

A decorative graphic on the left side of the slide consisting of a network of thin, light blue lines. These lines form a complex, branching pattern that resembles a circuit board or a neural network. Some lines end in small circles, while others are open. The overall effect is a modern, technological aesthetic.

# INTRODUCTION TO **ARTIFICIAL INTELLIGENCE** FOR IT & NON-IT PROFESSIONALS

The image features a light gray background with a subtle pattern of concentric circles. In the four corners, there are decorative circuit-like lines in a light blue color. These lines consist of straight segments and small circles, resembling a stylized electronic circuit or data flow diagram. The central text is in a large, bold, black sans-serif font.

# **ROLE OF AI PROFESSIONALS**

# TYPES OF AI PROFESSIONALS

## Technical

### 1.Data Scientist

Data Scientist is one of the most common titles for people associated with the technical implementation of artificial intelligence

### 2.Machine Learning Engineer

### 3.Researcher


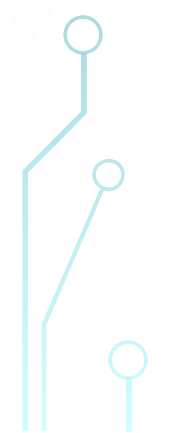
# TYPES OF AI PROFESSIONALS

## ❑ Non-technical

1. Consultant
2. Product manager
3. Designer



# ARTIFICIAL INTELLIGENCE IN BUSINESS

- The other reason to learn about artificial intelligence
  - Academia, financial services
  - Large marketing departments
  - Business activities
  - A data scientist
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# ARTIFICIAL INTELLIGENCE IN BUSINESS

- Business applications of classification models include
  - **Medical diagnosis**
  - Content detection
  - Customer attrition
  - Product recommendation
  - Staff retention

# ARTIFICIAL INTELLIGENCE IN BUSINESS

- One of the best ways to understand machine learning is to look at the various applications of machine learning in the business world:
  - ☐ Data security
  - ☐ Investing
  - ☐ Online software development
  - ☐ Healthcare
  - ☐ Personalized marketing (Netflix and Spotify , Amazon)
  - ☐ Fraud detection and prevention
  - ☐ Online searches
  - ☐ Smart devices



