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| JUNE 11, 2024

The legacy of Lynn Conway, chip design pioneer and transgender-rights advocate

Conway, professor emerita of electrical engineering and computer science, has died.

BY: NICOLE CASAL MOORE ([HTTPS://NEWS.ENGIN.UMICH.EDU/AUTHOR/NCMOORE/](https://news.engin.umich.edu/author/ncmoore/))

Lynn Conway, who quietly revolutionized microchip design and boldly blazed a trail for transgender individuals, died on June 9. She was 86 years old.

“Why not question everything?” was one of her guiding philosophies, the professor emerita of electrical engineering and computer science [told The Michigan Engineer magazine in 2014](https://news.engin.umich.edu/2014/10/life-engineered/) (<https://news.engin.umich.edu/2014/10/life-engineered/>).

Conway has been called the hidden hand in the 1970s chip design movement that made today’s consumer electronics and personal computing devices possible.

She joined Michigan Engineering’s faculty in 1985 as associate dean for instruction and instructional technology. While she retired from U-M in 1998, Conway remained an influential part of the community—advising faculty members, speaking at events and even having lunch with students on occasion.

As a young adult, Conway was one of the first Americans to undergo a modern gender transition, and in her retirement she became an outspoken advocate for transgender rights and women in STEM fields.

Lynn Conway reflects on her gender transition



“Lynn Conway’s example of engineering impact and personal courage has been a great source of inspiration for me and countless others. I was privileged to know her as a colleague, and honored to hold a collegiate professorship in her name,” said Michael Wellman, the Lynn A. Conway Collegiate Professor and the Richard H. Orenstein Division Chair of Computer Science & Engineering.

Faculty members remember her “friendly, sage advice in difficult times,” her positive outlook, warm encouragement, creativity and “singular vision.” Conway described herself in 2014 as a perennial beginner, never afraid to take on learning how to do new things.

She had no experience with microchips before she developed a simpler, scalable method for designing them with Cal Tech Professor Carver Mead at the renowned Xerox Palo Alto Research Center (PARC) in the mid 1970s. Their textbook and the courses it spawned standardized and democratized a process that was once the sole purview of specialists at large, private semiconductor firms. Thousands of students were soon trained during what came to be known as the Mead-Conway revolution in Very Large Scale Integration (VLSI). VLSI refers to the process of arranging increasingly smaller and more plentiful transistors on an integrated circuit.

Conway’s work also provided an important framework to advance the field of Electronic Design Automation, which develops tools and software to design and verify VLSI circuits.

“My field would not exist without Lynn Conway,” said Valeria Bertacco, the Mary Lou Dorf Collegiate Professor of Computer Science and Engineering and U-M Vice Provost for Engaged Learning. “Chips used to be designed by drawing them with paper and pencil like an architect’s blueprints in the pre-digital era. Conway’s work developed algorithms that enabled our field to use software to arrange millions, and later billions, of transistors on a chip.”



Grace Hsia, project manager and CoE alumnus, hugs Lynn Conway at the Own It Leading Inclusion: Gender In Engineering keynote event on November 18, 2014. Photo: Joseph Xu

Many at U-M had been using the Mead-Conway method in the '80s when Conway arrived at the College, said Dan Atkins, professor emeritus of information and electrical engineering and computer science.

"It should have been called the Conway-Mead method," said Atkins, who recruited her. He knew her by reputation as a visionary thinker, and she brought that brand of futurism to the College.

"She really helped us see over the horizon and decide what to prioritize," Atkins said. "Lynn could identify the white spaces we might explore between different fields. She was a person you would talk to and come away saying, 'I hadn't thought of that!'"

During most of her noteworthy career, Conway kept a low profile. It felt necessary for safety and security, especially after she was fired from IBM for being open about her transition in 1968. (The company apologized in 2020 (<https://www.nytimes.com/2020/11/21/business/lynn-conway-ibm-transgender.html>)).) But as a result, many of her contributions were overlooked for a long time. In 2000, she noticed others being credited for aspects of it. She decided to begin telling her story (<http://ai.eecs.umich.edu/people/conway/>), first on her website and later in a special issue of IEEE Solid State Circuits (http://ai.eecs.umich.edu/people/conway/Memoirs/VLSI/SSCM/VLSI_Reminiscences.pdf). Along the way she developed a robust catalog of online resources and advice about gender identity and transitioning.

More recently, she named her experience of being sidelined in history the Conway Effect (<https://www.computer.org/csdl/magazine/co/2018/10/mco2018100066/17D45WXIkDI>) and chronicled instances involving others who “weren’t expected to innovate.”

“She overcame so much, but she didn’t spend her life being angry about the past,” Bertacco said. “She was always focused on the next innovation.”

Conway was born in Mount Vernon, New York. She studied physics at MIT and earned a bachelor’s and master’s in electrical engineering from Columbia University in 1962 and ‘63. In addition to her roles at IBM, Xerox and U-M, she also held positions as a visiting professor at MIT, chief scientist at the National Science Foundation and assistant director for strategic computing at the Defense Advanced Research Projects Agency. She held five U.S. patents and honorary doctorates from Trinity College, Illinois Institute of Technology, University of Victoria, Syracuse University, Princeton University and U-M, among others. Conway was a member of the National Academy of Engineering.



Lynn Conway answers a question from the audience at the Own It Leading Inclusion: Gender In Engineering keynote event on November 18, 2014. Photo: Joseph Xu

She is survived by her husband, Charles “Charlie” Rogers, whom she met in 1987. They shared a passion for adventure sports, including whitewater canoeing and motocross racing.

The ripple effects of her contributions to technology, education and inclusive culture will continue to propagate at micro and macro scales.

Services will be held at Sherwood Funeral Home, 1109 Norvell Road, Grass Lake with visitation on June 21 from 4-7 p.m. and a service June 22 at 1 p.m. Internment will be at Maple Grove Cemetery, 1501 Wolf Lake Rd, Grass Lake with a luncheon to follow.

In lieu of flowers, expressions of sympathy may be made in memory of Lynn Conway to [Transgender Studies at the University of Victoria \(https://extrweb.uvic.ca/donate-online/transchair\)](https://extrweb.uvic.ca/donate-online/transchair) at or [The Women in Engineering Fund \(https://giving.umich.edu/basket/fund/361348\)](https://giving.umich.edu/basket/fund/361348) at the University of Michigan.

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