

Vision for AI in Societal Automation: Deliverables, Challenges

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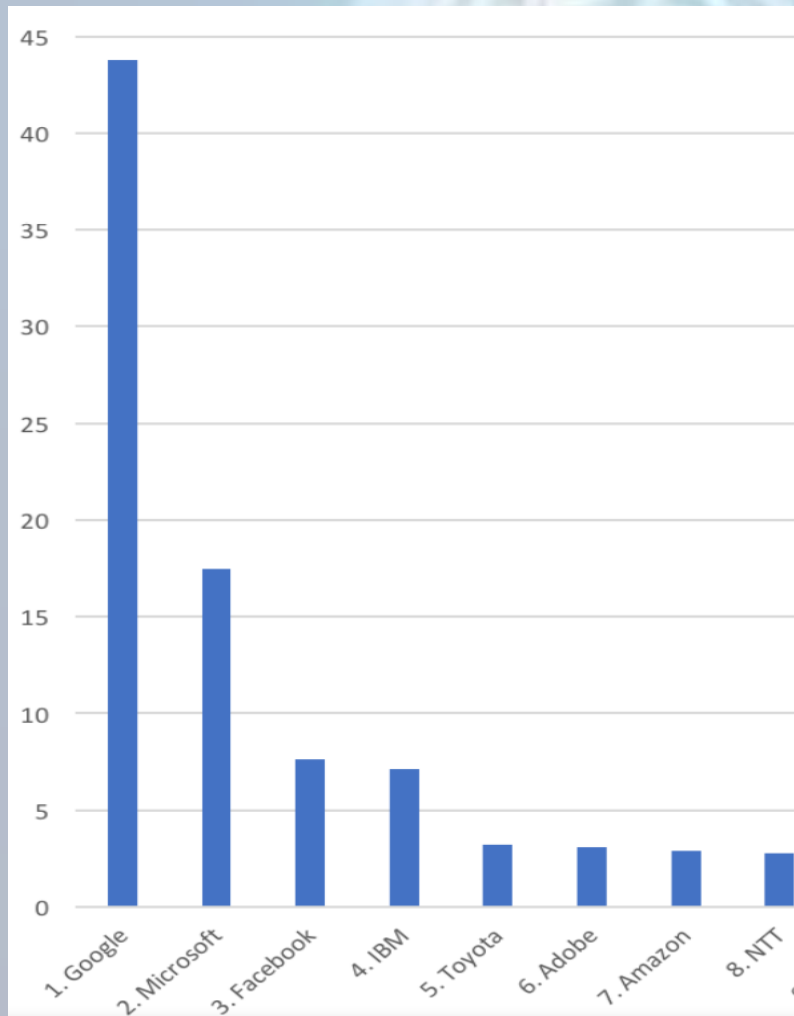
How is the AI revolution different?

- **AI: intelligence exhibited by machines**
- **AI of today: foundational basis of AI is Data-driven Machine Learning**
- **Differences**
 - high societal use, impact, implications
 - billions are constituents/stakeholders
 - promise of enormous influence & profits
 - quick path concept-to-deliverables