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

- Three areas

- ☐ Industry Context

- ☐ Systems used

- ☐ Outcomes





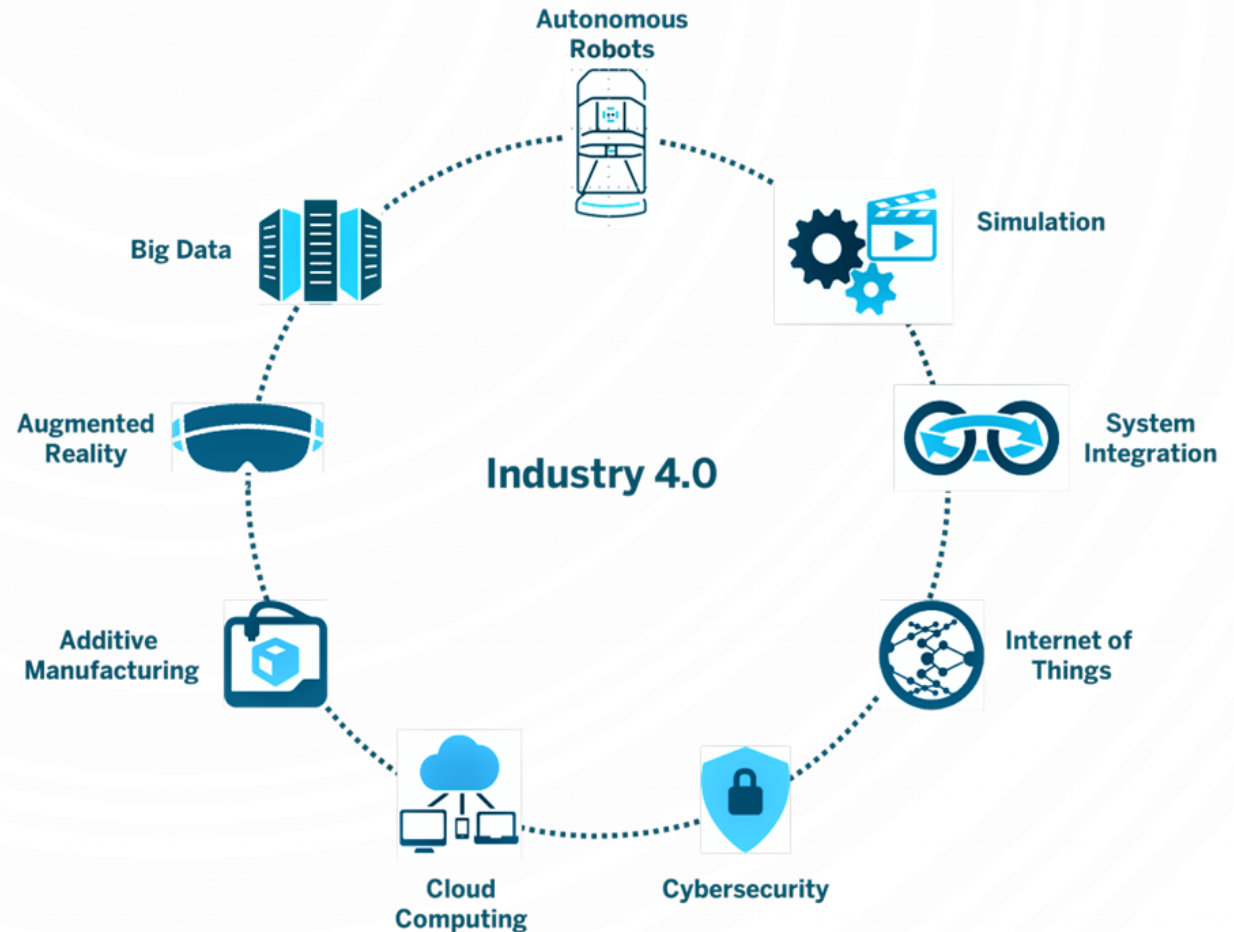
# ARTIFICIAL INTELLIGENCE IN INDUSTRY



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 1. Industry 4.0

- ❑ manufacturing technologies
- ❑ cyber-physical systems
- ❑ Internet of things
- ❑ cloud computing
- ❑ cognitive computing



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 2. Gaming Industry

❑ Systems used

❑ Outcomes



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 3. Surveillance and Marketing Human Behaviour

Surveillance Tracking Planning and Unplanned Behaviour

- ❑ Industry Context
- ❑ Surveillance technology
- ❑ Systems used
- ❑ Outcomes



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

If people know they're being monitored, they can change their behavior to game the system," Phil Legg at the University of the West of England says flagging unusual behavior will never catch every security risk



