



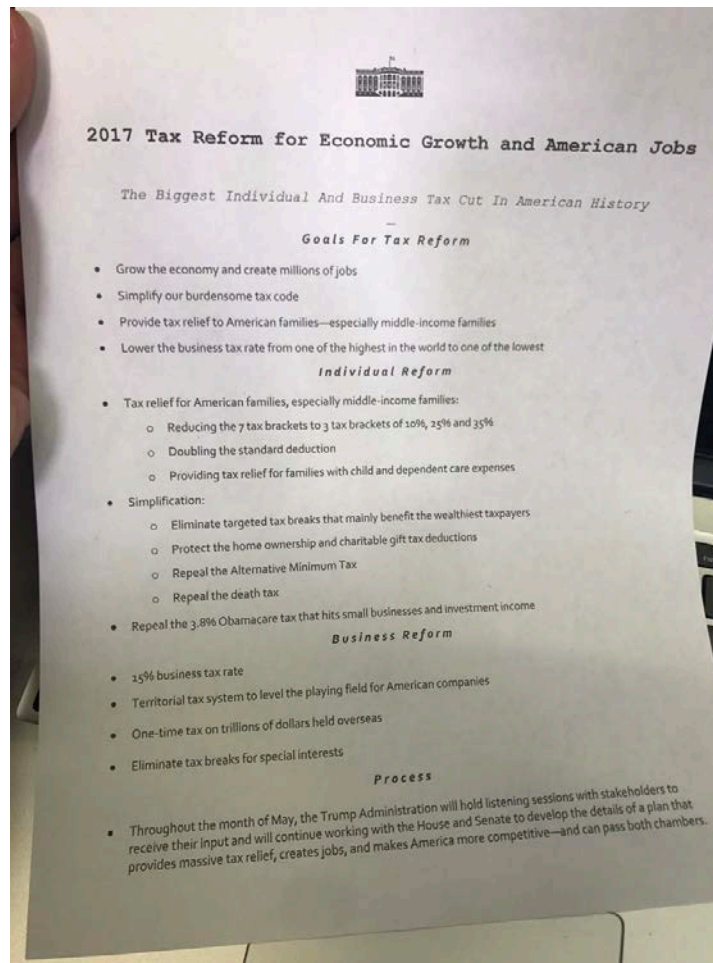
Algorithms and Robots

The Changing World of Work: Class 5

Class schedule

Class	Theme
3/22	Introduction
3/29	Government and Politics – Dr. Smriti Rao
4/5	Education
4/19	Business – Asima Silva, IBM
4/26	What's ahead?

Readings and presentations are available at
<http://queenlake.com/wise/wise-spring-2017/the-changing-world-of-work/> .



White House unveils dramatic plan to overhaul tax code in major test for Trump



BostonInno: **IRobot's Stock Soars to All-Time High as Q1 Profits Impress Wall Street**



Worcester Business Journal: UMass Medical School laying off 65

Hiring falls in Mass. amid signs of slump (Tight labor market, uncertainty)



