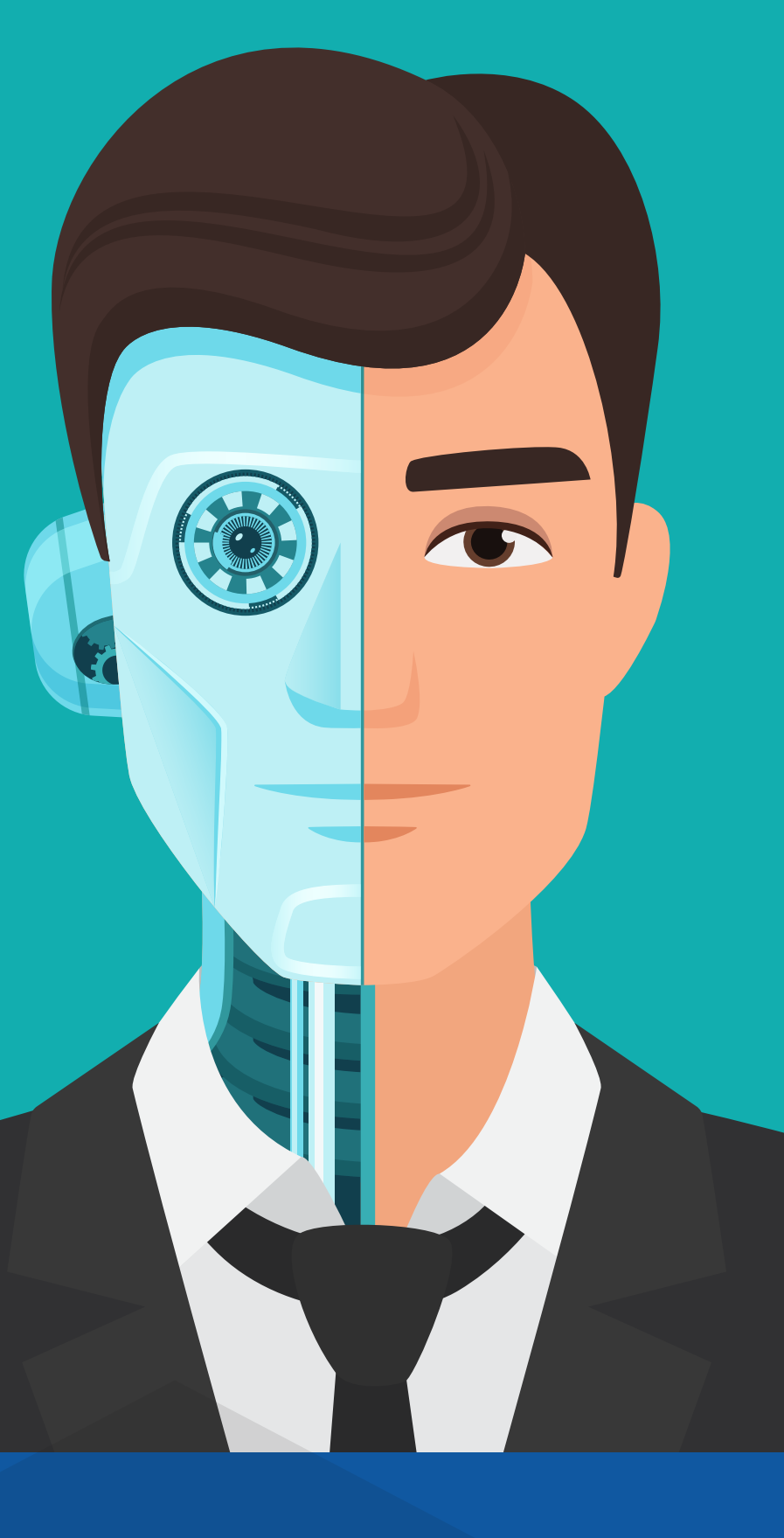


10 FUTURISTIC HUMANOID ROBOTS

BY DARIA MERKUSHEVA

Humanoid robots are used for research and space exploration, personal assistance and caregiving, education and entertainment, search and rescue, manufacturing and maintenance, public relations, and healthcare.