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 4. Healthcare

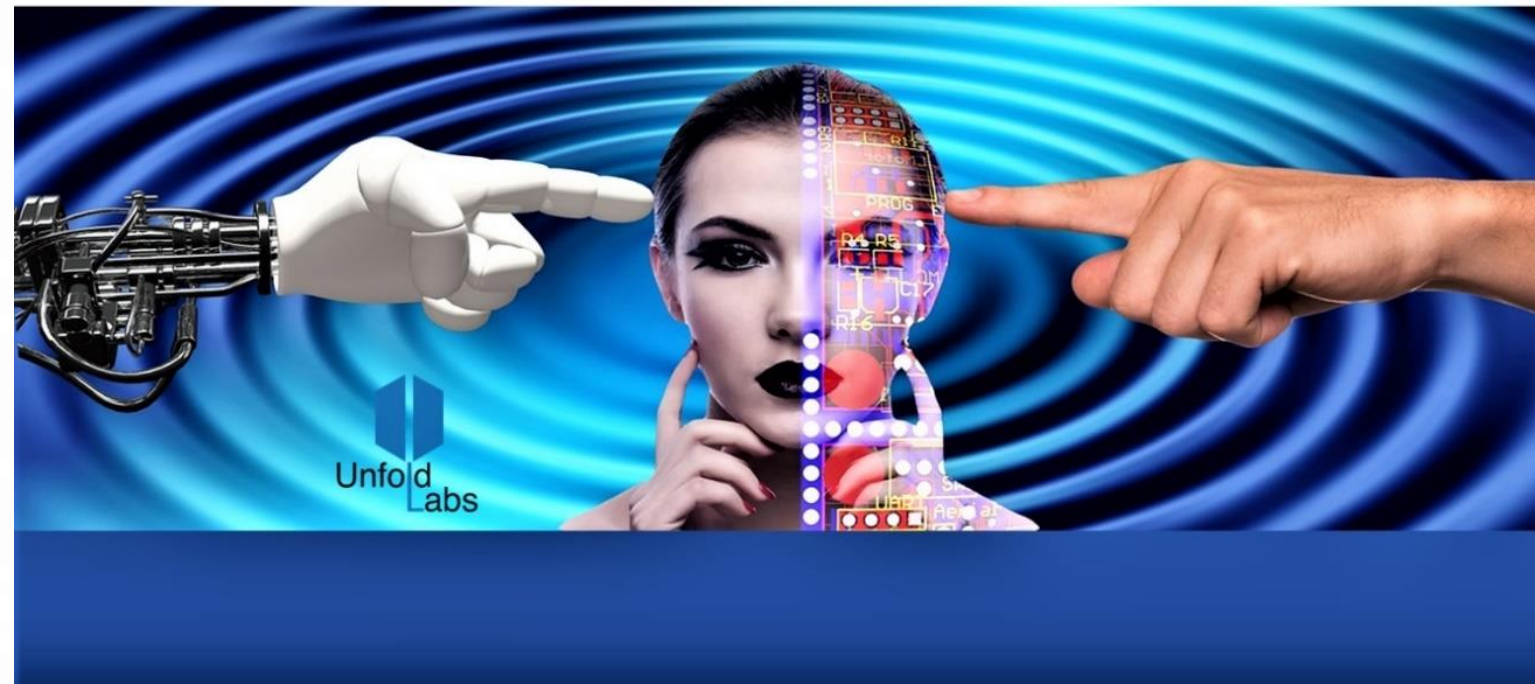
- Medical Condition  
Assistant—Skin Cancer  
Cell Recognition

☐ Industry context

☐ Systems used

☐ Outcomes

## The Impact of Artificial Intelligence in Healthcare



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 5. Asset Condition Monitoring Maintenance

### Building Condition Monitoring and Maintenance Control

- Industry context
- Systems used
- Outcomes

# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 6. Surveillance and Security Counter Measures

### Monitoring Social Networks for Fake News

- Industry context

- ☐ Stronger detection
- ☐ Easy reporting
- ☐ Third party verification
- ☐ Warnings
- ☐ Disrupting fake news economics
- ☐ Listening

- Systems used

- Outcomes



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 7. Automobile Engineering Racing Car Generative Design

