



## March 24, 2023 AI and its key contemporary uses and issues

Artificial人工 intelligence<sup>知能</sup>, or AI, uses computers and machines to [～を真似る : m\_\_m\_\_] the human mind's ability to solve problems and [決定を下す : m\_\_d\_\_s\_\_s]. It has become [我々の多くがそれに殆ど気付かないくらい、日々の生活の慣れ親しんだ一部 (になった) (部分否定, such that構文) : s\_\_a f\_\_m\_\_l\_\_p\_\_e\_\_d\_\_l\_\_t\_\_m\_\_o\_\_us h\_\_l\_\_n\_\_it], but [どのようにそれは機能するのか : h\_\_d\_\_it w\_\_]? [何のために私達はそれを使うのか : W\_\_d\_\_we u\_\_it f\_\_]? Let's [～をより探ってみましょう : t\_\_a d\_\_p\_\_d\_\_i\_\_] those questions. [まず手始めに : T\_\_b\_\_w\_\_], [人工知能の歴史をちょっと見る (が) (無生物主語) : a b\_\_f l\_\_a\_\_ the h\_\_t\_\_y of AI] can [我々が～を理解するのを助ける (原形不定詞) : h\_\_u\_\_u\_\_s\_\_] [どのようにそれが機能するか (を) (間接疑問) : h\_\_w\_\_s].

### Where has AI come from, and how does it work?

We hear a lot about algorithmsアルゴリズム [最近、近日 : t\_\_d\_\_], but [実際のところ : f\_\_] they are [新しいものでも何でもなし : n\_\_t\_\_n\_\_]. An algorithm is [基本的には : b\_\_c\_\_l\_\_] [一連の規則または指示 (である) : a s\_\_o\_\_ rules or i\_\_r\_\_t\_\_s] [問題を解決するのを、又は次に何をしたらいいかを定めるのを、助ける (規則または指示) : that h\_\_t\_\_s\_\_a p\_\_l\_\_or d\_\_c\_\_w\_\_t\_\_d\_\_next]. Mathematicians have been using algorithms [何世紀もの間 : f\_\_c\_\_t\_\_s], and early computers used algorithms to [複雑な計算をする : d\_\_c\_\_l\_\_c\_\_l\_\_s]. [1950年代に : t\_\_1950\_\_], people started to […かしらと思う : w\_\_] [これらのコンピュータが考えることができるのかどうか (と) : w\_\_t\_\_these computers c\_\_d\_\_t\_\_k], and the [用語 : t\_\_] “artificial intelligence” was first used in 1956.

[1950年代を通してずっと : T\_\_o\_\_t\_\_1950\_\_], [研究 (が) : w\_\_] [進展した : p\_\_g\_\_ed] on building computers that copied the [構造 : s\_\_t\_\_] of human brains, with lots of [相互連結された : i\_\_c\_\_n\_\_t\_\_] neurons<sup>ニューロン</sup>. These “ [神経の : n\_\_l] networks” could use algorithms to learn. The first example of “machine機械 learning<sup>学習</sup>” was in 1958, when a neural network [～を認識できるようになった : l\_\_ed t\_\_r\_\_n\_\_] [基本的な形状 (を) : b\_\_s\_\_s\_\_s]. [～を組み合わせること (は) : C\_\_b\_\_i\_\_] neural networks [複数の層で : i\_\_m\_\_p\_\_l\_\_s] [より洗練された「ディープラーニング (深層学習)」を可能にした : m\_\_more s\_\_p\_\_t\_\_c\_\_ “deep learning” p\_\_b\_\_]. These “deep neural networks” [訓練されることが可能だった : c\_\_d\_\_b\_\_t\_\_ed] to play games [～のような : l\_\_] chess and go<sup>囲碁</sup>. In 1997 a computer called Deep Blue [～をたおした : b\_\_] world chess champion Garry Kasparov<sup>ガルリ・カスパロフ</sup>, and in 2016, DeepMind's AlphaGo [～をたおした : b\_\_] Lee Sedol<sup>李世ドル</sup>, the world champion go player.

