

Robotics Trends & the Impact on Employment

Alex Shikany
Vice President
Association for
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My Background



Alex Shikany

Vice President

Association for Advancing Automation (A3)

- 8 years in automation
- I advocate for automation across the world
- MSU Spartan – **Go Green!**
- Email: ashikany@robotics.org
- Twitter: [@AlexShikany](https://twitter.com/AlexShikany)



588

Est. 1974

382

Est. 1984

275

Est. 2006

49

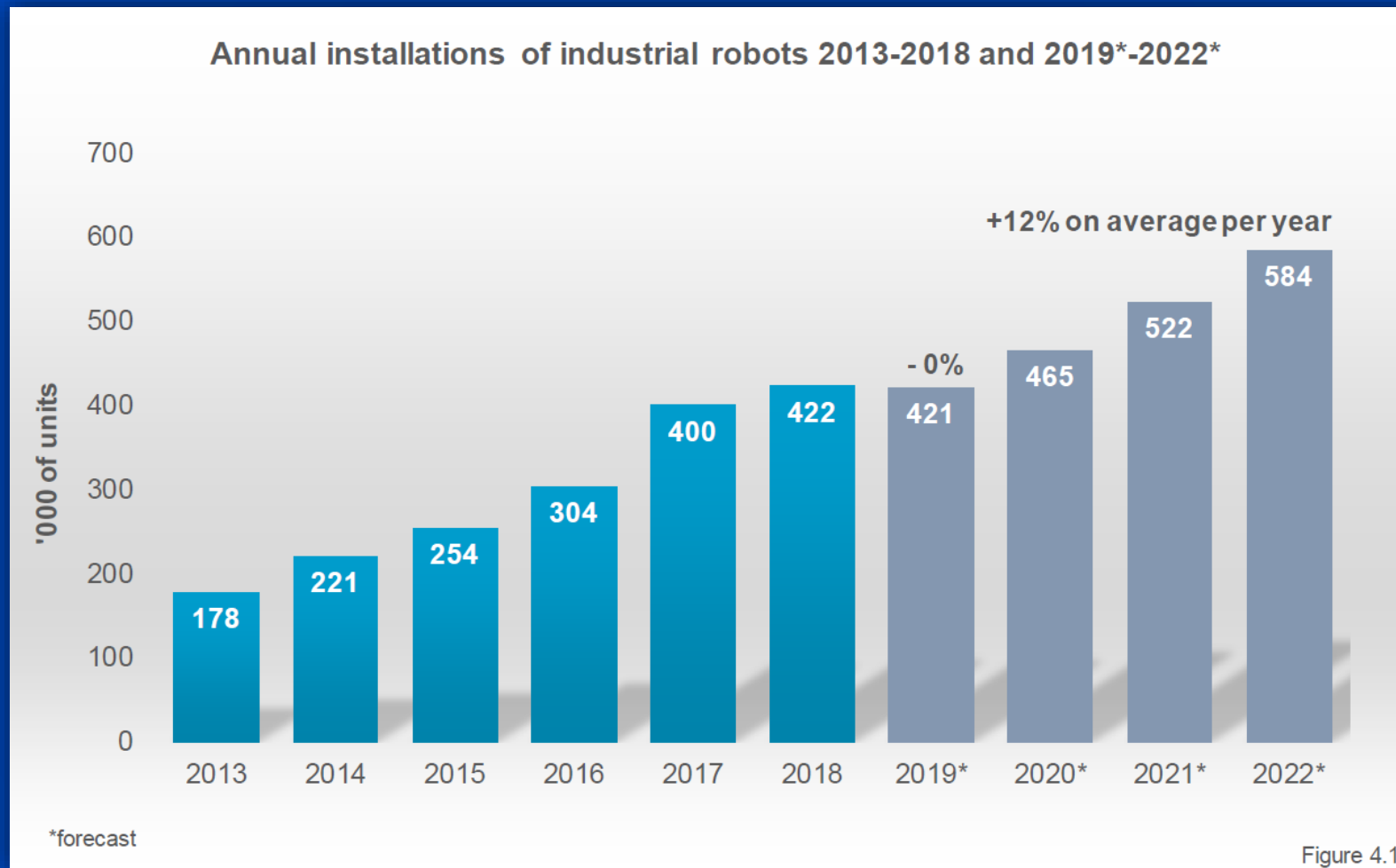
Est. 2017

1,294 Member Companies:

