

technology today

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JD.com's Totally Automated Warehouse in Shanghai

Is your career choice or current career going to be eliminated soon by automation and/or the artificial

company in China and have over 300 million customers. They use automation wherever possible to deliver

Photo courtesy JD.com



Photo 1—
This giant
facility
employs only
four people
and 1,000
robots.

intelligence (AI) revolution? I raise this question not to scare you but to warn you that your career choice should include insight into how your selection will be affected by smart computer algorithms or artificial intelligent robotic systems in the foreseeable future.

We are still a long way from the type of "almost human" robots often depicted in science fiction movies. However, the loss of jobs to robots that still look like machines is picking up speed. The 1,000 robots in this JD.com automated warehouse in Shanghai, China, (Photo 1) are AI-controlled to pick, package, and then ship thousands of orders each day.

The robots are now doing the jobs that would normally be done by 180 workers. One hundred and eighty workers did not lose their jobs—this product fulfillment warehouse, the size of seven football fields, was designed and built to only need four human workers.

JD.com is a Chinese company that most of us in the U.S. have never heard of. They are the largest retail

products within 48 hours from the time they were ordered. To accomplish this task, they are building totally automated warehouses and are now even using drones to get the products to their final destination (Photos 2 and 3).

The products from different companies arrive by truck at the receiving loading dock. These resupply trucks are unloaded by automated forklift trucks and scanned to make certain that the order manifest matches the delivery.

As soon as the boxes are brought inside they are turned over to a robotic system that can unload the individual boxes, scan each item from the large shipping box, place

the same individual items into a JD.com storage box, and then send the container to its proper place for temporary storage at the facility until it will be pulled by a robot to fulfill a customer's order.

Scanners that are a part of the artificial intelligent logistics system orchestrate a robotic dance that includes robotic arms, conveyor belts, and automated trolleys that move along the floor of the facility without bumping into each other. The robotic arms use visual systems to see what they need to pickup and AI to instruct them how to best handle differently shaped objects.

The individual items that customers order are in storage throughout the facility. A complex system of roaming robots and conveyor systems, AI logically controlled, bring all the items together at amazing speed so the automated packager can pack them and send them on to shipping.

It has taken so many words to describe a system, at this facility, that can handle 200 thousand orders each day. Seeing is believing—this YouTube video shows cutting edge AI automation at work: https://www.youtube.com/watch?time_continue=1&v=RFV8lkY52iY.



Photos 2 & 3—The company uses drones and self-driving delivery robotic trucks to make same day deliveries.



Photos 4 and 5—An AI logistics system controls robotic arms, conveyor belts, and automated trolleys throughout this fulfillment warehouse.

Taking It a Step Further

1. JD.com has launched a worldwide robotics challenge that is open to university teams. You will find all the details online at: <https://jdcorporateblog.com/jd-com-launches-global-robotics-challenge>.

2. Select three careers that you are thinking about pursuing. Research each career to see if automa-



tion technologies are already, or in the near future, impacting the chances of your employability in this career by the time you graduate school. ☺

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