

AI: now and in the future

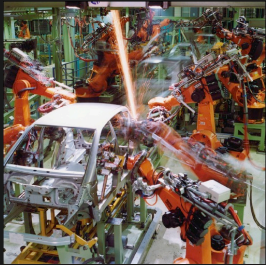
Danica Kragic

Centre for Autonomous Systems

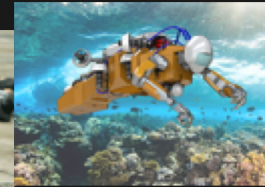
KTH

Robotics and AI

Industry



Outdoor



Service



Robotics, AI/ML – makes machine autonomous; enables machines to reason, learn, improve, make predictions

WASP

Wallenberg AI, Autonomous Systems and Software Program

<http://wasp-sweden.org>

The program addresses research on artificial intelligence and autonomous systems acting in collaboration with humans, adapting to their environment through sensors, information and knowledge, and forming intelligent systems-of-systems. Software is the main enabler in these systems, and is an integrated research theme of the program.

In 2050

I will be 80

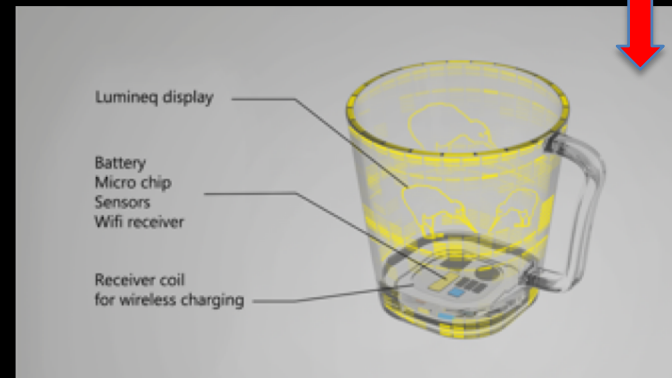
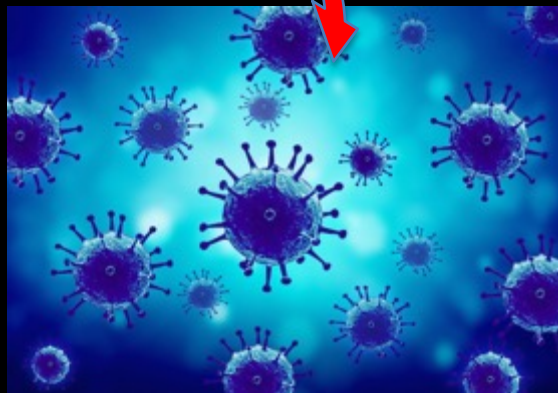
80 will be the new 50

so the next 30 years will feel like never happening!

Disruption



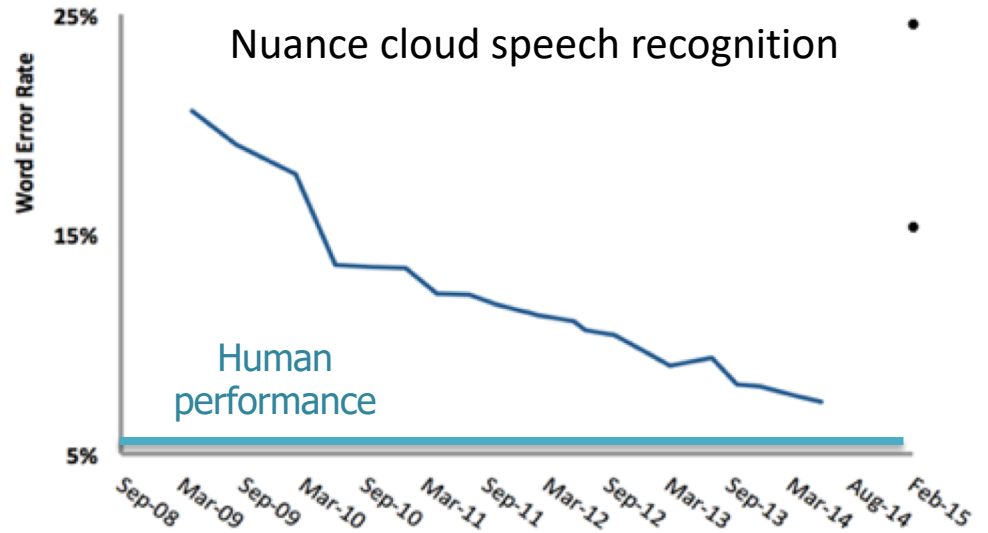
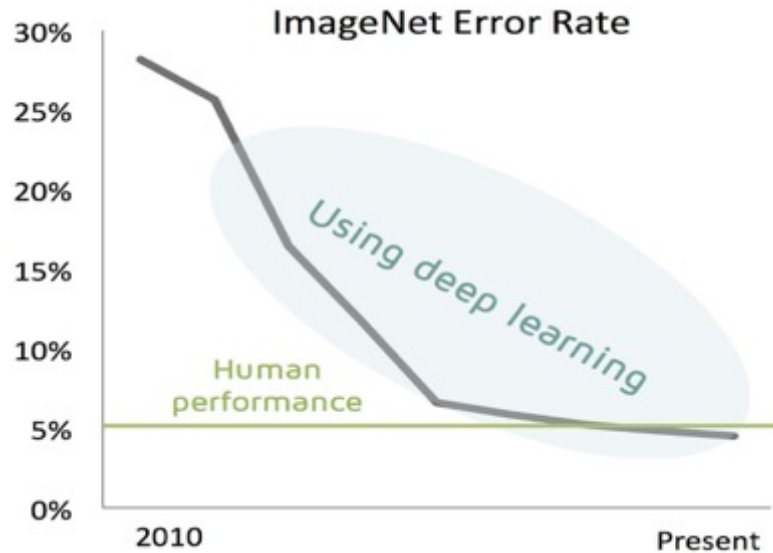
Research is important



