The robot whisperer who tames giant industrial machine 'monsters' to do her bidding

The Madlab founder Madeline Gannon has taught gigantic, dangerous robots to follow her round like a puppy

Madeline Gannon wants you to become obsessed. Her obsession has led her from architecture to New York fashion week, earned her the nickname ‘the robot whisperer’, and today sees her sharing that obsession with an audience

of 12- to 18-year-olds at WIRED Next Generation in London.

"My obsession has been a guiding light for me," the Carnegie Mellon University PhD and Madlab research studio founder said. "As you guys navigate this weird, unknown, complex future, I hope you can find a deep, obsessive, insatiable, curiosity for the world around you. Because that's what's going to guide you forward."

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By Amelia Heathman

Her obsession has taken an unlikely form: "big, monstrous, industrial robots." She has become known as a robot tamer, because she transforms the types of massive, 6-axis robots that work on factory lines building planes, trains and cars, into tools any human can communicate and work with to create...anything.

Michael Newington Gray

"I'm really passionate about learning to communicate with machines," she says. "These robots have automated all the easy tasks, but we can use these tools to enhance or augment human labour." Industrial robots, she points out, can be adapted to do anything - with the right tools. They can assist in

everything from welding to painting, and Gannon even turned one into her own personal masseuse. Although she admits the machines can be deadly to humans, she trained it using sensors and motion capture technology to safely massage her, becoming firmer if she leant back and softer if she leant forward.

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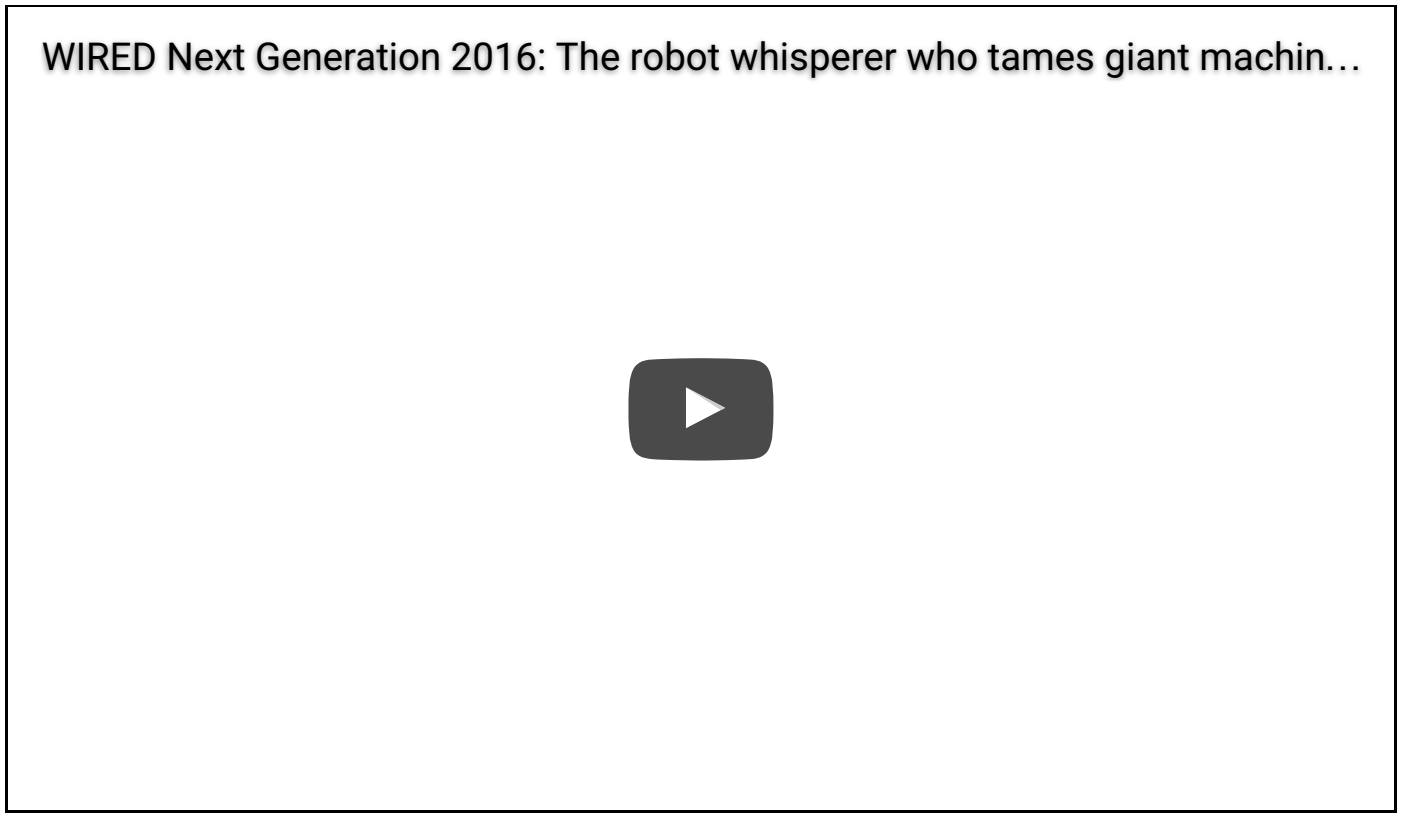
By Lee Bell