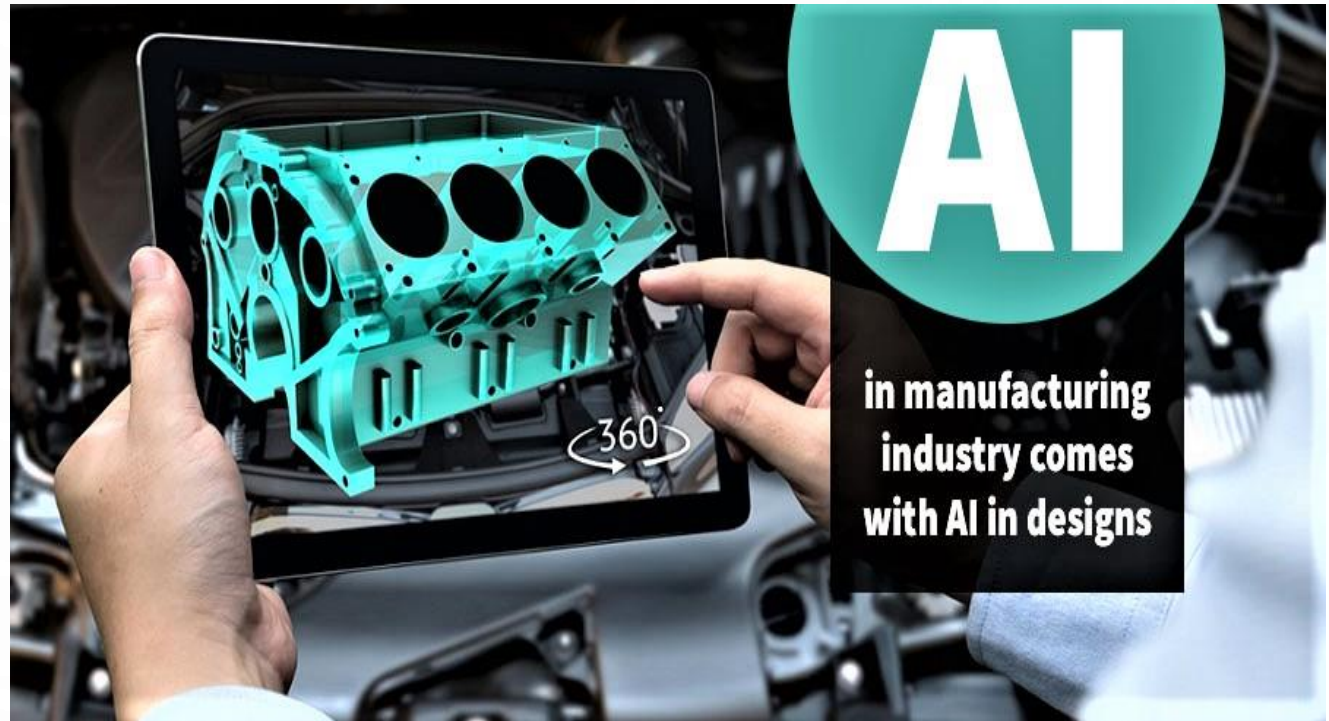
☐ Industry Context

☐ Systems used

Autodesk Dreamcatcher

☐ Outcomes

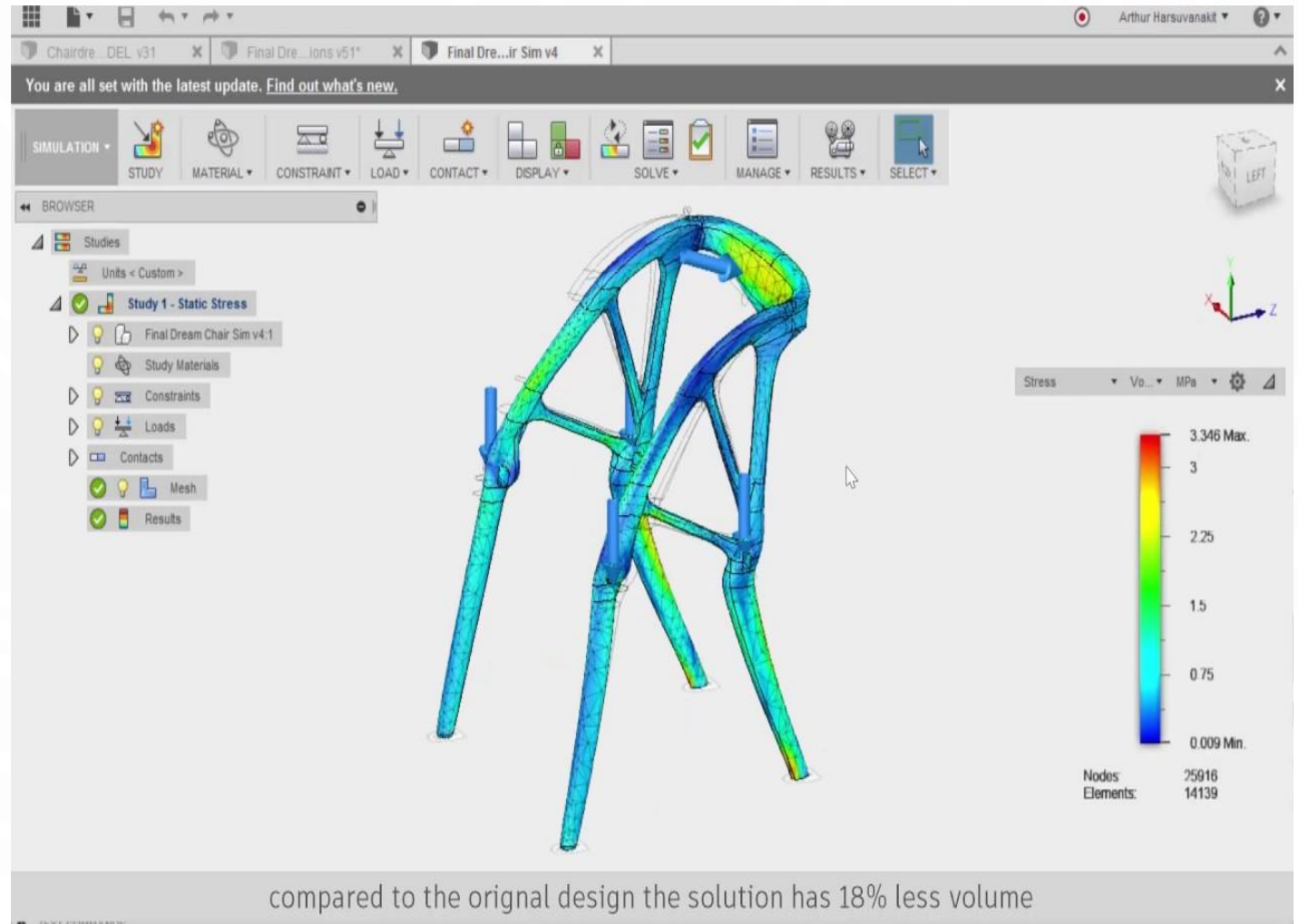
Autodesk Dreamcatcher software



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 8. Furniture Design

- ☐ The Elbo Chair
- ☐ Industry Context
- ☐ Systems used
- ☐ Outcomes



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 9. Automated Transport Self-Driving Automobile

- **Industry Context**

- ❑ ecosystem of lots of different types of machine learning, neural nets, image recognition, actuators, sensors, and robotics all in one platform

- **Systems Used**

- ❑ GO and Chess

- ❑ The kind of intelligence that is needed in self-driving cars is going to be an ensemble approach

- **Outcomes**

- ❑ Ford announced in February 2017 that it was investing 1 Billion US dollars in “Argo AI” within the next five years, which is a start-up formed in December of 2016 primarily focused on developing software for autonomous vehicle technology

# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 10. Automated Transport Self-Driving Automobile



### **LiDAR**

- 2 roof-mounted LiDAR sensors
- Overlapping 40° vertical field of view
- Range of 200m
- On average, our LiDAR sensors produce a point cloud with ~ 107,000 points at 10 Hz

### **Cameras**

- Seven high-resolution ring cameras (1920 x 1200) recording at 30 Hz with a combined 360° field of view
- Two front-view facing stereo cameras (2056 x 2464) sampled at 5 Hz

### **Localization**

We use a city-specific coordinate system for vehicle localization. We include 6-DOF localization for each timestamp, from a combination of GPS-based and sensor-based localization methods.

