ART AND ROBOTICS

Robotic Art Comes to the Engineering Community
By David St-Onge

An inspiration for many, Leonardo da Vinci was both engineer and artist: profoundly astonished by nature, from math and physics to aestheticism. In 2019, we commemorate the 500th anniversary of da Vinci’s death, and it must be acknowledged that this symbiotic profile is less common today.

Nevertheless, contemporary artists have demonstrated their potential to explore and discover unexpected uses of new and existing technologies and develop methods and apparatus with a vast potential for transferability into multiple realms, including engineering and technology as a whole.

In May, the IEEE International Conference on Robotics and Automation (ICRA 2019) in Montréal directly addressed the importance of artistic contributions to the field of robotics research and to its social and cultural impacts. While most robotics conferences (ACM/IEEE International Conference on Human–Robot Interaction, IEEE/RSJ International Conference on Intelligent Robots and Systems, ACM CHI Conference on Human Factors in Computing Systems, and so on) featured satellite events (social nights and workshops) dedicated to robotic art, none had yet integrated such contributions in a mainstream manner.

The ICRA-X: Robotic Art Program culminated a decade of practice and research at the intersection of two broad disciplines: robotics and the arts. It included the following (more details are at roboticart.org/icra2019).

- CO-Existence, a circuit of robotic art installations in the main hall, was curated by Elektra, an organization that presents and promotes digital artworks. This very first exhibition featured pieces by robotics artists whose work is concerned with contemporary aesthetics in research and experimentation.
- A curated exhibition of creations by art students, selected from Montréal art schools and from an international call for projects, served as a showcase of the integration of robotics in the art curriculum.
- A main keynote speech was given by high-tech fashion designer, Anouk Wipprecht.
- A full-day Expressive Motions forum featured guest speakers, including artists presenting their works during the exhibition, an expert panel, and an interactive session based on an international call for contributions.

Eight artworks were part of the CO-Existence exhibition, and each triggered curiosity, surprise, and intriguing discussions. Internationally well-established artists were gathered by curator Alain Thibault (Elektra director) from Canada, The Netherlands, Australia, and Lebanon. While the hanging “Mega Hysterical Machine” by Bill Vorn was an ominous overseer the poster sessions, “TheObsessiveDrafter” by Guillaume Credoz attracted the empathy of the public of all ages (see Figure 1). The influence of these artists on our engineering community is broad: Stelarc artworks even inspired the Australian company Robological.

After three days of exhibition, the artists were invited to discussions with engineers in a full-day forum. Seven guest speakers ranging from professional artists to academic researchers to representatives from the entertainment industry shared their work, straddling the border of art and engineering. At the core of the art forum day was a dynamic panel moderated by Evan Ackerman, from IEEE Spectrum (see Figure 2). The discussion started smoothly with descriptions of panelists’ favorite art and engineering...
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collaborative projects, but the professional artist Michel De Broin quickly broke the glass ceiling, stating that new technological products, specifically in robotics, are éphéméride while art can make them eternal. This may not have been an opinion shared by the whole group, but it set the tone.

Prof. Ken Golberg recalled that his remote-controlled garden ran for years, far longer than planned, pushing the limits of the technology in terms of both robustness and expected results. Boris Verkhovsky, from Cirque du Soleil, emphasized that the robustness of a robotic system and its complacency with repetitive tasks are what make it boring for live performances. As a challenge to the engineers, he suggested one should design a humanoid that stands perfectly still for the whole Circus show but then, at the end, extends its arms to catch a falling acrobat, which would make the robotic performance surprising each time. Prof. Jean-Paul Laumond raised the hypothesis that engineers’ approach to robotic motion may be misguided: instead of using it as a means to reach a goal, motion should be the matter, and an artistic one. This rich discussion was a mere introduction to the abundant exchanges among presenters and the forum audience all day.

The art program carried a student component similar to the main ICRA program. The six curated student artworks were open to the public all three days. Visitors from the general public and the conference merged in front of these pieces (see Figure 3).

In the end, the most stirring event of the program was its keynote. Anouk Wipprecht’s speech generated enormous enthusiasm from the audience: fans were still gathered around her for an hour after her talk had ended. Eminent researchers in robotics approached her to exchange ideas on novel wearable interfaces. This proves again that we seek beauty beyond utility.

The 2019 ICRA-X: Robotic Art Program was a great journey. It was born thanks to the belief of the ICRA Organizing Committee and IEEE support. We all feel that the time has come for engineers to collaborate more with artists in their research, and we hope to see more such contributions in upcoming conferences and journal issues. If we are marching toward a future machine-led world, maybe we want it to be a beautiful utopia, rather than a machinic dystopia.

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Figure 2. The group of panelists at the Expressive Motions forum (from left): Michel De Broin, Ken Golberg, Jean-Paul Laumond, Heather Knight, Boris Verkhovsky, and Bill Vorn. (Source: IEEE; used with permission.)

Figure 3. A group of conference attendees and members of the general public watch a magic ball drawing in the sand: “Pufferfish by Molly.” (Source: Charlotte G. Ghomeshi; used with permission.)