PHOTOS *by* GESI SCHILLING

MADELINE
GANNON

Wired called her a 'robot whisperer', a tamer of industrial robots. Despite her years of incredible success, Madeline Gannon still feels like a continual outsider in the world of robotics. Yet the ATONATON founder and trained architect resolutely builds bridges between the world of robotics and the world of art. After all, her ultimate goal is pretty human: to empower more people to participate in the discourse of rapidly changing technologies.

SCEPTICAL OPTIMISM

WORDS *by* OLIVER HERWIG

Shouldn't we be afraid of robots and AI? In Europe at least, there are many people who are sceptical.

M
G

I think we should be afraid of them. There are a lot of reasons to be sceptical. There are a lot of reasons to be wary. And as a society, we have collectively landed on what we don't like about this technology. Where I see a gap——what's missing——is knowing what we actually *do* want to do with it. My work brings an innate sense of optimism, sceptical optimism, in trying to discover the things we actually want this technology to do. I think it is important to inspire people that come from more diverse backgrounds, with different value sets than normal Silicon Valley techno-optimist values, to get involved and engaged to discover what this technology can do for us that we actually do want.

-
-
-
-

Very well. So we don't really know what to expect from this kind of technology? What is really in store for us, then?

M
G

Well, the narrative around this is overwhelmingly dystopian. And that's not just about technology. It goes back to all sorts of mythologies——across all cultures and all times. We have a bit of a God complex around artificial intelligence and robotics, as we are making this thing in our own image, and we don't know if we're making Frankenstein's monster, if we're flying too close to the sun. So we have this dystopic view ingrained within us——and reinforced through Hollywood as well. There are enough voices that are putting us on guard for what the negative outcomes can be, but not enough imagination is devoted to exploring the amazing possibilities that are at the edge of what's probable and possible for how this is going to intersect our lives.

-
-
-
-

What is your history with robots? Your first encounter, the magic moment when you decided: this will be my playing-field!

M
G

I trained as an architect and I was going to school to learn how to build buildings. I happened to graduate at a time in the US when there was a huge recession and zero architecture jobs. So I decided to go on and specialise in something. I was so interested in all this digital *stuff* that was happening in our field, and at the time what I really wanted to do was to become a curator, because I thought, *That's how I can contribute to this narrative; that's how I can help guide and grow how this tech will impact our lives.*

-
-
-

And …?

M
G

I got rejected from all the history theory and criticism schools that I applied to, but I happened to get into one program at Carnegie Mellon University, which happened to be very, very technical, and that happened to be very, very intimidating for me because I had zero programming experience going in. So then I was on a mission to learn how to talk to these machines——to become one of those people actually making these things. And lo and behold, in a third sub-basement of a building, I found a lonely robot just sitting there, not really doing anything.

-
-
-
-

Sounds like the perfect setting for a crappy SF movie, even a bad horror SF movie …

M
G

… a really bad one *(laughs)*. Carnegie Mellon is based in Pittsburgh, a rust-belt city of the United States that was formerly the heart of the steel industry. And so, there are a lot of sub-basements with strange machines just sitting there, kind of lonely. And at the time, I knew as much as the instructor about how to use this machine, which was nothing. We didn't know what we *weren't* supposed to do with the robot. And so I immediately started to apply the tools and techniques I was learning in interaction, to misuse this machine that's meant for automation. When I did an artist residency with Autodesk, they shot a video that was just running some demo code of me moving the robot with my hand gestures. The video got a lot of traction online, and people kept asking me for more of that. This was the first time in my mind that I saw a spark: people weren't seeing this as a piece of manufacturing equipment. They were seeing our relationship——that just our bodies could communicate primal things in space. Ask any dancer or performer, and they'll tell you that the motion of our bodies communicates things in space. Applying that mindset, these sensibilities, to robotics was something quite novel at the time. And it has been amazing to really pull at that thread of curiosity of: how would an architect program robots?

-
-
-
-

Spatially, I suppose. How would you describe your role in the world of robotics?