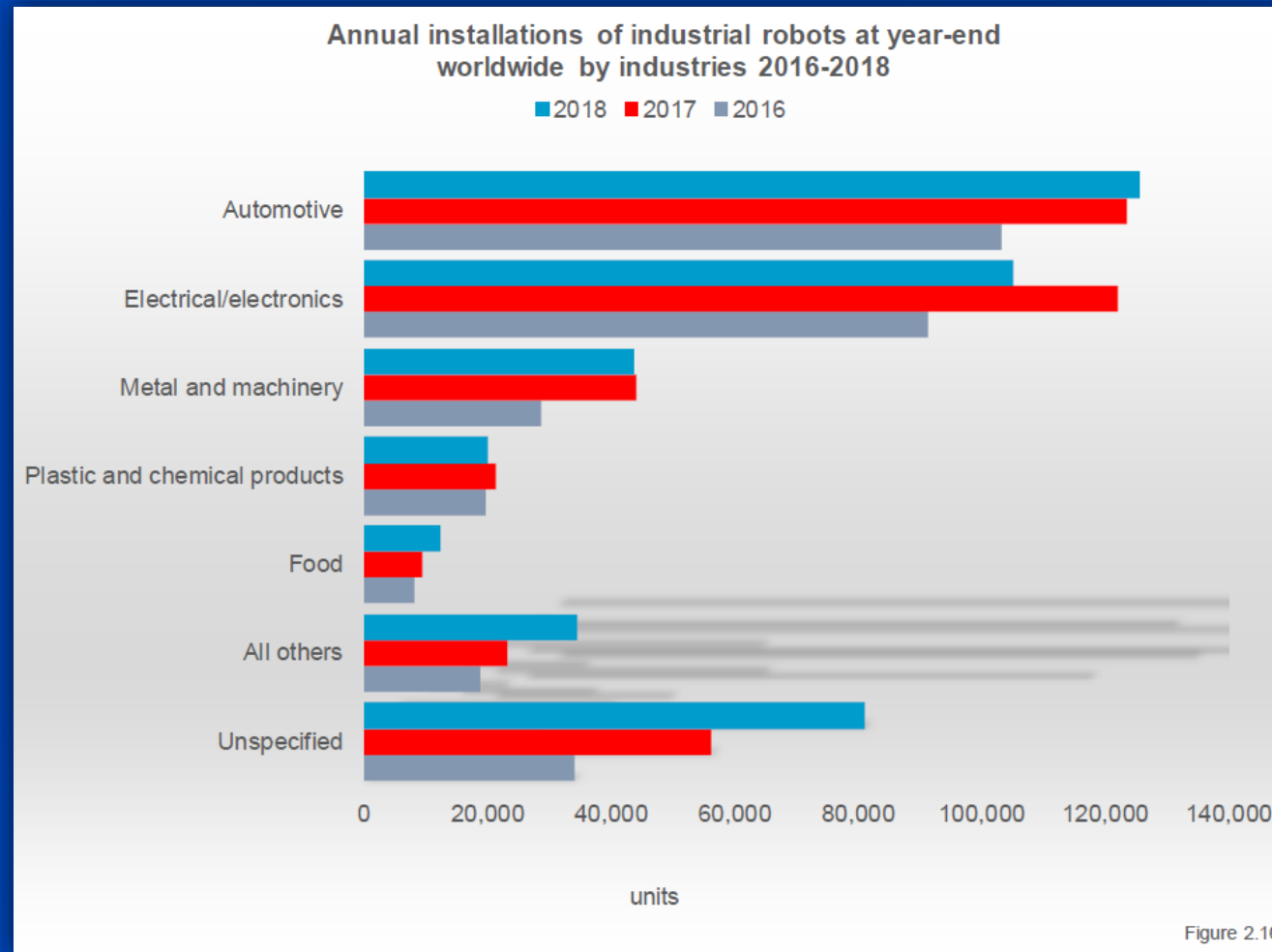
The leading global advocate for automation technologies

Trends in Robotics

Global Robotics Sales Forecast



Global Sales by Industry



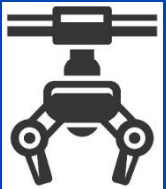
Tech Trends in Robotics



Mobility



Vision



Gripping



AI

Opening doors to
new robotics
applications

Mobility Applications

- **Autonomously mobile bases**
- **Onboard Intelligence Systems**
- **Use computer vision and sensors**
- **Can include robot arms for material handling**



Boston Dynamics (Material Handling)

