Micro

Future of Manufacturing Part V

The Bot Revolution

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The Co Bot Revolution

When Ai and robotics combine to partner with humans, Mariya Yao from TopBots believes synergies can truly be found.

"Rethink Robotics, founded by robotics pioneer Rodney Brooks, advocates the "cobot" model where humans and robots work side by side for maximum effectiveness. While industrial robots have long performed heavy lifting and tedious work on assembly lines, they're typically designed for a single tasks and require hours to reprogram. Baxter and Sawyer, Rethink's smart collaborative robots, are able to learn a multitude of tasks from demonstrations, just like their human counterparts can."

The factory of the future will take to training robots in the way we train humans, but with the opportunity for greater results. When Ai fuses with robotics, in tandem with other technologies such as 3D printing and the internet of things, we'll see efficiency on a scale we've never experienced before.

"We will begin to see the rise of smaller production sites being established much closer to the consumers themselves, for example within densely populated cities. This means that manufacturers will be able to dramatically reduce the time from factory to consumer, putting newly developed products into the customer's hands within minutes or hours."

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Expanding the application of Robots

"Today's robots are ill-suited for the more fluid environment of the assembly line – where trims and options change frequently, and "dual-arm control" is a prerequisite...The constraints [on the assembly line] are much different,"

This is an excerpt taken from IndustryWeek.com's article The Future of Robotics in Manufacturing as it quotes Erik Nieves, technology director for Yaskawa America Inc.'s Motoman Robotics Division. His thinking highlights the challenge with automation and robotics today.

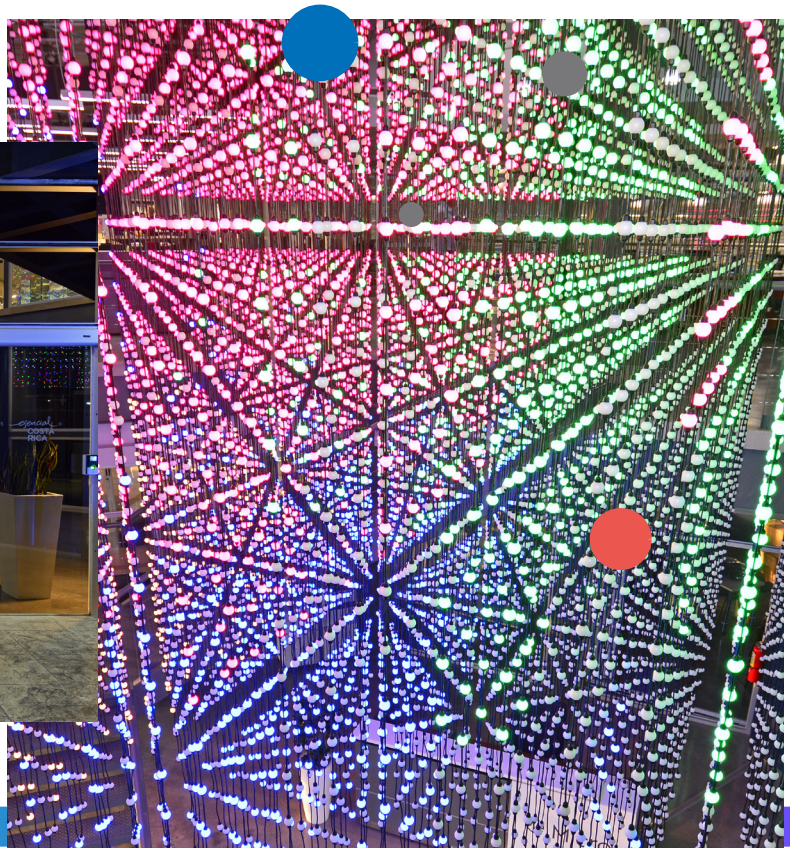
He also goes on to say,

"Robots on the body line are largely blind. They just have brute force and a memory."

In the past, high costs have left robotics out of reach for many manufacturers and prohibitive for certain applications, but robotics is on the cusp of significant breakthroughs which will change that. In fact, recently, "Students at Rensselaer Polytechnic Institute unveiled a robot that can mimic human movement." This marks a significant evolution in robotic technology as humans and robots work closer together with robot mimicking the human to perform more complex operations.