64%

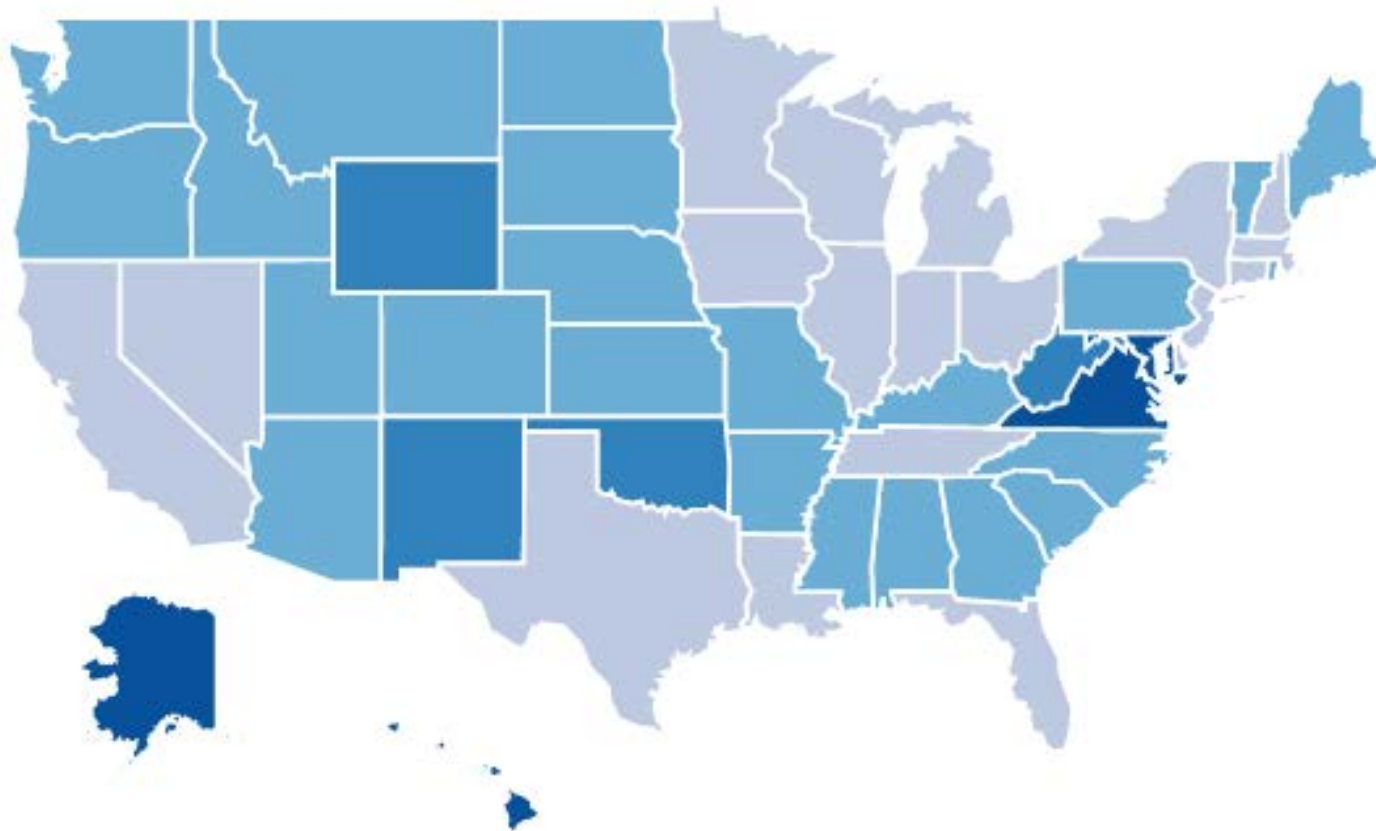


36%

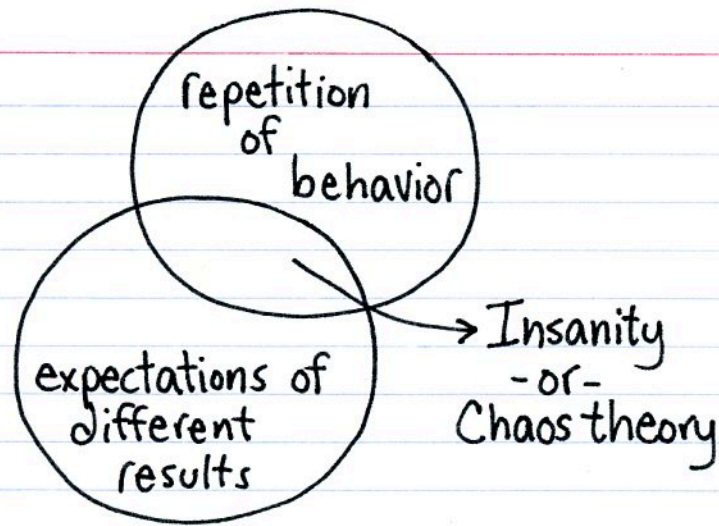


Amazon announces Amazon Look – “You’re wearing that?”

Less than 1% 1-2% 2-3% Greater than 3%

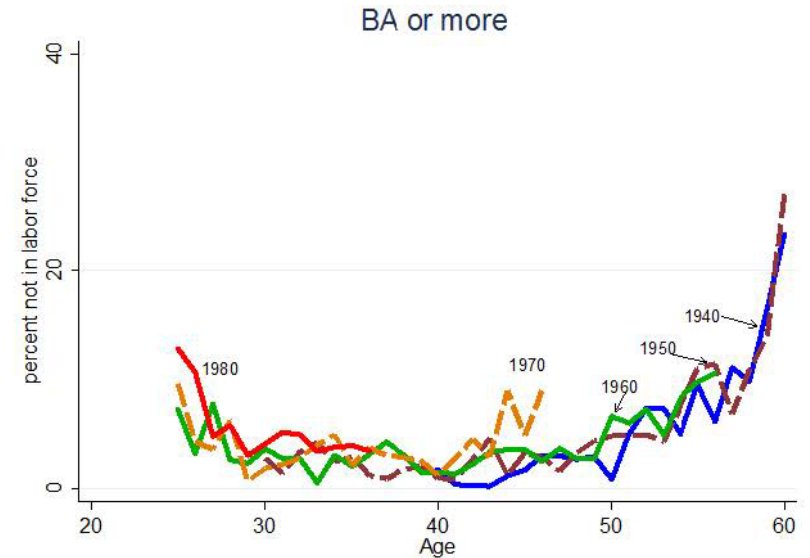
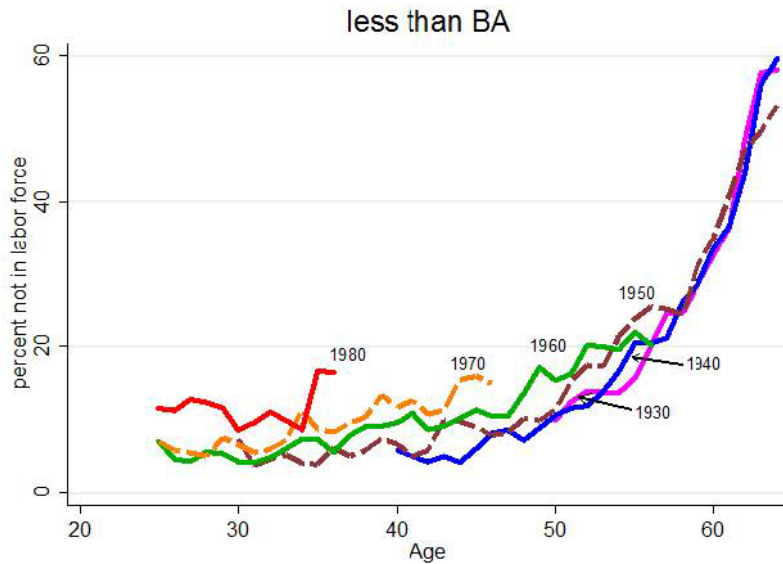


How Trump's Federal Workforce Cuts Could Impact Employment Across the Nation



What have we learned?