### **Calibration**

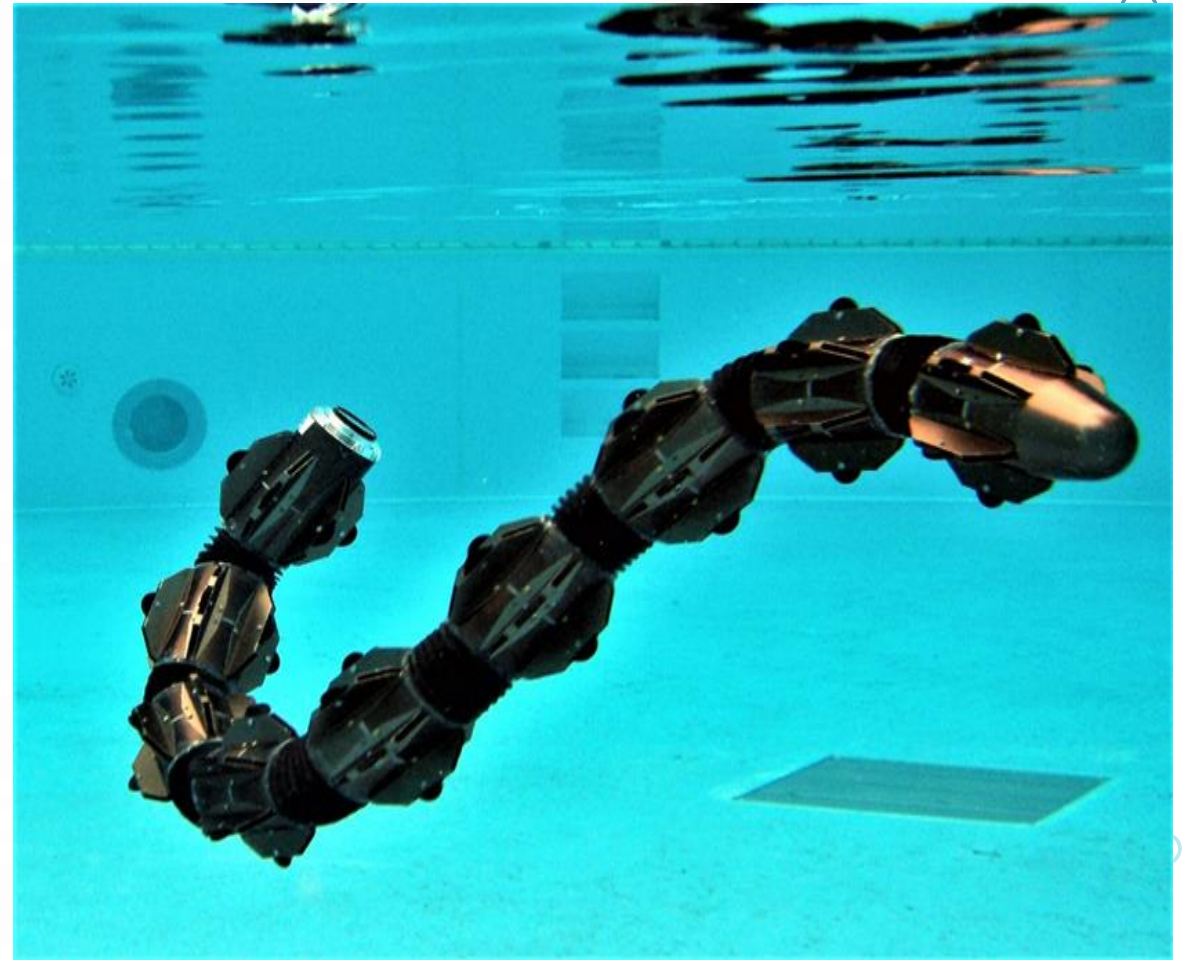
Sensor measurements for each driving session are stored in "logs." For each log, we provide intrinsic and extrinsic calibration data for LiDAR and all nine cameras.



# ARTIFICIAL INTELLIGENCE IN INDUSTRY

## 11. Intelligent Robots Assessing the Health of Water Pipes

- Industry Context
- Systems Used
- Outcomes




# ARTIFICIAL INTELLIGENCE IN SOCIETY

- AI has the potential to help society overcome some of its most daunting challenges
- Including electricity, the telephone and transistors





# ARTIFICIAL INTELLIGENCE IN SOCIETY

- One helpful step we can take to address current and future issues is to develop and share innovative best practices to guide the creation and deployment of people-centered AI
  - In addition, it will be critical that we acknowledge the broad concerns that have been raised about the impact of these technologies on jobs and the nature of work, and take steps
  - Principles, Policies and Laws for the Responsible Use of AI<sup>83</sup> to ensure that people are prepared for the impact that AI will have on the workplace and the workforce
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