There's still more development to occur but "When it does happen – and advancements in sensing technology and intelligence converge – Nieves predicts we'll view robots much differently than we do today."

Read the full article here



Increasing capabilities

Industry week is not alone. In an article exploring robotic trends in 2018, Manufacturing Global states that with advances and falling costs of technology such as sensors and artificial intelligence, robots are become smarter, more efficient and capable of working more closely with humans.

"With the development of mobile robots, the complex technology is capable of undergoing impressive, challenging tasks. These capabilities include environment perception, localisation, mapping, and motion planning, and are helpful or warehouses, airports, and hospitals."

Already, robotics developers are seeing robots more capable of performing challenging tasks as their capabilities improve around environment perception, localization, mapping and motion planning. With robots that can perform multiple functions, we make way for modular robotics instead of expensive 1 use setups, and we may even see the emergence of RaaS (Robotics as a Service) as a business model.

Read the full article from Manufacturing Global

In An interview with Siemens, S. Shankar Sastry points out an interesting take on the new robots,

"The role of robots is changing tremendously. Until now we have used them to do jobs that are too dull, dirty or dangerous for human beings. But today, we are starting to see them as being able to aid or enhance human work with a degree of autonomy. Take factory workers. They may, for instance, need a robot assistant to perform tasks that are too delicate for human hands. So, the notion of a robot as a human helper could become a new paradigm."

The thinking robot

"With the help of artificial intelligence, researchers at Siemens have developed a two-armed robot that can manufacture products without having to be programmed. In a glimpse of the future of automated production, the robot's arms autonomously divide tasks and work together as one."

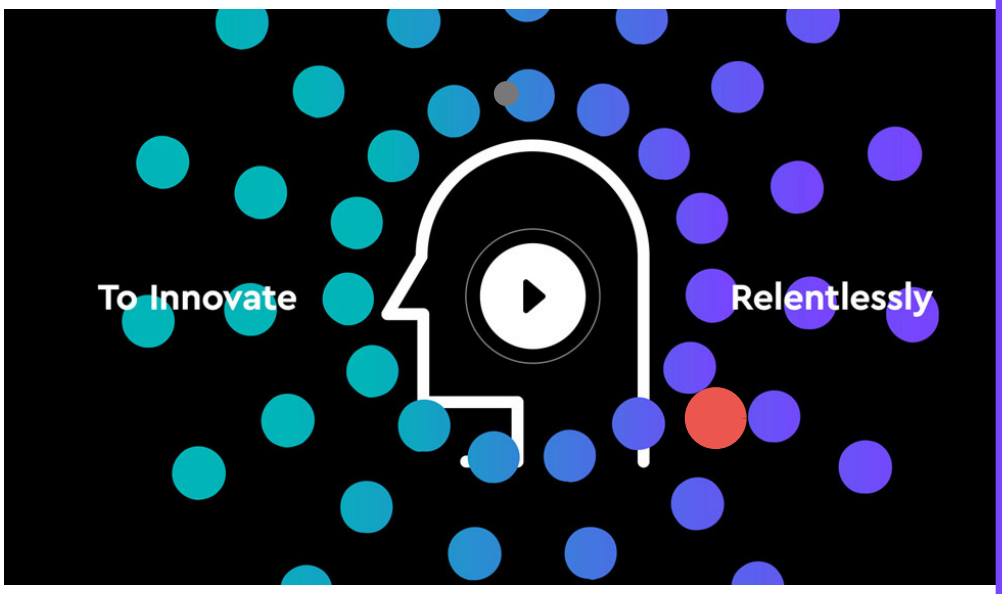
Read the impressive story here

Automation.com writes in its article on robotics trends,

"With the rapidly increasing power of the microprocessor and artificial intelligence techniques, robots have dramatically increased their potential as flexible automation tools. The new surge of robotics is in applications demanding advanced intelligence."

This thinking robot is converging with complementary technologies to enhance machine vision, touch, speech recognition and advanced mechanics. Combined with a brain, the ability for robotics to integrate with the manufacturing process and provide real insight and value is on the horizon.

Read the whole article here.



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