Credit:
Boston
Dynamics

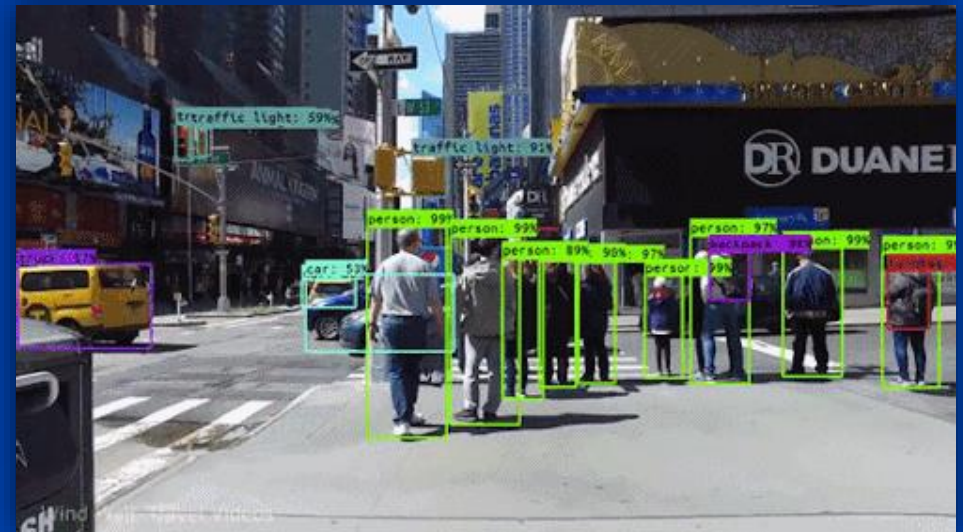


Vision Applications

- The 'eyes' of a system
- Form factors of hardware are getting smaller (embedded vision)
- Often leverages software advances like machine learning or AI

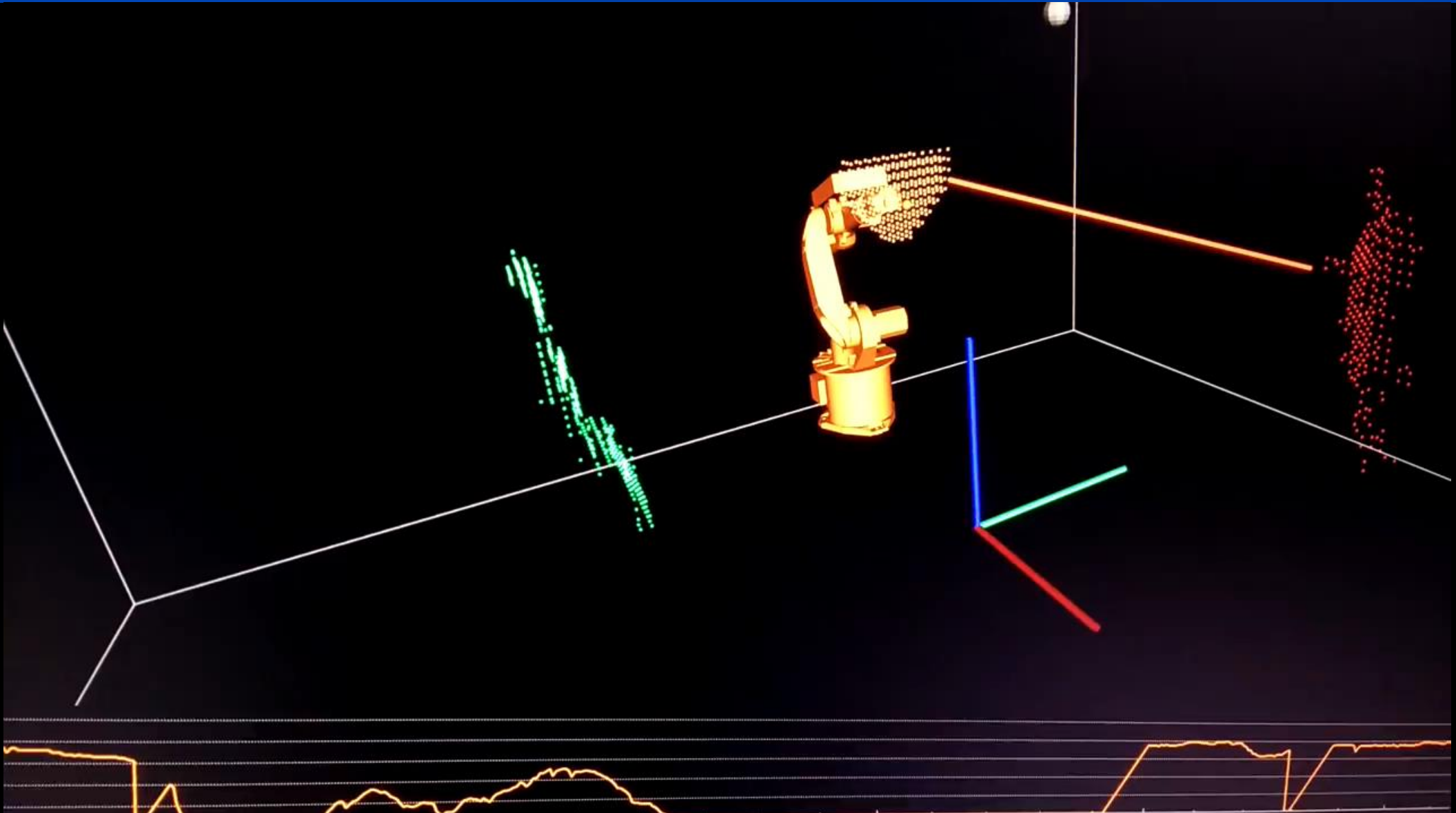
THE
ala | **Vision** 
SHOW

 **JUNE 9-11**
2020



Veo Robotics (Vision)

