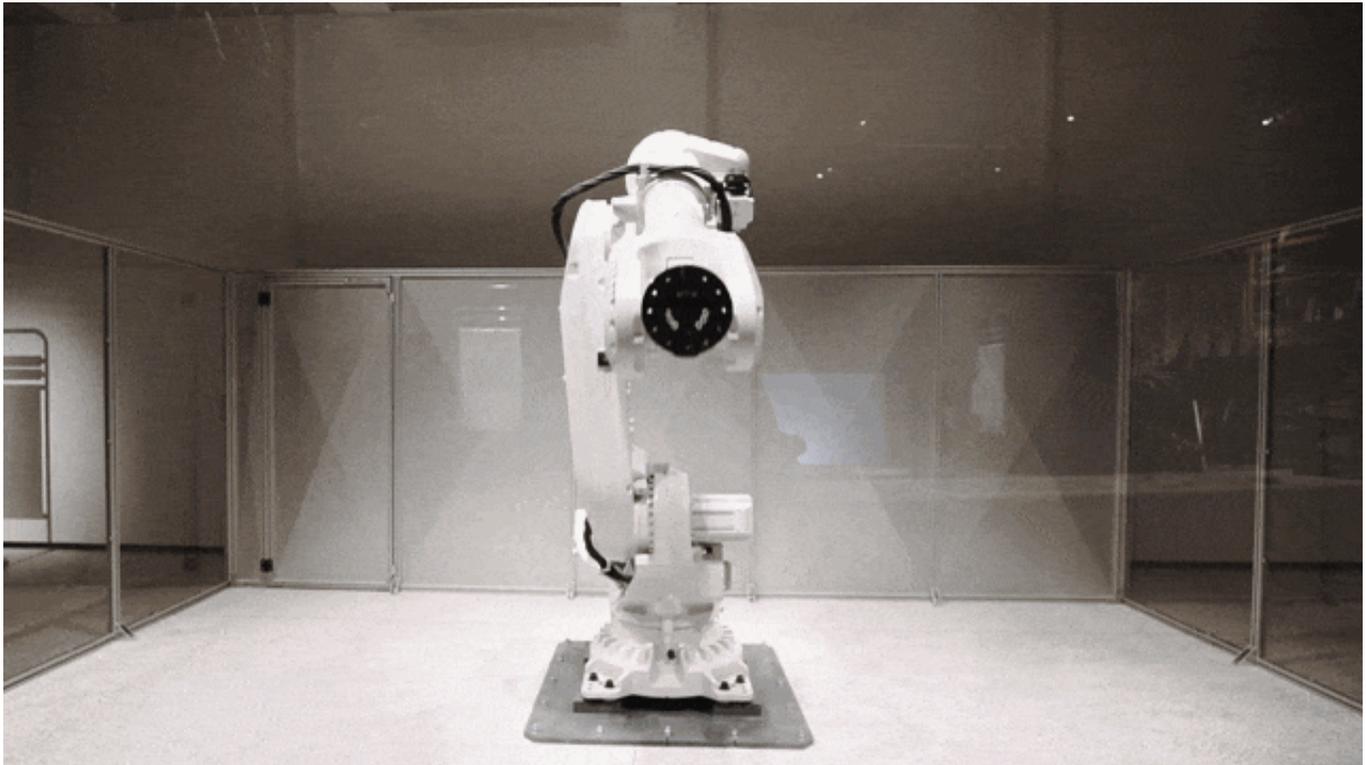


# Industrial Robot Reprogrammed to Get Bored and Curious Like a Living Thing



**In artist and robotics researcher Madeline Gannon’s ‘Mimus,’ an industrial robot behaves like a living creature.**

Broadly speaking, the goals of robotics and artificial intelligence research is to design [robots that become more independent and intelligent thinkers](#), while [equally more agile and mobile](#). With the new installation *Mimus*, artist and robotics researcher Madeline Gannon trained a common industrial robot to not only exhibit no pre-planned movements, but also get “bored” while [roaming freely around its enclosure](#).

Gannon’s *Mimus*, which she refers to as “she,” is currently “living” at The

Design Museum until April 23rd, 2017 as part of the [\*Fear and Love: Reactions to a Complex World\*](#). Gannon tells The Creators Project that *Mimus* is an [ABB IRB 6700](#) industrial robot that holds up to 200 kilograms (441 pounds) with a reach radius of 2.6 meters (8.5 feet), the type normally seen on car assembly lines usually performing tasks like spot welding or material handling. It can also move up to a top speed of 7 meters-per-second, or about 15 miles-per-hour.