Figure 3.1 Percent not in the labor force, white non-Hispanic men by birth cohort and education



Not just the less-educated are leaving the labor market

The New Yorker: [The despair of learning that experience no longer matters](#)

2014 National Employment Matrix title and code		Employment		Change, 2014–24		Median annual wage, 2016(1)
		2014	2024	Number	Percent	
Total, all occupations	00-0000	150,539.9	160,328.8	9,788.9	6.5	\$37,040
Wind turbine service technicians	49-9081	4.4	9.2	4.8	108.0	\$52,260
Occupational therapy assistants	31-2011	33.0	47.1	14.1	42.7	\$59,010
Physical therapist assistants	31-2021	78.7	110.7	31.9	40.6	\$56,610
Physical therapist aides	31-2022	50.0	69.5	19.5	39.0	\$25,680
Home health aides	31-1011	913.5	1,261.9	348.4	38.1	\$22,600
Commercial divers	49-9092	4.4	6.0	1.6	36.9	\$49,090
Nurse practitioners	29-1171	126.9	171.7	44.7	35.2	\$100,910
Physical therapists	29-1123	210.9	282.7	71.8	34.0	\$85,400
Statisticians	15-2041	30.0	40.1	10.1	33.8	\$80,500
Ambulance drivers and attendants, except emergency medical technicians	53-3011	19.6	26.1	6.5	33.0	\$23,850
Occupational therapy aides	31-2012	8.8	11.6	2.7	30.6	\$28,330
Physician assistants	29-1071	94.4	123.2	28.7	30.4	\$101,480
Operations research analysts	15-2031	91.3	118.9	27.6	30.2	\$79,200
Personal financial advisors	13-2052	249.4	323.2	73.9	29.6	\$90,530
Cartographers and photogrammetrists	17-1021	12.3	15.9	3.6	29.3	\$62,750
Genetic counselors	29-9092	2.4	3.1	0.7	28.8	\$74,120
Interpreters and translators	27-3091	61.0	78.5	17.5	28.7	\$46,120
Audiologists	29-1181	13.2	16.9	3.8	28.6	\$75,980
Hearing aid specialists	29-2092	5.9	7.5	1.6	27.2	\$50,250
Optometrists	29-1041	40.6	51.6	11.0	27.0	\$106,140
Forensic science technicians	19-4092	14.4	18.2	3.8	26.6	\$56,750
Web developers	15-1134	148.5	188.0	39.5	26.6	\$66,130
Occupational therapists	29-1122	114.6	145.1	30.4	26.5	\$81,910
Diagnostic medical sonographers	29-2032	60.7	76.7	16.0	26.4	\$69,650
Personal care aides	39-9021	1,768.4	2,226.5	458.1	25.9	\$21,920
Phlebotomists	31-9097	112.7	140.8	28.1	24.9	\$32,710
Ophthalmic medical technicians	29-2057	37.0	46.1	9.1	24.7	\$35,530
Nurse midwives	29-1161	5.3	6.6	1.3	24.6	\$99,770
Solar photovoltaic installers	47-2231	5.9	7.4	1.4	24.3	\$39,240
Emergency medical technicians and paramedics	29-2041	241.2	299.6	58.5	24.2	\$32,670

Fastest Growing Professions, 2014-2024 – bls.gov

21/30 – Medical-related professions

Media wage – only three above \$100K, three are below poverty level for a family of four.



Samantha Hess, 33 Professional cuddler

Portland, Oregon
\$59,000

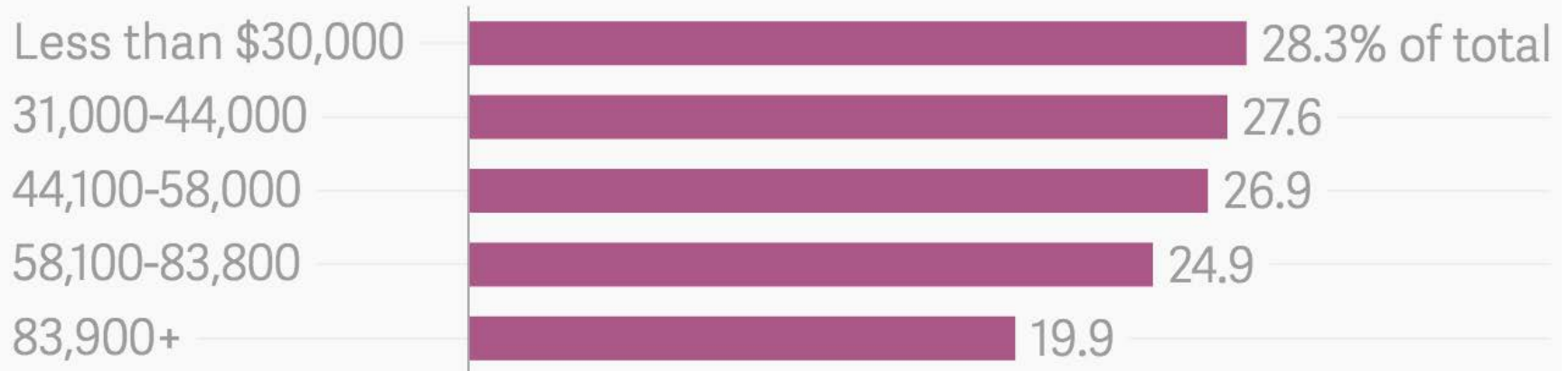
"I teach platonic touch in a one-on-one setting under the rules of Certified Cuddlers with the goal of creating a safe space for each person to feel accepted and loved just as they are. Every day I get to let people know they matter, and I feel like the luckiest human in the world!"