Credit:
TechCrunch
Veo Robotics



Gripping Applications

- End effectors are becoming more dexterous
- Leveraging machine learning and AI to learn how to grasp objects in random orientations

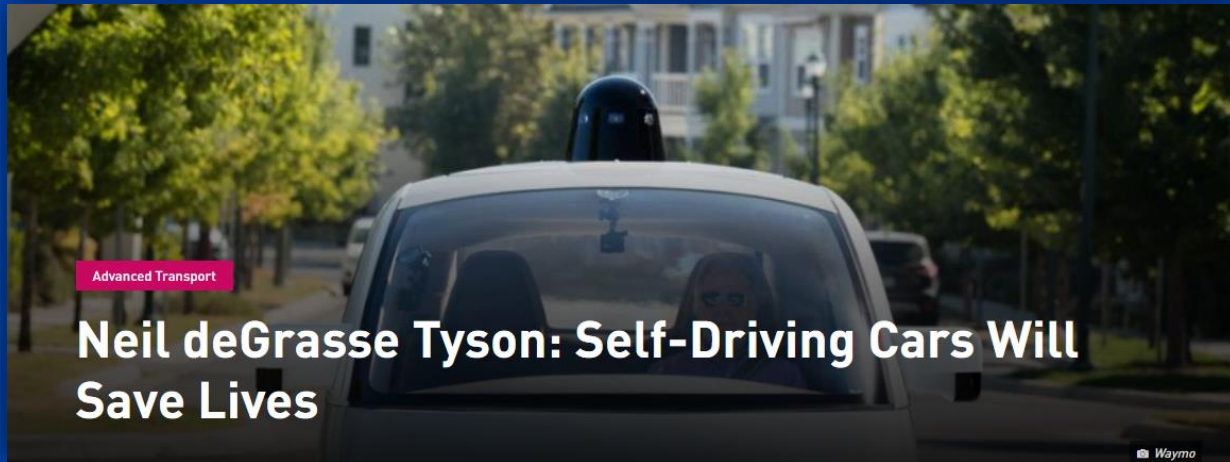


Soft Robotics (Gripping)

Credit:
Soft Robotics

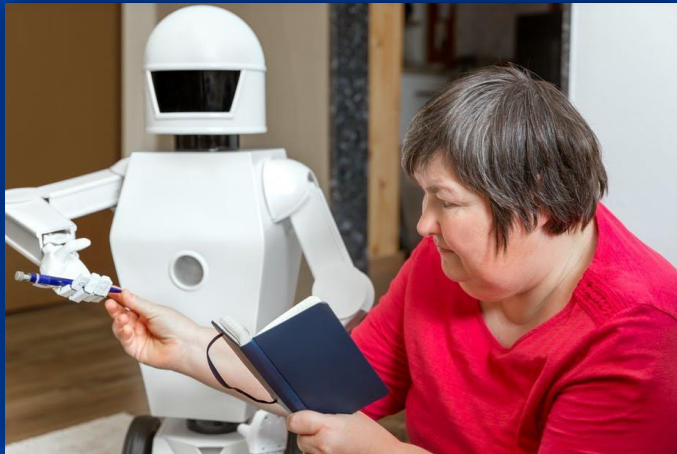
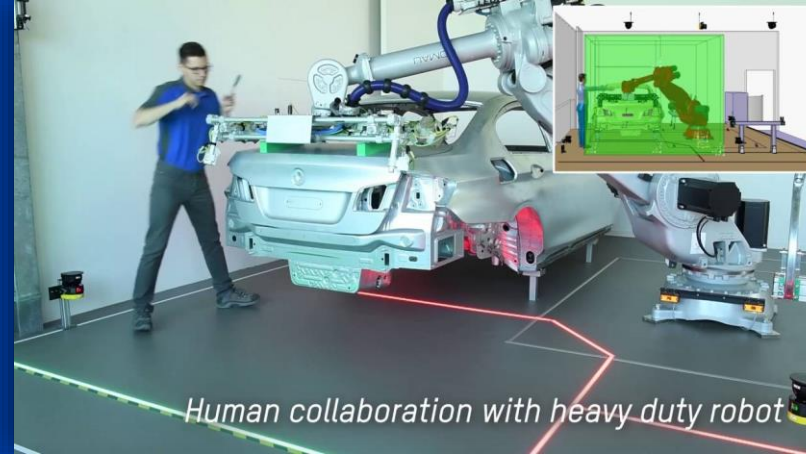