As we continue to reboot and reevaluate toward a post-COVID-19 world, the role of humanoid robots can be used to relieve tired nurses in the hospitals, do necessary cleaning and deliveries, help in warehouses, and assist in manufacturing plants.



Here are 10 humanoid robots that may change our daily interaction with automation.

1 T-HR3: The Robotic Avatar



Photo: Toyota

Initially introduced by Toyota in 2017, the T-HR3 is a humanoid robot that mimics the movements of its human operator. It has improved controls to walk more naturally. Envisioned as a mobility service, in the future, these humanoids will be able to perform surgeries under the control of human doctors, and help caregivers to do their work remotely.

2 Sophia: The Robotic Ambassador



Photo: Hanson Robotics

Sophia is a social humanoid developed by Hong Kong-based Hanson Robotics. In 2020, the AI-powered four-year-old robot is going to continue her role as a robotic ambassador, helping to advance research into robotics and human-robot interactions. Taught by humans, Sophia can move, talk, show some emotions, draw, and sing.

3 Digit: The Delivery Robot

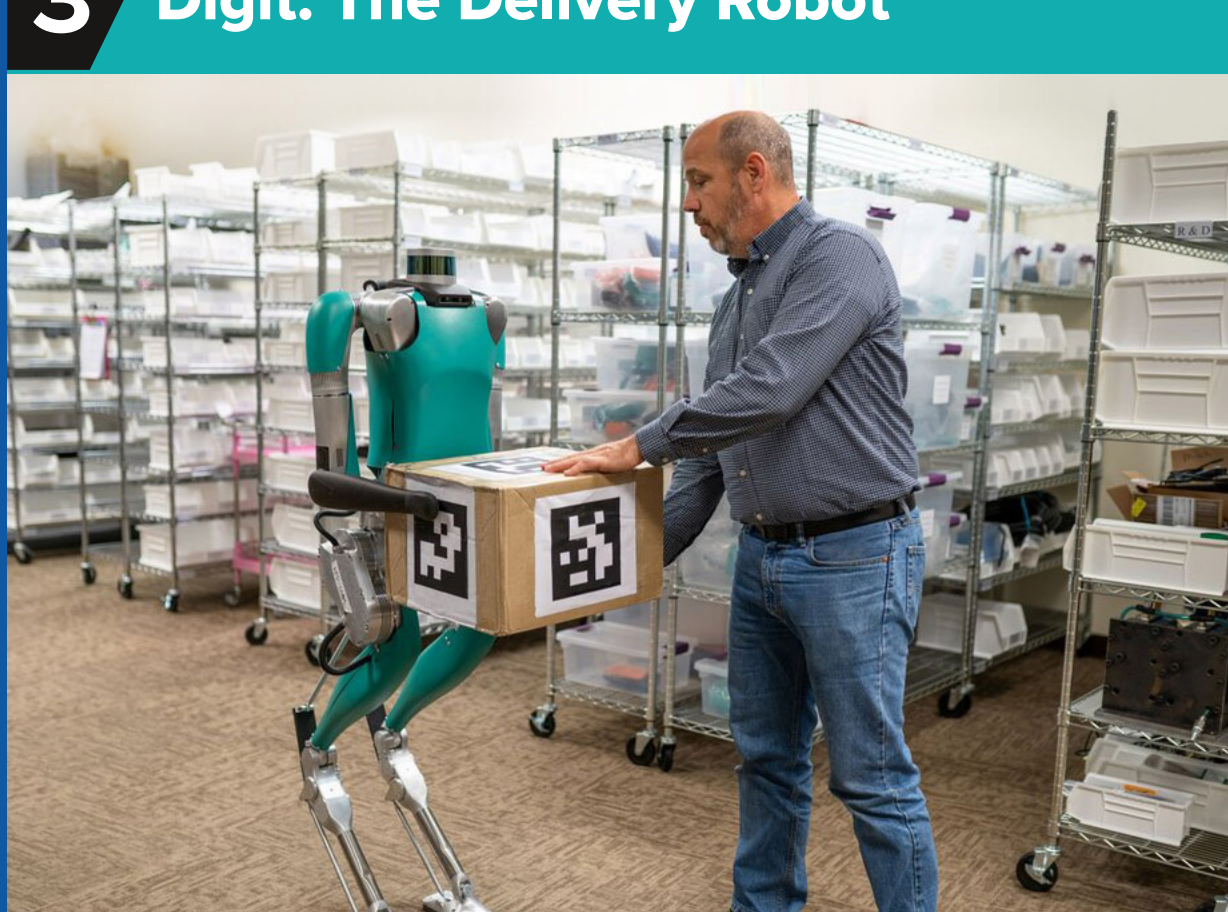


Photo: Agility Robotics

Automotive manufacturer Ford became the first customer to incorporate Agility Robotics' Digit into a factory setting. The headless humanoid has nimble limbs and can navigate various obstacles, including stairs. It can balance on one foot, but usually it walks upright and is strong enough to pick up a stack of boxes weighing up to 40 pounds. It can also fold itself for compact storage. Ford envisions that Digit will ride in a driverless car, and deliver packages to customers, automating the whole delivery process.