What People Earn 2017: The Latest Stats and Trends in the Job Market

Audiologist. Median pay: \$74,890
 Elementary and secondary school education administrators. Median pay: \$76,700
 First-line supervisors/managers of police and detectives. Median pay: \$69,200
 End-of-life doula. Median pay: \$30,000
 Occupational therapists. Median pay: \$80,150

Earnings from the sharing economy by income quintile

Labor platforms, e.g., Uber



△ T L △ S | Data: JPMorgan Chase Institute

The Gig Economy is disruptive, but ...

Only 4% of Uber drivers remain on the platform a year later

How was your day ... Gondolier's apprentice in Oakland?

The Countries Where the Potential for Automation Is Highest

Percentage of work activities that could be automated by adapting current technology.

AFRICA		ASIA/AUSTRALIA		EUROPE		NORTH AMERICA		SOUTH AMERICA	
Kenya	51.9%	Japan	55.7	Czech Rep.	52.2	Mexico	51.8	Peru	53.2
Morocco	50.5	Thailand	54.6	Turkey	50.4	Costa Rica	51.7	Colombia	53.0
Egypt	48.7	Qatar	52.0	Italy	50.3	Barbados	48.7	Brazil	50.1
Nigeria	45.7	South Korea	51.9	Poland	49.5	Canada	47.0	Chile	48.9
South Africa	41.0	Indonesia	51.8	Spain	48.5	U.S.	45.8	Argentina	48.2
		India	51.8	Germany	47.9				
		Malaysia	51.4	Greece	47.8				
		China	51.2	Austria	47.4				
		Russia	50.3	Switzerland	46.7				
		Philippines	47.9	Sweden	46.0				
		U.A.E.	47.3	Netherlands	45.4				
		Oman	46.8	France	43.1				
		Bahrain	46.1	U.K.	42.8				
		Saudi Arabia	46.0	Norway	42.4				
		Australia	44.9						
		Singapore	44.2						
		Kuwait	41.1						

SOURCE MCKINSEY GLOBAL INSTITUTE

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The competition for markets, jobs, but also automation is international.

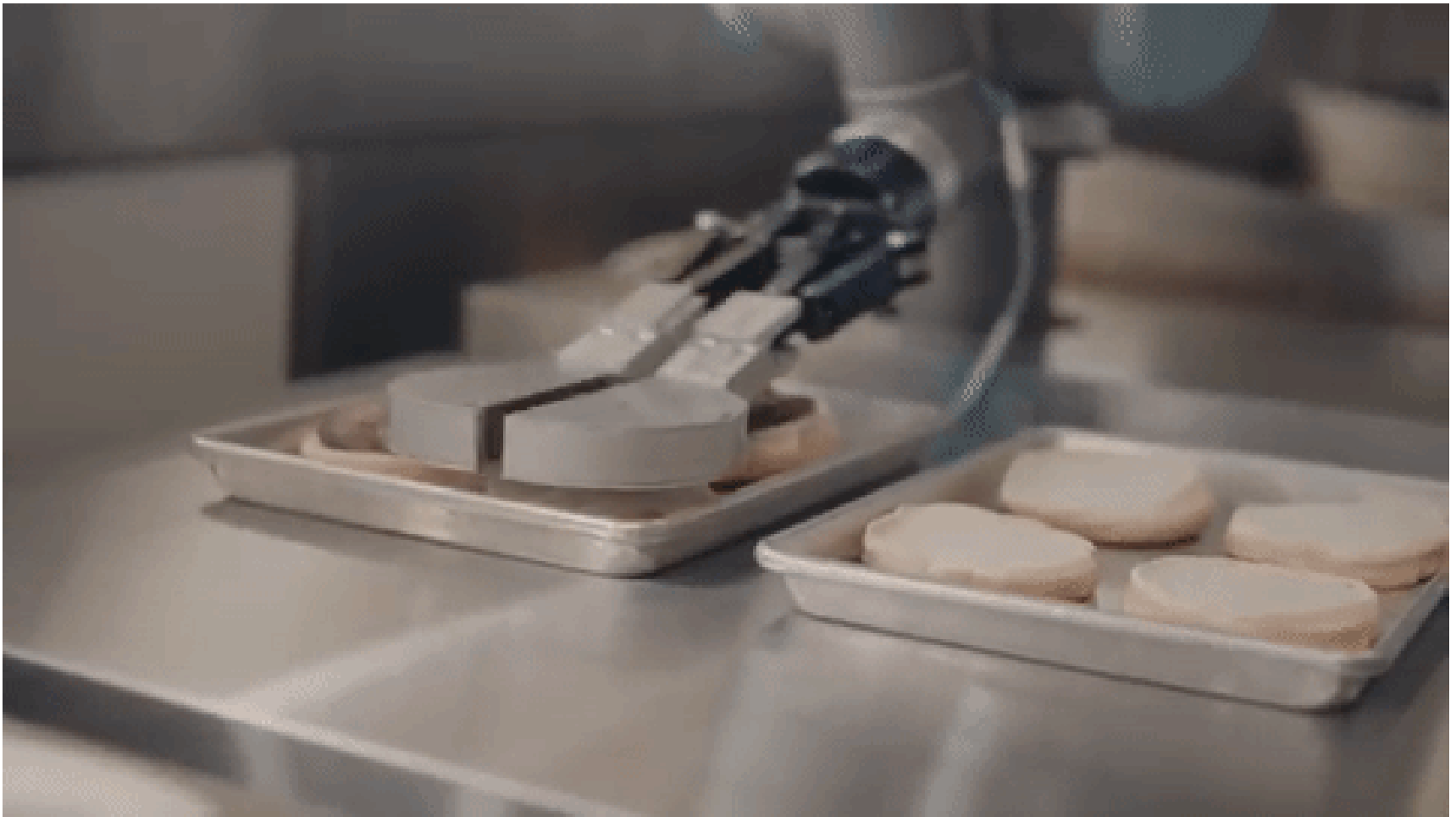
[How GE is becoming a truly global network](#)