The Positive Impacts of AI



Self-Driving Cars Could Save 300,000 Lives Per Decade in America

Theme: Human + Automation Collaboration



A Wide Selection of Collaborative Robots

PROB 2R



UR3



AURA



APAS



i5



YUMI



LBR iiwa



DUARO



NEXTAGE



CR 7iA



International 
COLLABORATIVE ROBOTS
CONFERENCE

June 9, 2020
Boston Sheraton
Boston, MA, USA

The Impact of Robots on Employment

Robots' Impact on Human Jobs

FORTUNE Robots in the Workforce? Each 1 Costs 6 Jobs, a New Study Says

The New York Times Evidence That Robots Are Winning the Race for American Jobs

InfoWorld How To Survive the Robot-Fueled Jobs Apocalypse

Harvard Business Review Robots Seem to Be Improving Productivity, Not Costing Jobs

Forbes Why Robots Will Be The Biggest Job Creators In World History

The New York Times No, Robots Aren't Killing the American Dream



Firms' inability to stay competitive, not robots, is the biggest threat to...

Friday, 5 May 2017 | 12:39 AM ET

Jeff Burnstein, President of Robotic Industries Association, talks about how companies can benefit from adopting automation.

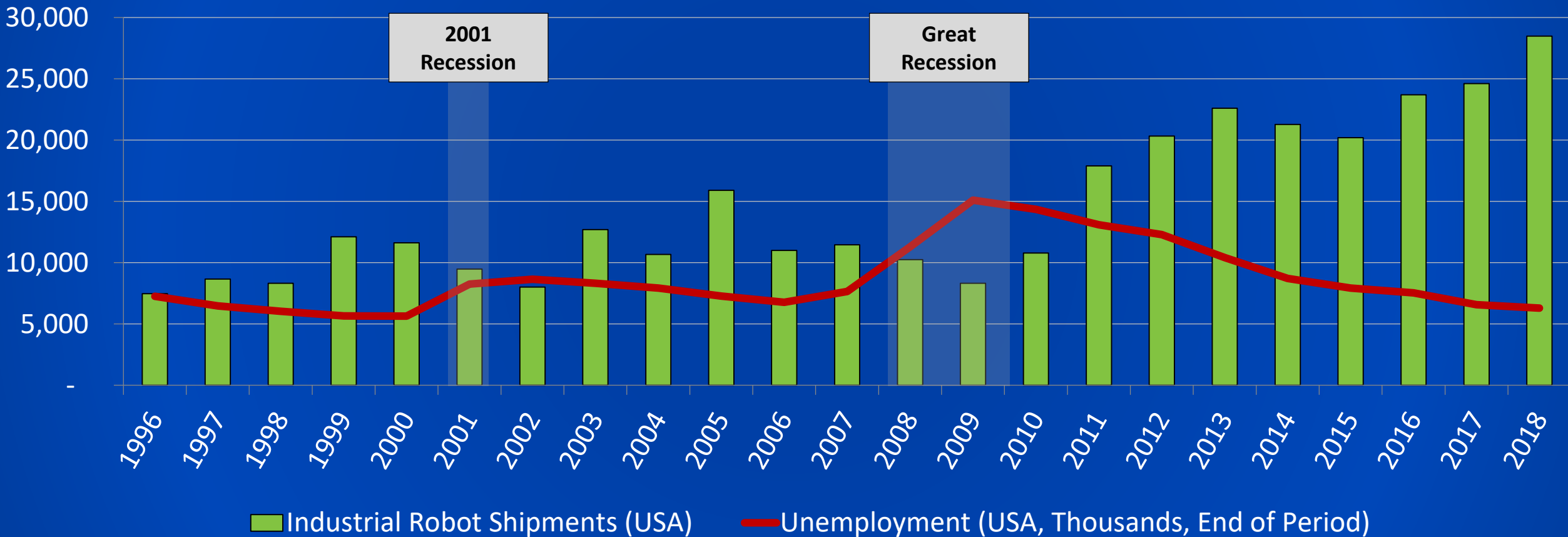
[WATCH CNBC LIVE TV](#)



The *inability to compete* is the biggest threat to jobs, not automation.

More Robots, More Jobs (U.S.)

Industrial Robot Shipments vs. Unemployment Level in the U.S.