Empowered human

physical and/or cognitive enhancement

Deep learning solves speech and vision



Puppy or muffin?



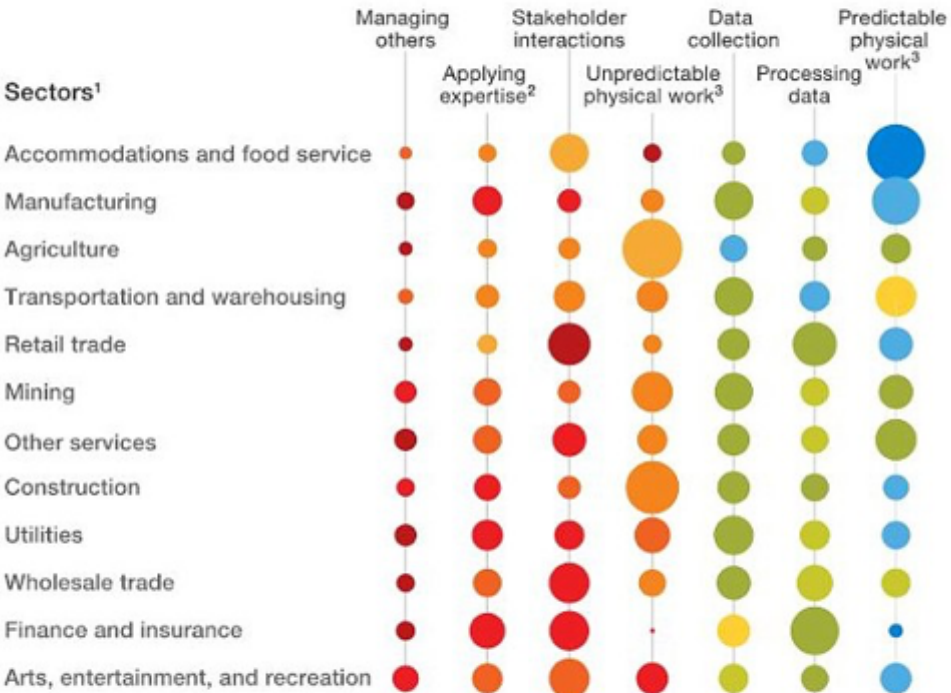
Puppy or muffin?



Automation is technically feasible for many types of activities in industry sectors, but some activities can be more affected than others.