[95% engineers in India unfit for software development jobs: study](#)



How Trump can solve the shortage of high-tech workers (Apprenticeships)

Sarah Palin suggests women should leave if they're facing harassment in the workplace — not 'stick around for a paycheck'



Businesses are trying a bunch of ways to figure it out.

But, McDonald's makes more profit as a landlord than as a restaurant owner.



The Crisis of Retail

- Amazon, obviously, but soon to be Walmart
- We rent or borrow stuff; we don't need to own it.
- In time, we'll be able to make much of the stuff we need.

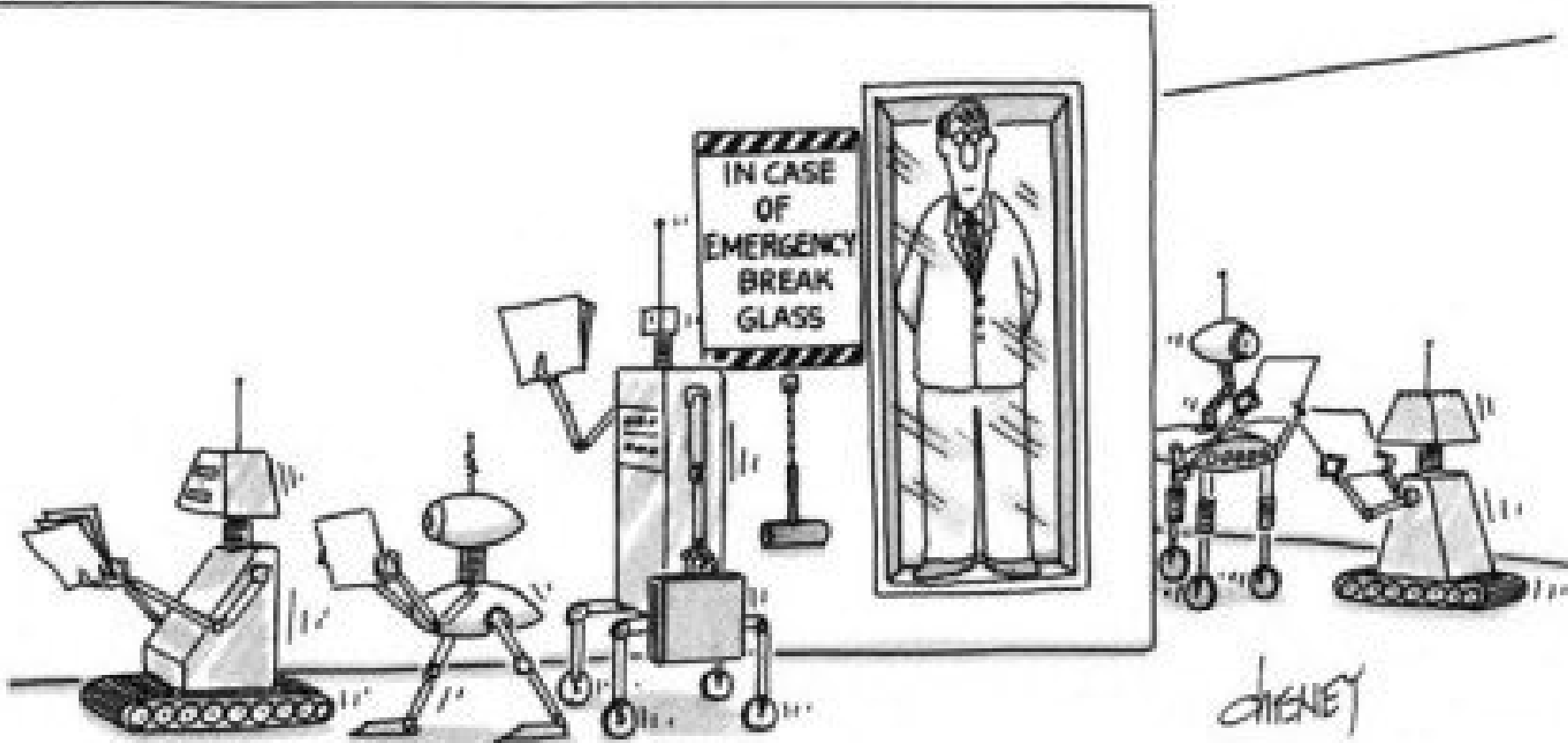


Amazon's plan to dominate the shipping industry—with almost no humans involved—is taking shape

