

## Limor Fried, '03, MEng '05 Inspirational electronics sparks a new generation of makers

The following is adapted from a May 30, 2013 MIT News story written by Rob Matheson of the MIT News Office.



Although she admits that she did not create electronics before she came to MIT as a student, Limor Fried spent a lot of time with her Brookline, MA high school friends coming to MIT to hang out – soaking up the hacking culture in the process. She says her friends were really interested in this new thing called the Internet.

“We heard that MIT had a connection to it,” she says, “so we used to walk into the W20 cluster, log in as root and run Mosaic on the Sparcs.” Then at night, she says, she and her friends would go to Anime Club or LSC. She remembers thinking “Wow! This is incredible. I wish I was a student here, everyone is so smart and there is so much fun stuff to do. I want to learn everything there is to know!”

Initially a computer science major at Boston University, Fried transferred to MIT EECS in her junior year so she could become more involved in electrical engineering. By the time she entered the MEng program in EECS, Fried was happiest when she could work late hours assembling electronic devices — unique gadgets that she began to sell online—while freely sharing her design plans. At this stage in her life, Limor Fried had taken on the moniker “Ladyada,” after a 19th-century female mathematician and first computer programmer, so it was only natural that she named her startup company Adafruit Industries.

### From then to now

Since its startup phase, Adafruit has become a multimillion-dollar company that’s been called a leader in the open-source hardware industry. And Fried now Adafruit’s CEO, is lauded as a pioneer of the “maker movement,” a rising culture emphasizing do-it-yourself technology that has proved to be a profitable niche.

In January 2013, Fried was named “Entrepreneur of the Year” by Entrepreneur magazine. In 2012, she was the first female engineer featured on the cover of Wired, and was included on Fast Company’s “Most Influential Women in Technology” list. In 2009, she was awarded a Pioneer Award by the Electronic Frontier Foundation, a digital-rights group.

“There are many amazing people working hard and inspiring the maker movement every single day,” Fried says of her tech-celebrity status. “We all have our roles and little parts we can do to make the world a better place through learning and sharing.”

Adafruit primarily sells “kits” of build-your-own electronic devices, complete with open-source licenses, encouraging customers to modify the final products. But its primary focus is on teaching engineering to the world, Fried says — “an educational company that just happens to have a gift shop at the end.”

While flattered by the publicity, Fried hopes her fame across makerdom will help promote science, technology, engineering and math (STEM) education — and show that there’s a way to combine a passion for engineering with entrepreneurship.

“I think this represents opportunity for more makers and hackers to see it’s possible to be a good cause and a good business,” she says. “Anyone who wants to help teach people electronics and how to make things can make a business out of it.”

### Paving the Entrepreneurial Road at MIT

Nine years ago, when Fried was still combining her MIT graduate student status with launching her startup, there was a lot of uncertainty. But, she kept at it.

MIT — with its emphasis on diligence and experimentation — became a safe haven. “MIT is a great place to come face-to-face with what you know and what you don’t know, and to power through the discomfort of not knowing 100 percent of what you’re doing,” she says.

Many of her creations took place in MITERS, a student-run lab stocked with electrical engineering equipment and “a great resource for creative engineering.”

Fried says. There, she developed some of her early commercial devices — such as the MiniPOV, whose LED display makes words appear to be floating in air, and the Minty MP3 player, which fits inside an Altoids tin. (A version of the latter, the MintyBoost Kit — an Altoids tin-based charger for portable devices — is now Adafruit’s best-seller, with more than 50,000 units sold.)

Fried provided the design plans for these devices through her personal website and, in 2005, began selling preassembled kits to a steady influx of customers — laying the foundation for Adafruit, which Fried officially opened a year later in New York.

In its 12,000-square-foot industrial space in Lower Manhattan since 2013, Adafruit’s employees — now more than 60 — ship hundreds of products per day. Last year the company sold about \$22 million worth of its famed do-it-yourself kits and other products.