Ultimately, she wants to see these types of human-robot collaborations enter all kinds of working spaces, from construction sites to film sets. “We can give these robots eyes so we can safely collaborate.” In a video, Gannon demonstrated how she could hold up markers for the robot to follow, giving the machine “a nuanced understanding of our intention in that space”. “Someone that has never seen a robot before can do creative things with it within a few minutes.”

Gannon has been able to explore these types of collaborations through her work at Pier 9 in San Francisco. “I had the physical and mental space to just experiment, and had the freedom to question how we do systems and push the boundaries of what’s possible with robotics.” This largely involved getting the giant beast to follow her around like a happy puppy, and this work has been translated into a public experience in Boston using a modified robot called Mimus. ”Using really simple tech, it tracks all the people around its environment and follows them like a curious puppy. We began to imbue personality into a machine, and people who had never encountered a robot were interacting with it.”



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By Liat Clark

All of the advances Gannon has made in her work have been driven by frustrations at the technical obstacles that stood in her way, and made her obsession - being able to communicate naturally with robots to create new things - more difficult. This began while experimenting with designing objects for the body using 3D printers. Gannon became frustrated by the clunky experience of using a computer to modify the design. She overcame this through one of her Madlab projects, Reverb. It enabled her to use hand gestures to drape a design around a 3D scan of the body to create beautiful and intricate squid-like necklaces that were ready to print and wear, sized exactly to the body. “We could create really fine detail.”

“I was absolutely in love with the physical artefacts,

but not satisfied that it still had to be mediated by a computer screen. I had come close to merging the digital and analogue experiences but was still stuck in the computer screen."

As a result, she created Tactum, a system that uses motion capture to modify a design directly on the body. The design is projected onto the body, and can be tweaked by making adjustments by hand which are picked up by cameras and fed back into the computer software. "This was all done using an Xbox Connect, cheap and accessible hardware."

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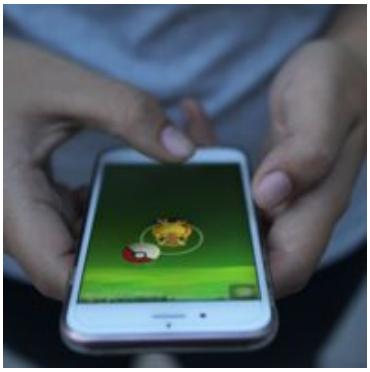

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By Ruby Lott-Lavigna

A final frustration, the fact that she still had to ship the design to a 3D printer and wait a week for it to come back, led her to start working directly with industrial robots.

Gannon has no training as an engineer or roboticist, but her obsession has led her across the globe as she develops new forms of helping robots and humans communicate.

“When what you do doesn’t necessarily exist yet, and there is not a degree programme you can go to, how do you define what the next step is? No-one else has taken that step before. I followed my insatiable curiosity for the world around me and a deep desire to see the future now.”

“At the end of the day, these monsters are awesome and so cool to play with. But they can potentially crush you and you are working inches away from them - it’s intoxicating.”

Gannon’s work will be on show at London’s Design Museum from 25 November in an exhibit called Fear and Love.