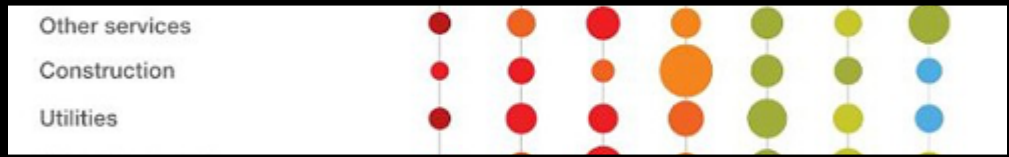


© McKinsey & Company

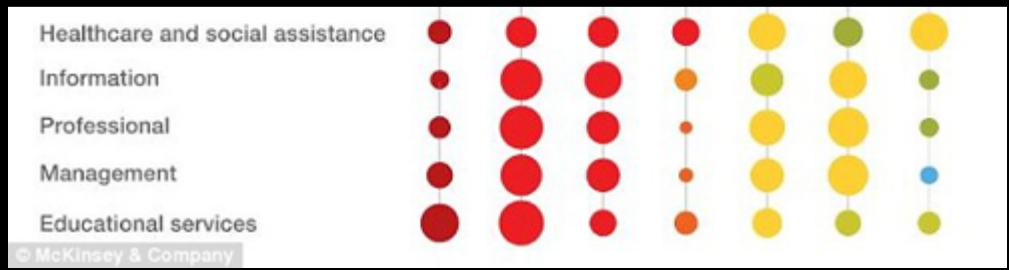




JOBS ARE TRANSFORMING



TASKS NOT PROFESSIONS

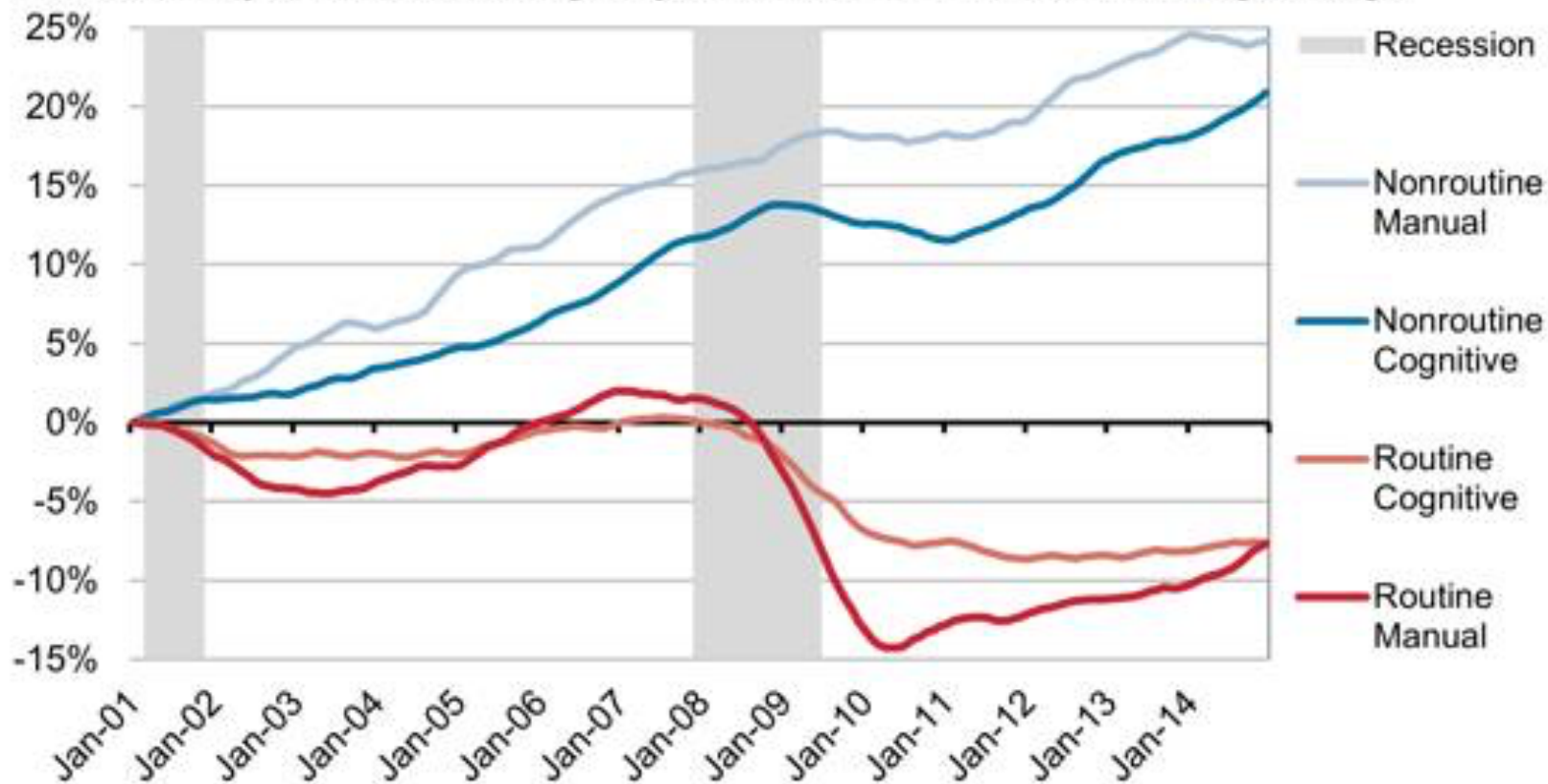


Collaborative tasks in a shared workspace



Break Your Routine

When jobs are sorted by whether the work is routine, all job growth since 2001 has been in nonroutine jobs. Percent change in jobs, since 2001, 12-month moving average.



Business Opportunities

- Diagnosis (e.g. health) from images
- Brand perception from images
- Joint market opportunities from logos and images in social media
- Predict usage (call volume, power)
- Predict power usage
- Forecast demand, price, inventory
- Predict attributes (e.g. hiring, loans)
- Create classifiers (e.g. spam)
- Defective products on production line through images
- Provide translations
- Assess fraud likelihood (history, emotion)
- Chatbots
- Generate analyst reports
- Generate captions for images
- Assess changes of an area from images
- Optimize price point

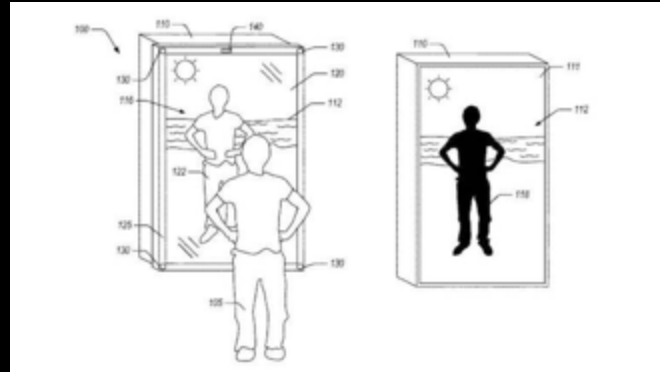
Jobs that did not exist just 5 years ago

1. App Developer
2. Market Researcher Data Miner
3. Educational Admissions Consultant
4. User Experience Designer
5. Social Media Manager
6. Chief Listening Officer
7. Cloud Computing Operations Manager
8. Elder Care Services Consultant
9. Search Engine Optimization Manager
10. Millennial Generation Consultant
11. Content Developer/Manager
12. Product Blogger
13. Disaster Recovery IT Manager
14. Cyborg Anthropologist
15. Interior Redesigner
16. Chief Sustainability Officer
17. Energy Manager
18. Senior Citizen Move Manager
19. Patient Advocate
20. Online Reputation Manager