Heavy Industry Participation: papers

NIPS

ICML

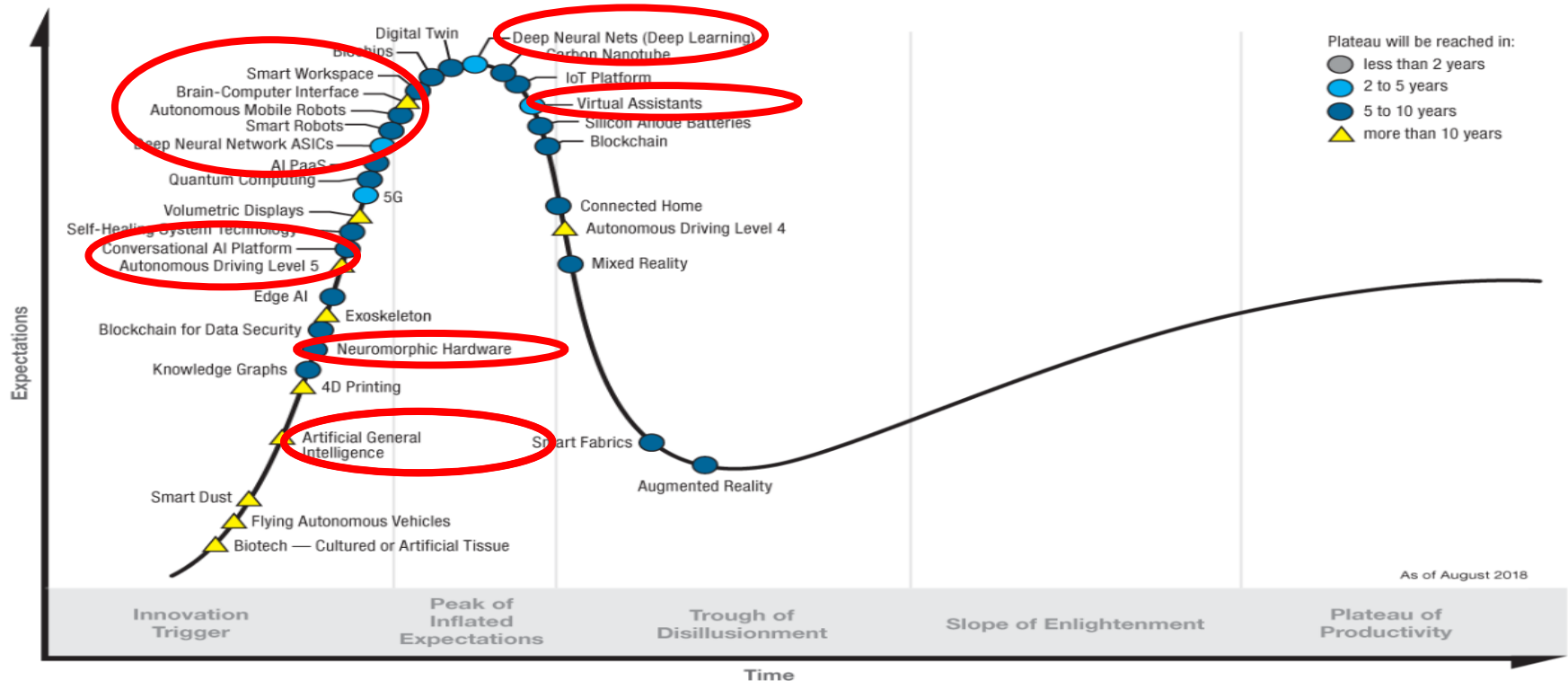


Most papers by institution:

```
google: 43  
berkeley: 33  
deepmind: 33  
cmu: 32  
stanford: 29  
mit: 28  
microsoft: 28  
google ai: 24  
facebook: 21  
oxford: 20  
princeton: 20  
inria: 18  
epfl: 17  
eth zurich: 16
```

Gartner Hype Curve Peaks for AI

Hype Cycle for Emerging Technologies, 2018



gartner.com/SmarterWithGartner

Source: Gartner (August 2018)
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Gartner

Examples of Current AI Systems

- **Robots**
 - **Autonomous vehicles**
 - **Chatbots**
 - **Software systems**
 - **Sociotechnical**
 - **“Pattern” recognizers**
 - **Intelligent assistants**
 - **Recommender systems**
- 
- A person in a dark suit is seen from behind, standing in a perspective view of a digital tunnel. The tunnel is composed of multiple rows of binary code (0s and 1s) that recede into the distance, creating a strong sense of depth. The background is a light blue color, and the overall aesthetic is futuristic and technological.

Examples of Future AI Systems

- **Units with General Intelligence**
- **Seamless Human-Computer Interfaces**
 - of all computing devices used in one's life
 - brain wave-operated systems
 - full merger of intelligence, communications and wearables

Challenges for GAI Systems

- **GAI seeks to develop machines with “generalized” human intelligence**
 - capable of sustaining long-term goals and intent, or, more generally “perform any intellectual task that a human being can.”
 - GAI seeks general cognitive abilities
 - Ambitious goal give AGI high visibility disproportionate to its present level of success
- **Current AI oriented around specific tasks**

Future and Challenges of AI

AI is shaping up in a major way:

- Man-machine communications
- Intelligent aids for home and workplace
- Healthcare diagnostics & delivery
- Seamless intelligence via confluence of communications and use of information

Major issues:

- Ethical design of AI systems
- AI for social good
- Societal protections

Future and Challenges of AI

Major challenges

- Ethical design of AI systems
- AI for social good
- “Info wants to be free” - a cornerstone
 - Right to own vs right to use/access data clash
- Biases and discrimination are inherent today
 - Algorithmic, ethnic
 - Different degree of access, understanding levels
- Legal and ethics frameworks lagging
 - Giant companies ahead of NGOs, GOVs
 - Societies are paying high price for the free ride

Action items for AI constituents

Entrepreneurs

Build AI instead of using AI

Designers

Follow “Ethically Aligned Design” codes

Investors

Transparency is the key, XAI needed

Lawyers

Work with businesses and NGOs to add societal protections, remove bias

Governments

Bring the issue of responsibility of AI systems to the forefront

ALL: BE OPTIMISTIC, THE BEST IS YET TO COME