to make sure we were engaged here.”

Shotwell advises undergraduates who are looking to emulate her success to work on real projects. She says it’s only through developing a project, testing it, and deploying it that you truly learn the engineering process.

“You need to understand the theory,” she says, “but you’ve got to be able to put that to work.”
Clockwise from left: Gwynne Shotwell; the Dragon spacecraft; the Falcon 9 rocket launches the Dragon spacecraft into orbit on December 8, 2010—a flight that made SpaceX the first private company to launch and recover a spacecraft from orbit; the Dragon spacecraft at Cape Canaveral in December 2010. Photos courtesy of SpaceX.