Physical retail

”Physical retail isn’t going away, but its purpose is evolving.”

- Obsess helps labels use AR or VR in three key areas:
 1. **E-commerce:** Increase conversion by letting online/mobile shoppers see products in 3D in context in front of them.
 2. **Physical retail:** Use AR in-store to let shoppers access digital media on in-stock merchandise.
 3. **Marketing:** Create virtual or augmented experiences that “delight consumers” — like an AR pop-up, interactive catalog, or VR recreation of a store or boutique.



Enhancement for making informed decision or FANTISIZE how AI can impact YOUR work

- Doctor + AI: Mixing expertise, experience + data-driven approaches
- Teacher + AI: Objective evaluation, personalization
- Personal trainer + AI: Personalization, motivation criteria
- Fashion designer + AI: Is this item stylish? How can it be reused?
Predicting # of influencers that will promote it
- HR + AI: Informed interviews
- Manager + AI: Salary “talk”, development “talk”
-

Data driven solutions, reasoning and generalization

- “Human-like” systems entail human-level reasoning
- What is knowledge? How do we know we know?
- Disruption needs interdisciplinarity
- Education and training key components to successful transformation

Interdisciplinarity

Marianne and Marcus Wallenberg Foundation (MMW): call for grants related to consequences of autonomous systems and AI

- Ethics and autonomous systems and AI
- Economy of autonomous systems and AI
- Law for autonomous systems and AI
- Social consequences, including effects on the labor market of autonomous systems/AI
- Improved information systems for autonomous systems and AI