

## The Most Significant Failures When AI Turned Rogue, Causing Disastrous Results

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**Abstract:** The applications for artificial intelligence are countless and John McCarthy, who coined the term in 1956, defines it as "the science and engineering of making intelligent machines." The study and design of intelligent agents -- where an intelligent agent is a system that becomes aware or conscious of its environment and takes actions which maximizes its chances of success -- can be applied to many different sectors and industries including computer science, psychology, philosophy, neuroscience, cognitive science, linguistics, operations research, economics, control theory, probability, optimization and logic. The simulation of human intelligence in machines is being tested and used in the maintenance or improvement of health industry for dosing drugs and different treatment in patients, and for surgical procedures in the hospital operating room.

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From self-driving cars to industrial robots, all complex real world problems are being solved with applications of intelligence (AI). Artificial intelligence (AI) is progressing rapidly and makes it possible for machines to think like humans and mimic their actions -- adjust to new inputs and perform human-like tasks by processing large amounts of data and recognizing patterns in the data. While science fiction often renders AI as robots (a machine -- especially one programmable by a computer -- capable of carrying out a complex series of actions automatically) with human-like characteristics, AI can encompass anything from missile guidance to tumor detection to face recognition.

The applications for artificial intelligence are countless and John McCarthy, who coined the term in 1956, defines it as "the science and engineering of making intelligent machines." The study and design of intelligent agents -- where an intelligent agent is a system that becomes aware or conscious of its environment and takes actions which maximizes its chances of success -- can be applied to many different sectors and industries including computer science, psychology, philosophy, neuroscience, cognitive science, linguistics, operations research, economics, control theory, probability, optimization and logic. The simulation of human intelligence in machines is being tested and used in the maintenance or improvement of health industry for dosing drugs and different treatment in patients, and for surgical procedures in the hospital operating room.

A property of machines: the intelligence that the system demonstrates -- today is properly known as Weak Artificial intelligence, in that it is designed to perform a narrow tasks (such as web searches, control

systems, scheduling, data mining, logistics, speech recognition, facial recognition and many others). However, the long-term goal of many technical researchers is to create Strong Artificial intelligence. While Weak Artificial intelligence may outperform humans at whatever its specific task is, like playing game or solving mathematical problems, Strong Artificial intelligence would outsmart humans at nearly every cognitive task.

In little over a decade, Artificial intelligence (a wide-ranging tool that enables people to rethink how we integrate information, analyze data, and use the resulting insights to improve decision making) has made leaps and bounds. Every single day, a new thousand word post showcase the most recent advancement in Artificial intelligence. Being Artificial intelligence has made remarkable breakthroughs, and many scientists dream of creating the Master Algorithm proposed by **Pedro Domingos**--which can solve all problems envisioned by humans -- failure is at the core of human advancement-- notable failures are emerging. From self-driving car accidents to Face ID hacks, AI didn't have a perfect year.

### The Most Significant Failures When AI Turned Rogue, Causing Disastrous Results:

- **1959:** AI designed to be a General Problem Solver failed to solve real world problems.
- **1982:** Software designed to make discoveries, discovered how to cheat instead.
- **1983:** Nuclear attack early warning system falsely claimed that an attack is taking place.
- **2010:** Complex AI stock trading software caused a trillion dollar flash crash.

- **2011:** E-Assistant told to “call me an ambulance” began to refer to the user as Ambulance.
- **2013:** Object recognition neural networks saw phantom objects in particular noise images.
- **2015:** An automated email reply generator created inappropriate responses, such as writing "I love you" to a business colleague.
- **2015:** A robot for grabbing auto parts grabbed and killed a man.
- **2015:** Image tagging software classified black people as gorillas.
- **2015:** Medical AI classified patients with asthma as having a lower risk of dying of pneumonia.
- **2015:** Adult content filtering software failed to remove inappropriate content, exposing children to violent and sexual content.
- **2016:** AI designed to predict recidivism acted racist.
- **2016:** An AI agent exploited a reward signal to win a game without actually completing the game.
- **2016:** Video game NPCs (non-player characters, or any character that is not controlled by a human player) designed unauthorized super weapons.
- **2016:** AI judged a beauty contest and rated dark-skinned contestants lower.
- **2016:** A mall security robot collided with and injured a child.
- **2016:** The AI "Alpha Go" lost to a human in a world-championship-level game of "Go."
- **2016:** A self-driving car had a deadly accident.
- **2018:** Google Translate shows gender bias in Turkish-English translations.
- **2018:** Facebook chat bots shut down after developing their own language.
- **2018:** Autonomous van in accident on its first day.
- **2018:** Google Allo suggested man in turban emoji as response to a gun emoji.
- **2018:** Face ID beat by a mask.
- **2018:** AI misses the mark with Kentucky Derby predictions.
- **2018:** Google Home Minis spied on their owners.
- **2018:** Google Home outage causes near 100% failure rate.
- **2018:** Facebook allowed ads to be targeted to "Jew Haters".

While these are only a few instances of failures that have been observed so far, they are piece of evidence to the fact that Artificial intelligence (the simulation of human intelligence processes by machines, especially computer systems) has the

potential to develop a will of its own that may be in conflict with members of the human race. This is definitely a warning about the potential dangers of Artificial intelligence which should be addressed while exploring its potential interests.

*"I believe there is no deep difference between what can be achieved by a biological brain and what can be achieved by a computer. It therefore follows that computers can, in theory, emulate human intelligence — and exceed it." – Stephen Hawking*

Artificial intelligence in general, context remains a challenge. **Despite Its Many Failures, why is artificial intelligence important?**

- Artificial intelligence automates repetitive learning and discovery through data.
- Artificial intelligence analyzes more and deeper data.
- Artificial intelligence adds intelligence to existing products.
- Artificial intelligence adapts through progressive learning algorithms to let the data do the programming.
- Artificial intelligence gets the most out of data.
- Artificial intelligence achieves unbelievable accuracy through deep neural networks – which was previously impossible. For example, your interactions with Amazon Alexa, Google Search and Google Photos are all based on deep learning – and they keep getting more precise the more we use them.

The threat of AI-charged job loss is spreading (AI and automation will eliminate the most mundane tasks). No matter what industry you're in, AI-powered bots (which can answer common questions and point users to FAQs and knowledge base articles) and software are taking a crack at it. Artificial intelligence seems to be ringing the death knell for all manner of jobs, tasks, chores and activities. From hospitality, to customer service, to home assistants, no job feels safe. Naturally, this has made people worried about the future. But is Artificial intelligence ready to take over our jobs, or even likely to do so ever? Prevalent AI-charged failures would suggest not.

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