More Robots, More Jobs (U.S.)

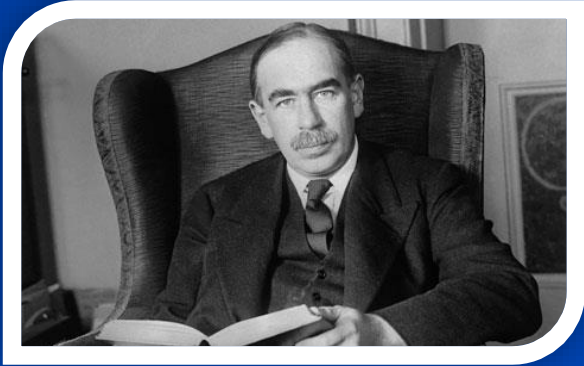
In the United States...

2010  2018

<i>New Robot Shipments</i>	+ 177,347
<i>Manufacturing Jobs</i>	+ 1,214,000
<i>Unemployment Rate</i>	Declined 6.1%

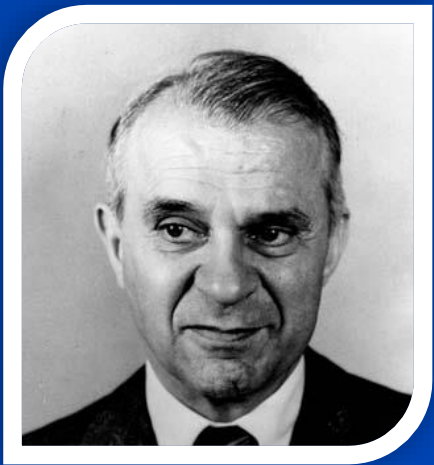
Technology advances
have *always* changed
the nature of jobs.

We've Seen Premature Predictions Before...



"We are being afflicted with a new disease of which some readers may not have heard the name, but of which they will hear a great deal in the years to come—namely, technological unemployment"

- Keynes, 1930



"Labor will become less and less important. . . More and more workers will be replaced by machines. I do not see that new industries can employ everybody who wants a job"

- Leontief, 1952







WEF Future of Jobs Report



75 million workers/jobs at risk of being eliminated

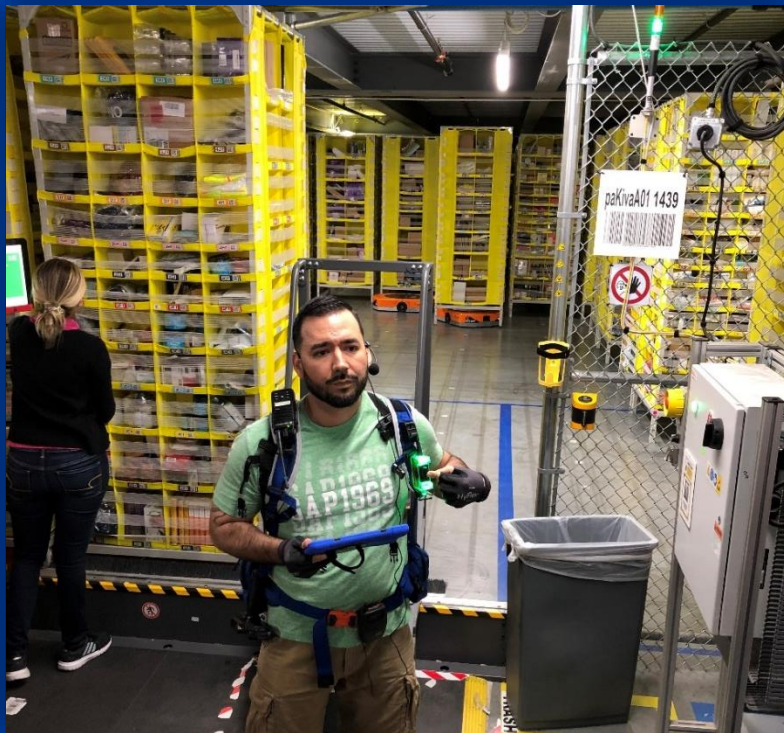
133 million new jobs will be created by automation

Table 4: Comparing skills demand, 2018 vs. 2022, top ten

Today, 2018	Trending, 2022	Declining, 2022
Analytical thinking and innovation	Analytical thinking and innovation	Manual dexterity, endurance and precision
Complex problem-solving	Active learning and learning strategies	Memory, verbal, auditory and spatial abilities
Critical thinking and analysis	Creativity, originality and initiative	Management of financial, material resources
Active learning and learning strategies	Technology design and programming	Technology installation and maintenance
Creativity, originality and initiative	Critical thinking and analysis	Reading, writing, math and active listening
Attention to detail, trustworthiness	Complex problem-solving	Management of personnel
Emotional intelligence	Leadership and social influence	Quality control and safety awareness
Reasoning, problem-solving and ideation	Emotional intelligence	Coordination and time management
Leadership and social influence	Reasoning, problem-solving and ideation	Visual, auditory and speech abilities
Coordination and time management	Systems analysis and evaluation	Technology use, monitoring and control

Source: Future of Jobs Survey 2018, World Economic Forum.