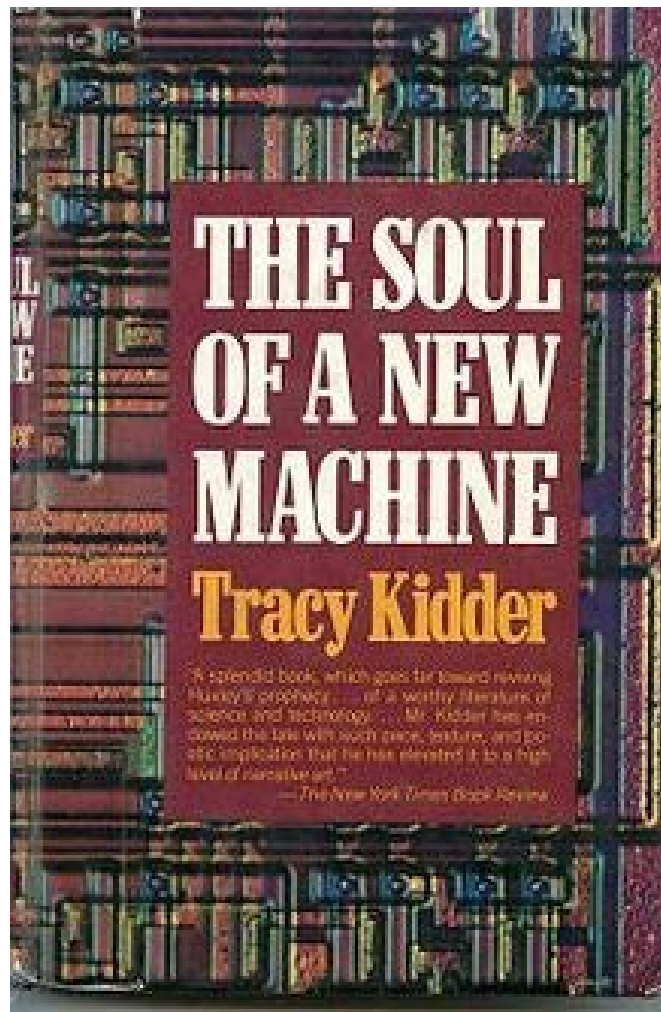


What would be the Hidden Figures movie for today?

Education is a good, but no longer certain path to good and steady work.



Will you still need me? Will you still feed me?



40 Years ago: Ken Olsen remarked that his company was building systems that no one person could understand.



Meet Deep Stack

[Time to Fold, Humans: Poker-Playing AI Beats Pros at Texas Hold'em](#)