M
G

I feel like a continual outsider. In the world of robotics or the world of art, I'm building this bridge between the two, which means I can never quite be enough for one side versus the other. It has afforded me a really unique vantage point, to be honest, in both industries. I've been fortunate to find a cohort of people that are also exploring on the fringes, which makes it feel less lonely out there on the edge of what is possible.

-
-
-
-

But you also worked for NVIDIA …

M
G

Yes. For the past five years, I was a roboticist with NVIDIA, and sometimes I felt a little bit like Jane Goodall——in the bush, observing this tech grow in its native environment. You see what actually happens with the engineering stack and how these things go from an idea to a mission to a product in the world.

-
-
-
-

And what was it like to work as an anthropologist in the jungle of robotics?

M
G

That was an incredibly rewarding and engaging experience. It led me to see that a lot of the things that come out of Silicon Valley——that many people have distrust of——are built by people who are kind-hearted, who want to make the world a better place and who are doing their best to leave a positive impact on the world. The challenge is that there's a lot of default thinking that becomes embedded into these mass-impact technologies that come out into the world: There aren't enough diverse voices, viewpoints and abilities contributing to the technologies that are coming out and having such a high impact at such a high speed. And so when I'm making a work, sometimes my audience is actually those software engineers. I want my work to open their minds and spark ideas for what they choose to do——or choose not to do——with these tools.

-
-
-
-

To what extent are robots and, of course, artificial intelligence, changing the way we perceive our world?

M
G

We are reaching an era of technological telekinesis, where we move things with our minds, basically. For the past decade, it has been cell phone-based: it's amazing that with an app, I can request something physical and it shows up on my door the next day. That in itself is a pretty wild concept that is akin to teleportation. If you'd told someone that 100 years ago, they would have thought you were a magician. And what we are experiencing today, especially in the US, are machines that are big, fast, that don't look like us and don't act like us, but are coming out into our everyday lives. In San Francisco, they just passed an ordinance that lets robotaxis roam free in the city, and we're starting to see that friction between the messiness of everyday life and the good intentions of engineers. They should really be employing more urban designers that can give a good context for the difference between your intentions and how people actually use a city.

-
-
-
-

Feels like it is time for a change.

M
G

I feel like it's a great time for more people to feel empowered——to feel like they have a say in how this tech comes out, because it is coming very quickly. And the potential impact is huge: from robots that deliver medicine in remote places or for disaster relief to robots that patrol semi-private plazas to shoo away *undesirables*. As a society, we really need to start grappling with all of this technology, which can be humbling, yet also a bit fearful. And it can have that duality in our mind at the same time.

-
-
-
-

How do you empower people?