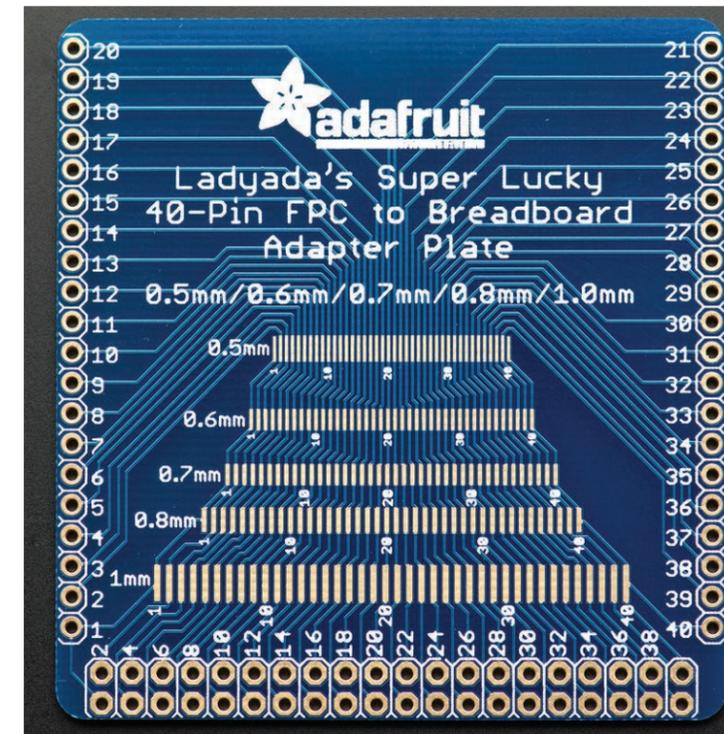
Looking back, Fried says the competitive, entrepreneurial ecosystem at MIT helped inspire her to launch her business. “The entrepreneurial culture is strong at MIT,” she says, “and when I saw how many of my friends were starting companies out of college it made me think, ‘Hey, if they can do it, I can do it too. Let’s do this thing!’ I think that’s part of the healthy competition that MIT is known for.”

Fried also notes that starting and running a company is just hard work. “Either you make something people want or you go out of business! There is nothing more helpful to starting a company than a gritty determination,” she says adding: “Every student should have a blog where they publish their projects! Some really cool designs come out of classwork or IAP but they are rarely shared outside of a class or living group. There should be a tumblr-requirement for graduation!” she quips.

### Creating the Pixar of educational electronics: “A is for Ampere”

As a maker-movement pioneer, Fried says she hopes to inspire a “culture of makers” by sparking people’s interest in building not only their own electronics, but also their own tech startups. “Adafruit not only wants to make more makers, we want to help inspire people to make businesses — and make even more makers,” she says.

Apart from selling kits, original devices and providing hundreds of guides online, Adafruit works around the world with schools, teachers, libraries and hackerspaces — community technology labs — to promote STEM education, designing curricula in circuitry and electronics, among other initiatives.



The company has released an online children’s show called “A is for Ampere.” On a weekly Wednesday night program, “Ask an Engineer,” anyone can ask Fried questions online or show off their original devices.

As Adafruit has become a phenom in the online maker world, Fried is enthused by its growth and influence. “I’d like to think we’ll become the “Pixar of educational electronics” - in other words, telling amazing stories, teaching, sharing with the best place online to get the best educational electronics. As the maker movement has grown and flourished, so has Adafruit.” Adafruit has tripled (216%) year-over-year, she notes, allowing the company to add more products and designs. “We try to be the best,” Fried says, “and the maker community has rewarded us with the support and orders.”

One of Fried’s favorite stories, from a young viewer of “Ask an Engineer,” illuminates what she sees as the growing diversity of engineering. “A parent emailed us after watching the show with his daughter,” she says. “I had another engineer on the show with me — my friend Amanda — and this parent’s daughter asked, ‘Dad, are there boy engineers too?’”

Ultimately, Fried says, her mission is to inspire everyone to be makers and entrepreneurs. “If there’s one thing I’d like to see from this,” she says, “it would be for some kid to say, ‘I could do that,’ and start the journey to becoming an engineer and entrepreneur.”