AI research [～のみに焦点が当てられているわけではない : wasn't s\_\_l\_\_f\_\_c\_\_ed o\_\_] games, however. In 2015, a supercomputer called Minwa [～を識別し分類することが可能であると判明した : p\_\_d a\_\_t\_\_i\_\_t\_\_f\_\_ and c\_\_g\_\_r\_\_] pictures [より正確に : more a\_\_r\_\_l\_\_] than [平均的な人間 : the a\_\_r\_\_human]. Computers may not be able to “think” [人間がするのと同じ方法で (関係副詞) : i\_\_t\_\_s\_\_w\_\_t\_\_humans d\_\_], but AI [当然～をしのぐことができる : c a n c\_\_t\_\_l\_\_o\_\_p\_\_f\_\_m] humans [特定の課業においては : a\_\_s\_\_c\_\_f\_\_t\_\_s], and it [より良くなってきている : i\_\_g\_\_t\_\_g b\_\_r] [ひっきりなしに : a\_\_the t\_\_].

## How does AI help us?

Artificial intelligence is [私達の身の回りの至る所にある : a\_\_\_ a\_\_\_ d us] , and we [~と交流する : i\_\_\_ a\_\_\_ w\_\_\_] it every day. The technology [学習しそして適合し続ける : k\_\_\_ s l\_\_\_ n\_\_\_ and a\_\_\_ t\_\_\_] [それが使用されるにつれて : \_\_\_ it is u\_\_\_] , so it [ますますより良くなる : g\_\_\_ s b\_\_\_ r and b\_\_\_ r] [時間が経つにつれて : \_\_\_ time g\_\_\_ s o\_\_\_] .

Our phones, social media and online shopping [アカウント : a\_\_\_ s] all use AI to learn more about [私達が何者であるか (について) (間接疑問) : w\_\_\_ a\_\_\_] , and [私達が何を好きか (について) (間接疑問) : w\_\_\_ w\_\_\_ l\_\_\_] .

For example, video streaming services know [私達がどの動画を視聴するか (を) (間接疑問) : w\_\_\_ v\_\_\_ s w\_\_\_ w\_\_\_] , and [どれくらい長い間 (視聴するかを) : f\_\_\_ h\_\_\_ l\_\_\_] . They use this data to [プロフィールを作り上げる : b\_\_\_ u\_\_\_ a p\_\_\_ f\_\_\_] of every user. Users with [似たプロフィール : s\_\_\_ l\_\_\_ p\_\_\_ f\_\_\_ s] have [似た嗜好 : s\_\_\_ l\_\_\_ t\_\_\_ s] , so AI [私達をお互いと比較する : c\_\_\_ p\_\_\_ s us w\_\_\_ e\_\_\_ o\_\_\_] and uses this data to [~を推薦する : r\_\_\_ m\_\_\_ d] more videos that we might like.

[音声認識 : V\_\_\_ r\_\_\_ n\_\_\_ n] is also [~を原動力として動かされている : p\_\_\_ ed by] AI, [コンピュータやスマホが、発話された指示や質問に、反応することを、可能にしている (分詞構文) : e\_\_\_ a\_\_\_ ing computers and smartphones \_\_\_ r\_\_\_ p\_\_\_ d t\_\_\_ s\_\_\_ k\_\_\_ i\_\_\_ s\_\_\_ r\_\_\_ t\_\_\_ s and questions] . This [私達に~の新しい方法をもたらした : has g\_\_\_ us a new w\_\_\_ o\_\_\_] [コンピュータと交流する (方法) : i\_\_\_ a\_\_\_ ing w\_\_\_ computers] . [加えて : I\_\_\_ a\_\_\_ t\_\_\_ n] , voice recognition [~を生成できる : can g\_\_\_ n\_\_\_ r\_\_\_ t\_\_\_] [動画の字幕 (を) : c\_\_\_ t\_\_\_ s for v\_\_\_ d\_\_\_ s] , and [私達が外国語を学ぶのを助けることすら (できる) : e\_\_\_ h\_\_\_ us learn f\_\_\_ r\_\_\_ n\_\_\_ l\_\_\_ g\_\_\_ g\_\_\_ s] .