M
G

My strategy has been to take this tech out of labs, out of industry, and put it into cultural settings in front of policymakers as best I can. So in the past, I've worked with the World Economic Forum to develop immersive installations that
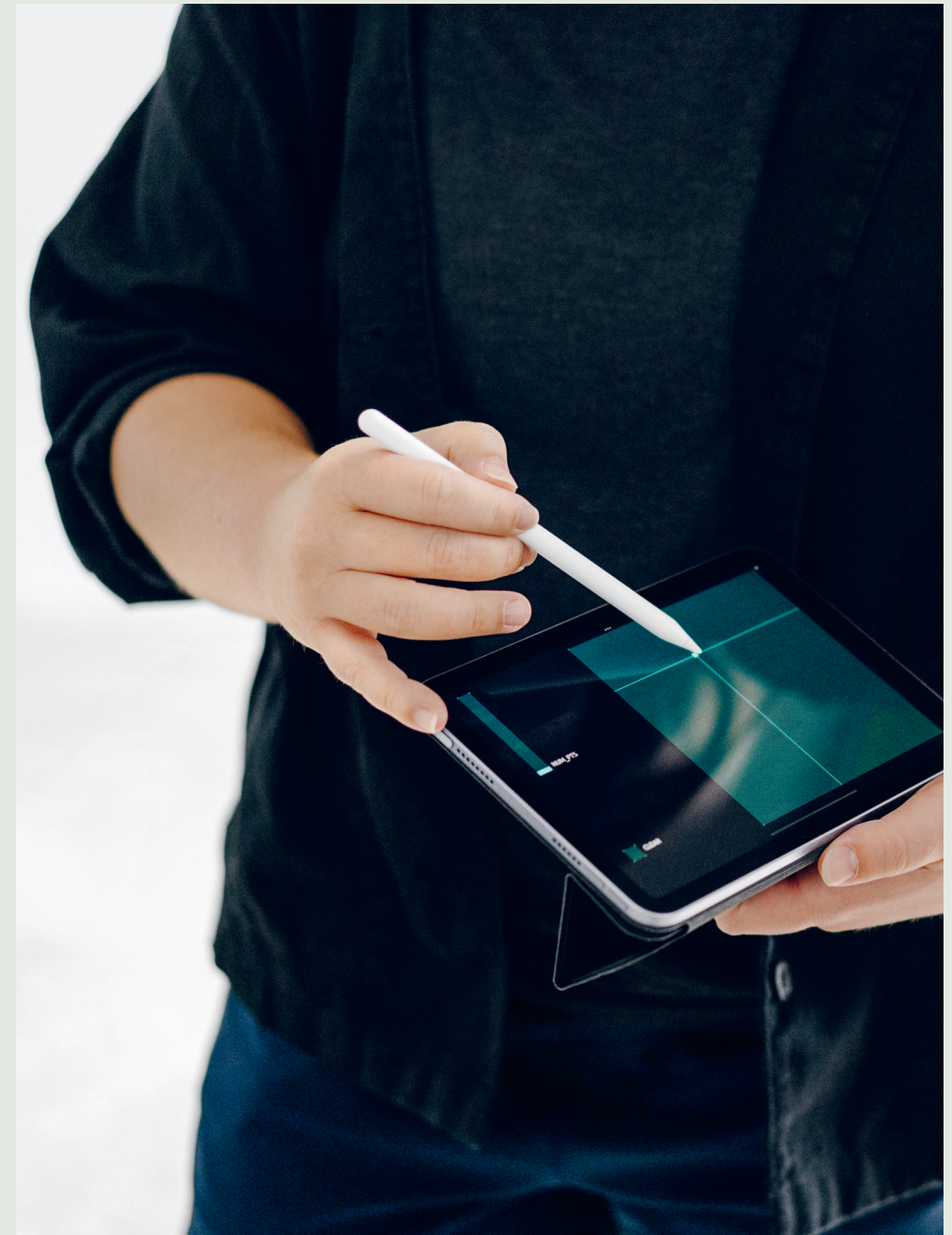
Madeline Gannon's multi-layered approach combines the technical with the playful, so that it opens up new approaches. Her change of perspective opens up perspectives on the future coexistence of humans and robots.

Dr Madeline Gannon is a multidisciplinary designer forging new futures for human-robot relations. Her work shows how blending art with technology can create better ways to live with machines. Also known as 'the Robot Whisperer', Dr Gannon is on a mission to make robotics and other advanced technologies open, accessible and interesting to as diverse an audience as possible. She is a World Economic Forum Cultural Leader and a Member of the Global Council for IoT, Robotics, & Smart Cities. She is a Research Fellow at the Frank-Ratchye STUDIO for Creative Inquiry at Carnegie Mellon University, and leads her own research studio, ATONATON. She is also listed among 'The World's 50 Most Renowned Women in Robotics'. Dr Gannon holds a PhD from Carnegie Mellon University and a Master's of Architecture from Florida International University.

THE ROBOT WHISPERER

showcase my robots to the people who are actually making the governance policies about this tech. I try to give them a snippet——a vignette——of what the technology could look like in ten years, when they all have autonomy and intelligence on their own. I was fortunate to work with the Design Museum in London as well. It was an amazing opportunity to bring a big giant beast of a machine. I gave it a six-month holiday from its normal life in a Birmingham factory, so it could just see and exist around people——and for people to have that same connection. It's incredible to think that around 100,000 visitors of all ages came to that exhibit, and that there is a generation of kids who automatically think that robots are smart and attentive and curious about them——that's their baseline for what our technology should be.

-
-
-
-

A striking approach: You are disseminating …

M
G

I try to find touch points that bring meaning and relevancy to everyday life. This is what I've been recalibrating and refocusing my energies on.