Amazon

The Amazon logo, featuring the word "amazon" in a bold, black, lowercase sans-serif font, with a curved orange arrow underneath it pointing from the letter 'a' to the letter 'z'.

- Added 200,000 robots to achieve scale, allowing them to promise 1-2 day delivery from anywhere in the world
- Created over 300,000 new jobs that feature more value-added tasks and more fulfilling careers



If we focus on our
fears, we will miss
the *opportunities*.

Positive Technological Transformation



Harnessing the Wind

Positive Technological Transformation



**Better
Solar
Power**

Positive Technological Transformation



Cleaning Our Oceans

Positive Technological Transformation



Eliminating Hunger

The skills gap is real
& requires our
attention.



Not Enough People to Fill Jobs

Detroit Free Press
PART OF THE USA TODAY NETWORK

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Line cook shortage is changing metro Detroit's restaurant industry

Mark Kuryandchik, Detroit Free Press | Published 6:00 a.m. ET Nov. 15, 2018 | Updated 12:42 p.m. ET Nov. 29, 2018

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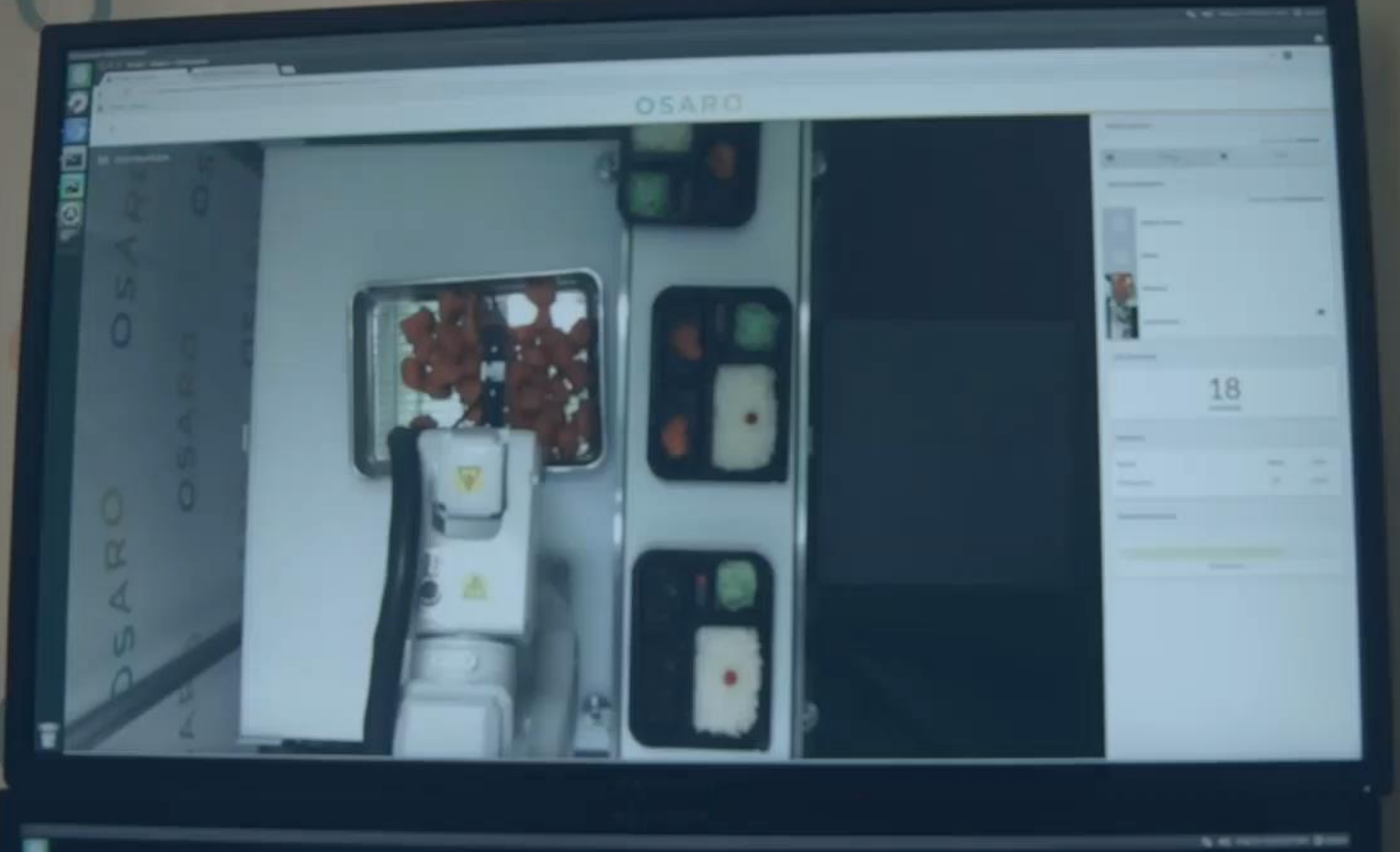
- Ferndale specialty shop open Detroit location**
Dec. 5, 2018, 12:36 p.m.
- Lyft reveals Detroit's most popular brunch spot**
Dec. 4, 2018, 2:25 p.m.
- Sperling to step down from Mosaic Youth Theatre**
Dec. 5, 2018, 12:01 a.m.