“*Mimus* is programmed with a very simple [agent-based](#) behavior that generates her movement and trajectory,” Gannon explains. “As the programmer, I set up the boundaries of where she can and cannot go. So, for example, she can't run into the floor or her enclosure, but she decides how to move to go visit a person.”

“This agent-based behavior is also what *Mimus* her animal-like movement,” Gannon adds. “She seeks and wanders to a person, instead of mirroring their movement directly.”

Gannon’s work, as part of the [Atonaton](#) machine research studio, typically involves finding new ways to communicate with machines that make things. These could be 3D printers, CNC routers, or industrial robots. Obsessively curious about machines, Gannon sees industrial robots—often thought of as dinosaurs in the robotics community—as the most reliable, adaptable, and robust machines in the world today.



Image by Luke Hayes

“These are machines that have superhuman strength, speed, and endurance,” she says. “The only problem is that they are stuck in factories.”

In recent years Gannon has focused her attention on software interfaces that allow industrial robots to go outside of industrial settings. Last year, a curator with The Design Museum in London saw Gannon’s previous work [taming a giant industrial robot](#) and invited her to be a part of their opening exhibition.

The challenge was to create an engaging way for the public to come face-to-face with their own fear, love, and anxieties surrounding robots and automation. Gannon ultimately settled on an industrial robot that could “live” in the museum inside an enclosure, much like an animal at the zoo, seeing and responding to visitors as they approached.



Gannon says one of the big challenges of bringing a robot into a gallery setting is that it can really only engage with one visitor at a time. To ensure that *Mimus* didn't fixate on any one person for too long, Gannon and the development team, which included Julián Sandoval, Kevyn McPhail and Ben Snell, gave her an attention span. So, when *Mimus* loses interest in a person, she for all intents and purposes gets bored and stops tracking them.

*Mimus*' tracking involves assigning attributes to each person as they are detected. These could be anything from proximity to *Mimus*, to their height, time spent at the installation, or whether they are an individual or part of a cluster of people. All of these variables and more influence the robot's attention span.

“An algorithm ranks everyone by interest level, and then *Mimus* goes to visit ‘the most interesting’ person,” Gannon explains. “As long as that person works to stay ‘the most interesting,’ *Mimus* will stick with them. But once they get boring—like if they stand still for too long—*Mimus*' bored timer will start ticking.”



Image by Luke Hayes

Who that “most interesting” person is can evolve over time. Additionally, values in Gannon and her team's ranking algorithm can be weighted differently to favor certain attributes over others. Gannon says that *Mimus*

currently has a slight bias over shorter visitors, so that she goes to look at children more often.

These characteristics inspired Gannon to refer to *Mimus* as a “living creature.” She thinks it’s a more relevant model for how humans can communicate and relate to autonomous robots—that is, machines that we cannot directly control.

“When we approach an animal for the first time, we instinctively look for cues in its body language that broadcast its internal state of mind,” says Gannon. “For example, a dog's tail shows you if it's excited or threatened; a cat's crouch shows you if it's stretching or about to pounce.”



A long-exposure photograph of Mimus

*Mimus'* posturing and body language is designed to communicate similar ideas. When she sees a person from far away, she looks down at them using a fairly intimidating pose. Gannon likens it to a bear standing on its hind legs. And when a person walks closer to her, Mimus approaches the visitor from below, like an excited puppy.

While Gannon is excited that the field of robotics is working toward machines that are more intelligent, agile, mobile, and independent, she also realizes that this is where part of the problem in robotics lies. Advancements in machine learning and artificial intelligence are moving faster than what society is ready for, creating a spectre of fear, anxiety and uncertainty.

“With *Mimus*, I have had the opportunity to illustrate cutting-edge concepts from robotics in a cultural context,” says Gannon. “This has let me translate ideas from the lab for an audience that is larger and more diverse than what typical robotics researchers can reach.”

[Madeline the Robot Tamer & Mimus](#) from [Pier 9](#) on [Vimeo](#).

The *Mimus* installation is currently on at London’s The Design Museum until April 23rd, 2017 as part of the [Fear and Love: Reactions to a Complex World](#) exhibition. The project was sponsored by Autodesk's [Boston Build Space](#) and [Pier 9](#), [ABB Ltd](#), and [The Frank-Ratchye Studio for Creative Inquiry](#). [Click here](#) to see more of Madeline Gannon’s work with Atonaton.

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Images courtesy the artist