

A Maze of Computation

CADR — The LISP Machine
Late 1970s
MIT Museum

A tall metal cabinet towers over the corner of a second-floor exhibit at the MIT Museum. It doesn't look like art, however; it seems instead like a relic that should hide in a decommissioned telephone closet in the basement.

The thin outer black frame, as tall and heavy as a refrigerator, sits on the floor on four sturdy round feet. It resembles a mainframe from a 1960's IBM commercial.

The core of the device is its most interesting and peculiar trait: thousands of thin wires connected to an array of small shiny metal pins jutting out the front. A closer look at the wire wrap reveals an even more confusing scene: a spaghetti maze of thin blue, yellow, and white wires winding in different directions. Some connections travel vertically a short distance in groups between the pins; others twist at gradual angles across the width of the device. A row of gold pins prefaces all six blocks of gray pins. A special collection of white-and-blue striped wires snakes from the top right to the bottom center of the pins.

A shiny title plate crowns the device: "LISP MACHINE." Next to the title is a logo of two rectangles with arrows pointing from their centers to their outsides—perhaps a visual representation of the machine's function. A curled yellow Post-it note—which looks like it will soon peel off—is stuck near the logo, with "MARVIN" handwritten in blue ink in

the center. Could this refer to the computing pioneer Marvin Minsky, co-founder of MIT's Artificial Intelligence lab? Or perhaps it's a last name, because upon closer inspection, "Ford" is scribbled on a smaller sticky note directly under it. No one knows for sure.

A small red button—the only apparent user-input device of this machine—beckons to be pushed. A white hand-written sticker below reminds the user: "If it halts, please log PC & decimal points," with an arrow pointing to a single sheet of paper posted on the left side of the rack.

Near the bottom of the front panel is a white sticker with "MOD II" written in black sharpie. Underneath is a traditional wall power outlet, with a dual circuit breaker flipswitch on the right. An MIT engineer clearly spent a long time making sure this was a quality handcrafted construction.

Around the back, a bunch of gray 40-pin IDE cables hang down, presumably disconnected from the inputs and outputs that previously drove the machine. A rainbow-colored cable snakes across the device and two heavy-duty power strips are attached to the rear of the rack. A line of thin-profile fans makes up the cooling system.

Back in the 70s, MIT developed its own computer science curriculum on these LISP machines. They were intricate systems with a powerful programming language. Today, however, all this complexity is hidden in small black chips behind colorful screens and keyboards and mice. The computing power of this huge box can now be found in a chip the size of a dime. But it's refreshing that the LISP Machine has no secrets; it reveals its full logic in plain sight.

The machine towers over the exhibit, static and motionless. Perhaps it's not art in the traditional sense, but it certainly reveals the beauty—or hectic confusion—of circuits. It's

hard to imagine patterns exist in this madness, patterns that are supposed to crunch numbers and produce useful results. This maze of computation blends the physical patterns of electrons with the visual medium of art. ♦

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