4 Surena IV: The Research Humanoid

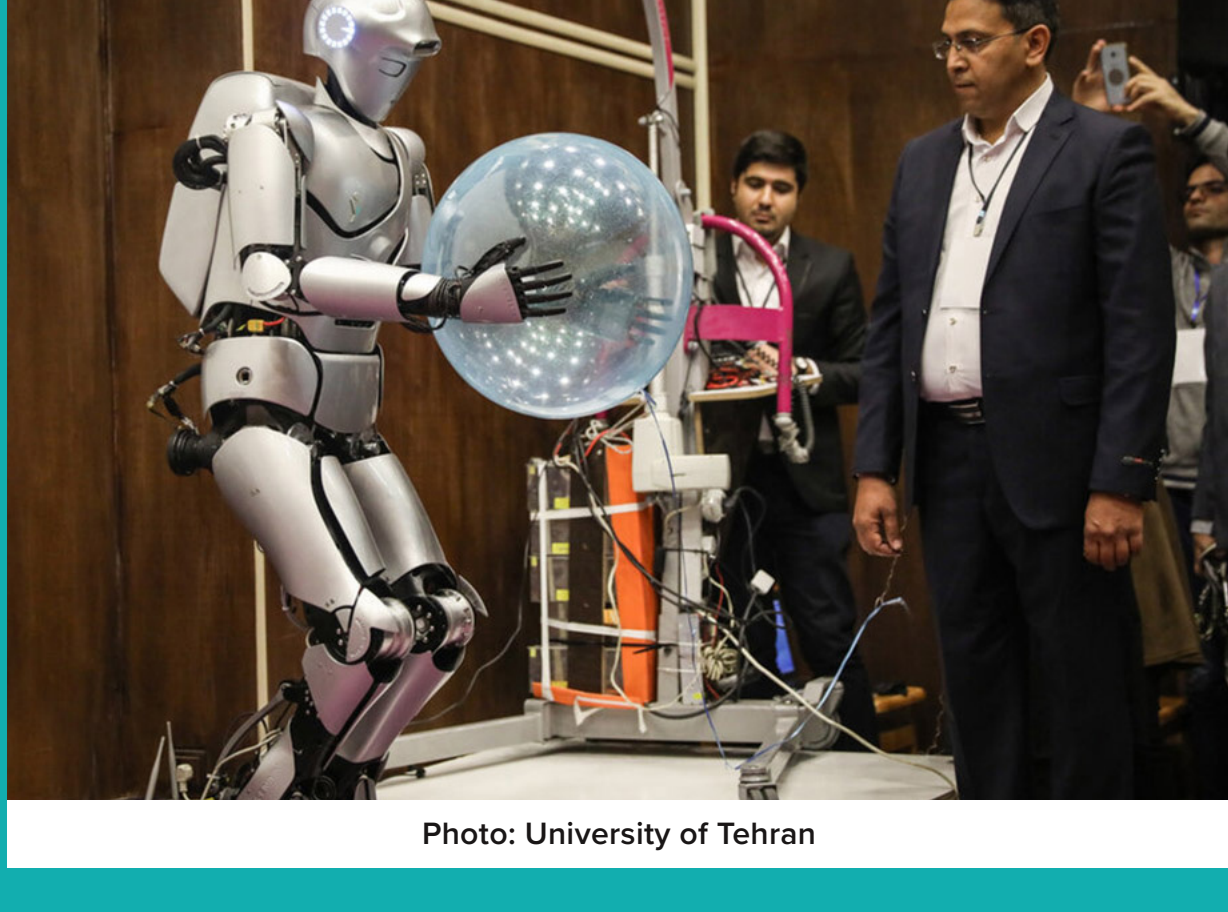


Photo: University of Tehran

The University of Tehran has been working on Surena IV, an adult-size humanoid that is reportedly capable of face and object detection, speech recognition and generation, and can walk with a speed of 0.7 kilometers per hour. It has 43 degrees of freedom, and its dexterous hands can grip many different shapes.

5 Neons: The Digital Humanoids



Photo: Neon

Samsung Technology and Advanced Research (STAR) Labs' Neons are digital human beings that look and act like humans, but are entirely virtual. The Neons are AI-powered beings with unique personalities and look. These artificial humans are not designed to answer any questions like Alexa or Siri but are supposed to show emotions, learn from experiences, and have real conversations.

6 Kime: The Robotic Bartender



Photo: Maccio Robotics

Kime is a food and beverage serving robot, developed by Maccio Robotics in Spain. It features a human-like head and torso with two arms inside a kiosk. Kime has humanoid features, 14 to 20 degrees of freedom, has smart sensors, and uses machine learning to improve on its skills. It also can pour a nice beer, capable of serving up to 300 glasses per hour.