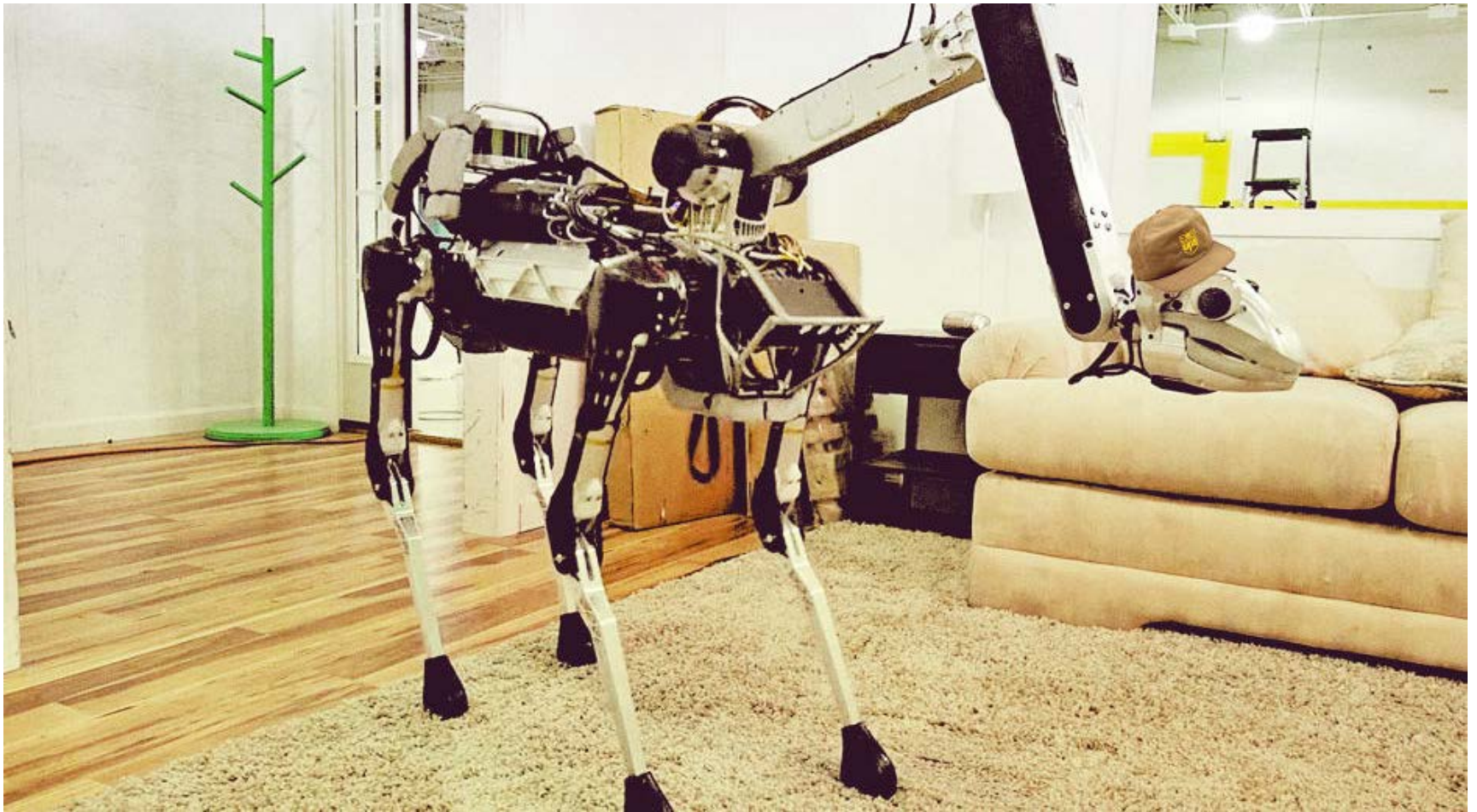


Bot or not – Was this poem written by a robot or a human?



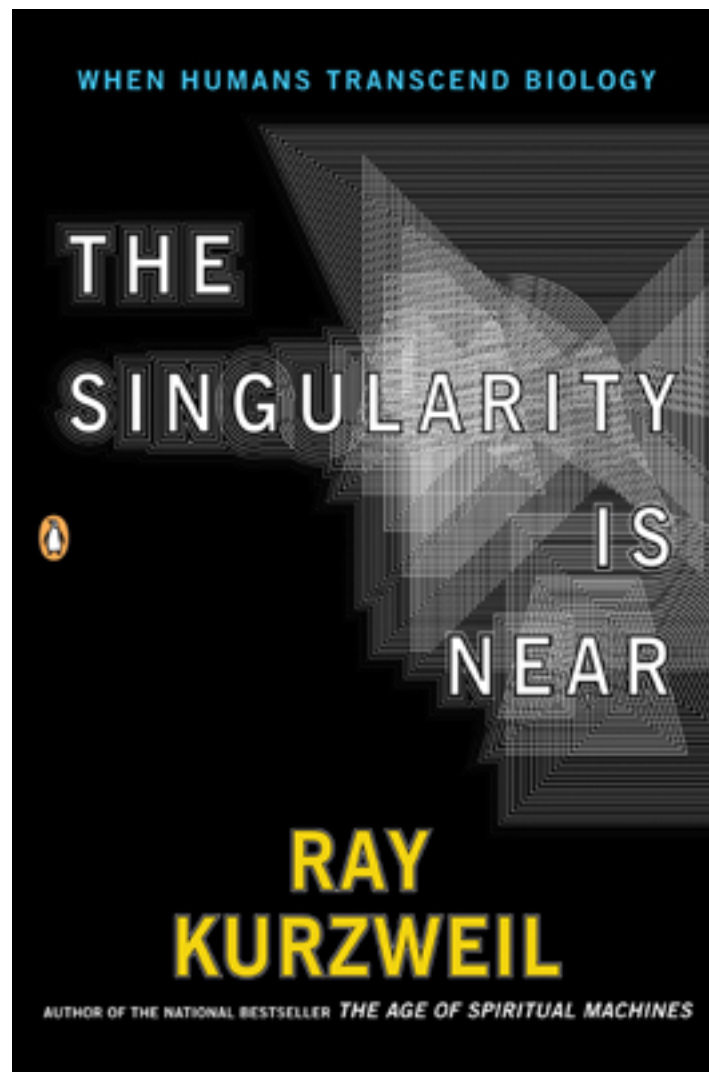
Not if, but when. (Meet Kuri, the robot nanny.)

The German computer scientist says artificial intelligence will surpass humans' in 2050, enabling robots to have fun, fall in love



Even your dog may be out of work

SpotMini can also [deliver packages.](#)



The Singularity Is Near: When Humans Transcend Biology

“The best way to predict the future is to invent it.”

-Alan Kay

Technology has created jobs, changed jobs, and removed jobs, all unevenly.