Advocates for New York restaurant workers, including actress Amy Poehler, are pushing legislators to do away with the below-minimum wage for tipped workers and connecting it to the #MeToo movement because most servers are women. (March 13) AP

Halloween may be over but many of metro Detroit's restaurants continue to be haunted by ghosts of a different type.

"We've had people with relatively easy, mellow prep jobs walk off in the middle of a shift. We've had people that seem phenomenal on paper just not show up for work and disappear," said Axle Brewing Company owner Dan Riley, whose Livernois Tap beer hall and restaurant in Ferndale has struggled to attract and retain



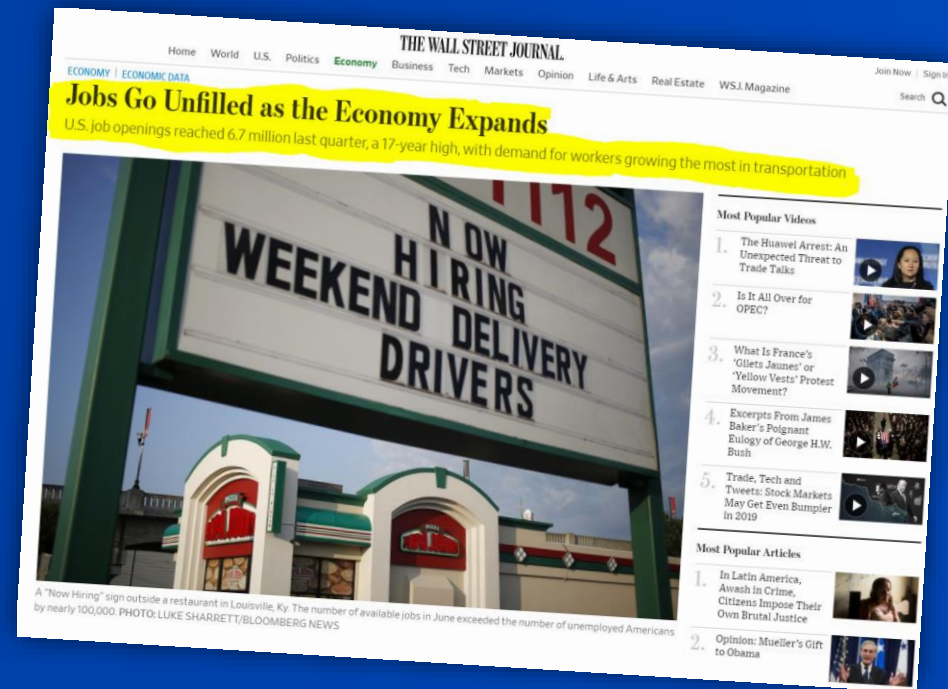


OSARO

18

Not Enough People to Fill Jobs

- Unemployment at a nearly 50 year low
- Skills gap is forming with unfilled jobs



The Impact of the Skills Gap

In 2028...

2.4 million jobs will be left unfilled due to the skills gap
\$454 billion in economic output at risk of being lost



Automation Readiness Index



Summary & Conclusion

1. Robot sales are **growing** globally.
2. Innovation in areas like **mobility, gripping, AI, vision** and **collaboration** with humans is helping drive the growth.
3. Connecting robots to the **cloud** to integrate into a larger IIoT framework is becoming more common.
4. Automation and robotics are helping **save and create jobs** globally but we need to prepare the workforce for the jobs of the future.

To learn more about robots and automation...



Automate 2021 is Coming to Detroit!



Get Involved!
AutomateShow.com

Thank you!



If you're in this industry, ask me about membership, which 1,294 companies from across the world are taking advantage of today!

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