7 RoboThespian: The Robotic Actor

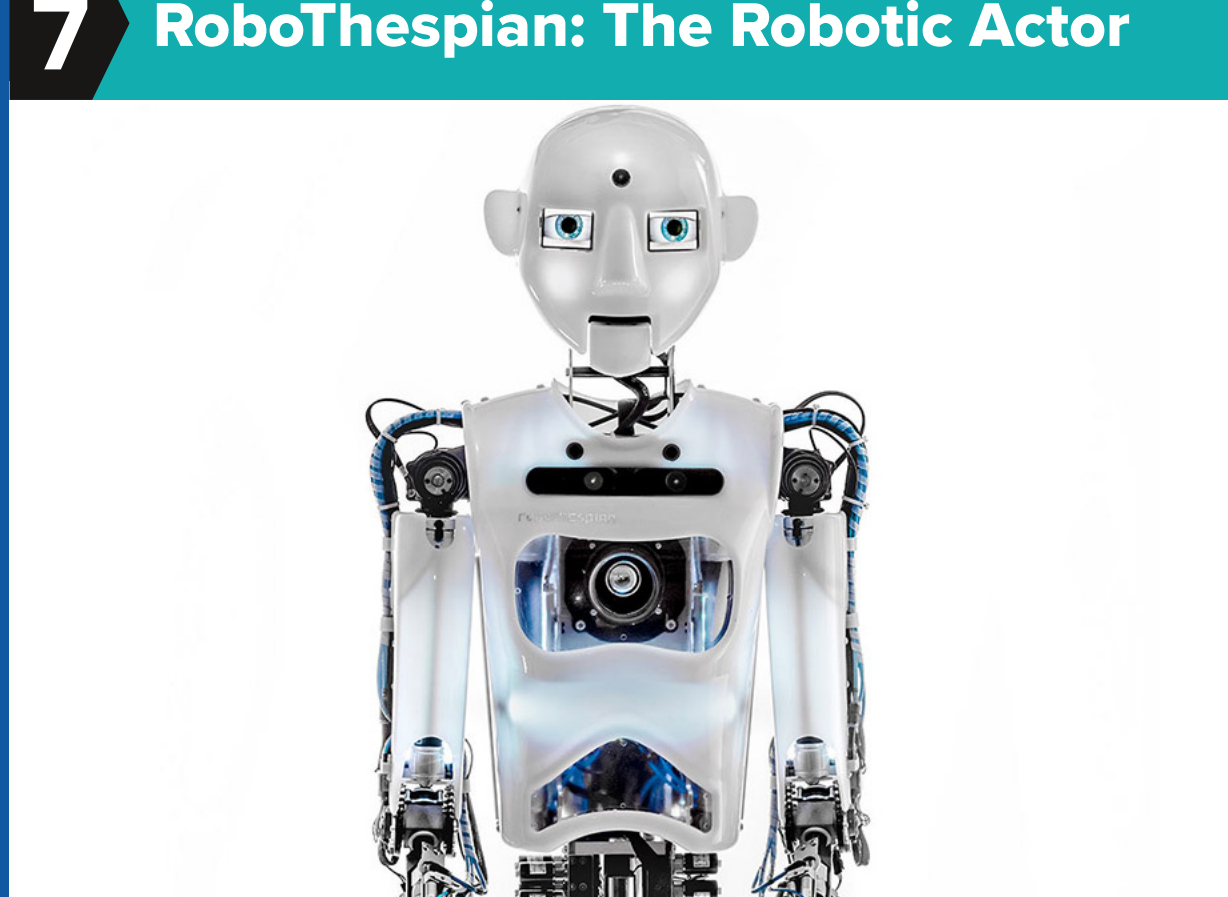


Photo: Engineered Arts

RoboThespian is a robotic actor that comes with a library of impressions, greetings, songs, and gestures. It was the first humanoid robot designed by Engineered Arts—a U.K.-based company that produces different entertainment humanoids through collaboration between artists, mechanical and computer engineers, and animators. The company is working on creating a robotic theater team—an integrated system of robots capable of fully operating an entire theater.

8 Vyommitra, Fedor, Valkyrie, and Robonaut: The Robotic Astronauts



Photo: NASA

Several countries have been working on humanoids for space exploration. In India, Vyommitra, a female humanoid robot, is set to launch on an uncrewed spaceflight in December 2020. The flight is scheduled to conduct microgravity experiments to help prepare for future crewed missions.

Fedor, or Final Experimental Demonstration Object Research, was a Russian remote-controlled humanoid that flew to the International Space Station (ISS) in 2019, where it simulated repairs during a spacewalk, and later returned back to Earth.

NASA's Johnson Space Center has worked on several humanoids, including Robonaut 2 (that spent seven years aboard the ISS) and Valkyrie. It's possible that future space humanoids will be designed to withstand harsh environments of the Moon or Mars.

9 Pepper: The Educational Robot



Photo: SoftBank Robotics America

SoftBank Robotics' Pepper was designed to be a friendly emotions-reading robot and now comes with an educational integrated development environment (IDE), called Tethys, that was created to teach students how to code. Using the software, students can program the humanoid to move, talk, gesticulate, and show different messages on its screen, all in real-time.

10 Nextage and Walker: The Collaborative Humanoids



Photo: UBtech Robotics

Most humanoids are intrinsically human collaborators. For instance, Nextage from Kawada Robotics is a humanoid research platform for industrial robots for Industry 4.0. Armar from Germany's Karlsruhe Institute of Technology was developed to perform maintenance tasks alongside human workers in industrial settings.

Walker by UBtech Robotics, on the other hand, is designed to collaborate with humans in their homes. With seven degrees-of-freedom manipulators, the humanoid was developed to perform household tasks and smart home control.