Ontario basic income pilot project to launch in Hamilton, Lindsay and Thunder Bay



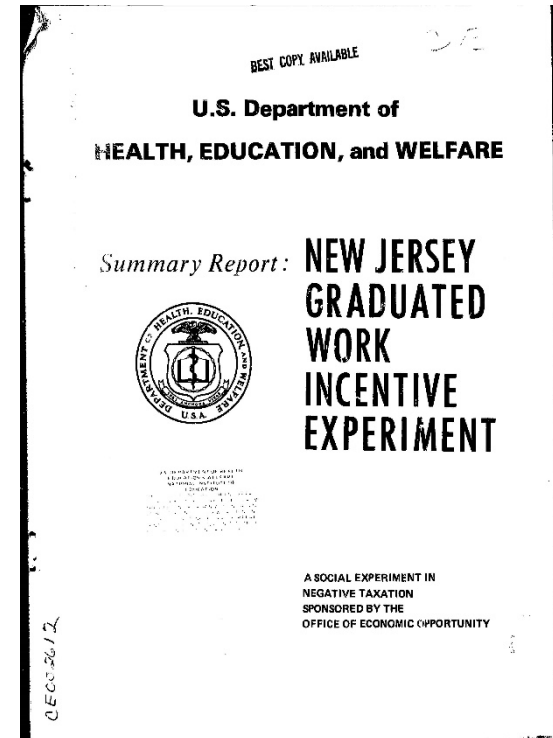
Free Cash in Finland. Must Be Jobless.

Universal Basic Income

Donald Rumsfeld, the young former Congressman from Illinois whom President Nixon named to head the O.E.O., thinks that the implications of

the New Jersey experiment are important. It is evident to him, as it is to many others, that the welfare system is a shambles, and he sees the experiment as a demonstration of the possibility of moving away from a cumbersome bureaucracy toward a streamlined program based on maximum reliance on the individual.

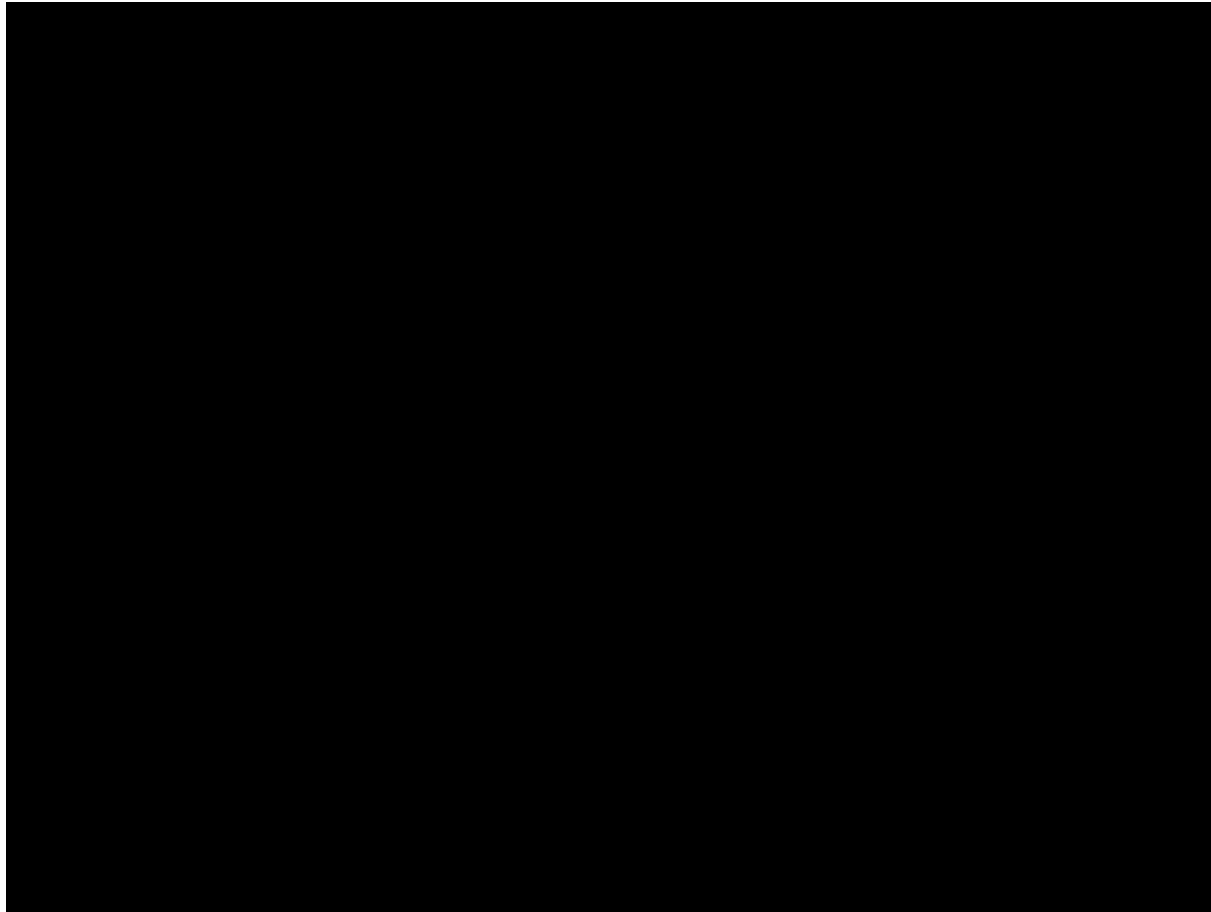
"When you look at a period like the nineteen-sixties—with high employment, low unemployment and at the same time escalating dependency—you ask yourself what would be the story in less prosperous times," Rumsfeld explains. "When this happens in such a period of general national prosperity, it's obvious something has to be wrong with the present system. So let's get at it, let's find out what's wrong, and let's change it."



That time when Dick Cheney and Donald Rumsfeld ran a universal basic income experiment for Nixon



The last job on Earth





Questions?