-
-
-
-

You once called your robots *distinctively obnoxious*. Why did you do that? I mean, why did you give them personality in the first place?

M
G

It was just by chance initially ——they have a little bit of my personality. When I create these systems, it's *me* programming them. I give them a balance of control and chaos: if I control the robots too much, then they don't seem lifelike; if I give them too much autonomy, then they could be potentially dangerous. Finding that balance is a craft that I've developed over time. But because of that, my fingerprints, my DNA are all over them. They have a bit of my personality embedded within them, which can be a little intense sometimes, but in general it tries to be just fun and jovial.

-
-
-
-

Asimov's three laws of robotics come to mind, because most of these machines were designed for industry, some even for the military.

M
G

A lot of advanced technology starts from the military, because that's where the funding mechanism is——in US defence funding. For example, the Internet was initially a military investment; so was GPS. The thing with Asimov's laws is that they are over 50 years old, actually published in 1942. They are stories of our future from our past. Artists and designers —— the creative minds of our time—— that are pushing at the frontiers of technology, are discovering new narratives that are relevant and contextual to today. We are making things in this moment that help us think more contextually about our futures. Because there are things today that are unimaginable, even by the most creative minds. There are things happening now that 50 years ago, not even Asimov could have begun to guess at. And the same thing will be true in 50 years

for us as well. That's why I love engaging in culture through this lens of technology.

-
-
-
-

How do people usually react to your robots? Do they see them as part of an elaborate form of dance or ballet?

M
G

What I try to embed is a sense of animism in these machines. Because that's how we know we're primal creatures. At the end of the day, we have these higher levels of thinking and analysis in our minds. But there's also that lizard brain deep, deep inside that's always reading gestures and emotions. Those frequencies—— those low, low frequencies—— can permeate our strongest armour against the world around us. I find it such a powerful material to harness.

-
-
-
-

Have people's expectations changed rapidly? Or have you discovered a kind of slow development over the last years?

M
G

Because my machines seem so lifelike, people think they're smarter than they actually are. And that hasn't changed at all over the past five years. But the thing that has changed is that there are just more people wanting to have a say——wanting to have agency——in what this technology means to us. To me this is a very, very exciting opportunity to make work that helps broaden our collective imagination.

-
-
-
-

You once said——paraphrased ——that we were on the verge of having to make the world work more efficiently. And robots could be a tool to do so. But from my perspective, they are used just to get the most out of investments. Is this why you are so playful in your work? Are you undermining these ideas of exploiting the world without thinking about future generations?

M
G

That would be nice. That would be a really high level for what I would hope to be achieving. I think in general, the challenge of my generation is to figure out how to do more with less. We have the long-term success of society, and technology can help get us there. It can be used for extraction and exploitation, but for the opposite of that, too: for enhancing and augmenting. We can use these tools of automation to replace human labour, or we can use these tools of automation in a more clever way to enhance it and to augment it.

-
-
-

That was a very positive perspective on the fusion of human and machine. But aren't we cyborgs already, with cell phones constantly in our hands? It's sometimes scary, isn't it?

M
G

Yeah, it is scary. And it pushes towards a sense of awe as well. Over the past decade, we've seen the rise of immense technological powers. Artificial intelligence and robotics are one of those powerful forces that I want to be on the side

of optimism and hope and good, and not on the side of extractive, exploitative and manipulative. But we need to have the counterbalance of these forces——the antidote——in production and R&D right now if we're going to keep pace with how this technology is coming out into society. Robotics is out in the wild, and it will permeate in many different, unimaginable directions.

-
-
-
-

You mentioned Hollywood earlier, and the usual dystopian plots of its movies. What could be a positive perspective for the next five to ten years, thinking of AI and robotics?

M
G

My goal is to help humans live a happier, healthier, more balanced life. That should be the goal for all tech at the end of the day. But there are many different value sets out there for how to live a good life. My hope is that these tools can help to bring together those different perspectives, those different wants, those different ideas of more optimistic narratives. My hope is that there are more flavours of what AI and robotics can be. Because there's lots of ways that this technology can go, and it should be tailored to the people that it is going to impact the most.

-
-
-
-

Thank you for the interview.