AI has [他の教育的使用法 : o\_\_\_ r\_\_\_ e\_\_\_ c\_\_\_ t\_\_\_ n\_\_\_ u\_\_\_ s] too, from checking our [単語の綴り : s\_\_\_ l\_\_\_ i\_\_\_] and [文法 : g\_\_\_ m\_\_\_ r] to [剽窃を探知すること (に至るまで) : d\_\_\_ t\_\_\_ ing p\_\_\_ g\_\_\_ r\_\_\_ m] in [著作物 : w\_\_\_ t\_\_\_ n w\_\_\_ k] . AI tools [今、開発されている : are now b\_\_\_ g\_\_\_ d\_\_\_ v\_\_\_ p\_\_\_] for [生徒達が学ぶのを助けること (のために) : h\_\_\_ ing students \_\_\_ learn] and [彼等が知ってることをテストすること (のために) : t\_\_\_ ing w\_\_\_ they k\_\_\_] .

In [医療 : h \_ \_ \_ \_ c \_ \_ \_ \_] , AI [～を探す : l \_ \_ \_ \_ s f \_ \_ \_] patterns in [巨大な : h \_ \_ \_ \_] sets of [患者データ : p \_ \_ \_ \_ t data] , [医者が病気を診断し治療を推奨するのを助ける (分詞構文) : help \_ \_ \_ \_ doctors t \_ \_ d \_ a \_ n \_ s \_ i \_ \_ n \_ \_ \_ \_ es and r \_ c \_ m \_ \_ \_ \_ d t \_ \_ a \_ m \_ \_ \_ s] . It also [～を監視するのを助ける : h \_ \_ \_ \_ s \_ \_ \_ m \_ n \_ t \_ \_ \_] patients in hospitals, [より良い患者ケアおよび医者と看護師に他の仕事のためのより多くの時間を与えることに、つながる (分詞構文) : l \_ \_ \_ \_ ing t \_ \_ better p \_ t \_ \_ \_ t c \_ \_ \_ \_ , and g \_ \_ \_ \_ ing doctors and nurses more t \_ \_ \_ \_ f \_ \_ \_ o \_ \_ \_ \_ r t \_ \_ \_ \_ s] . [同様に : S \_ m \_ \_ \_ \_ l \_ \_] , in [農業 : a \_ \_ \_ \_ c \_ \_ t \_ r \_ \_] , AI can monitor [作物 : c \_ \_ \_ \_ s] and weather patterns, [農民が～を予測するのを助ける (分詞構文) : h \_ \_ \_ \_ ing f \_ \_ m \_ \_ s \_ \_ p \_ \_ d \_ \_ t] the best [栽植と収穫の時期 : p \_ \_ a \_ \_ \_ ing and h \_ \_ v \_ \_ \_ \_ ing times] .

In [工業 : i \_ d \_ \_ t \_ \_ \_] too, [人工知能関連の : AI- r \_ \_ \_ \_ t \_ \_ \_] software and robots [～を奪った : have t \_ \_ \_ \_ o \_ \_ \_ \_] [かつては人々によって行われていた仕事 (を) : jobs that u \_ \_ \_ \_ t \_ \_ b \_ \_ d \_ \_ \_ \_ by people] . Factories and [倉庫 : w \_ \_ \_ \_ h \_ \_ \_ \_ \_ s] have [自動化された製造と輸送 (を) : a \_ \_ \_ \_ m \_ \_ \_ \_ d p \_ \_ d \_ \_ t \_ \_ \_ n and s \_ \_ \_ \_ p \_ \_ \_ \_] , [それらをより安全かつ生産的にしている (分詞構文) : m \_ \_ \_ \_ ing them s \_ \_ \_ \_ r and more p \_ \_ d \_ \_ t \_ \_ v \_ \_] . We even have [自動運転の : s \_ \_ \_ \_ -d \_ \_ \_ i \_ \_ \_] cars and trucks now. They can [～を認識できる : r \_ c \_ \_ \_ n \_ \_ \_ \_] people, other [車、乗り物 : v \_ h \_ \_ \_ \_ \_ s] , [道路標識 : r \_ \_ \_ \_ \_ s \_ \_ \_ \_ \_ s] and [交通パターン : t \_ \_ f \_ \_ \_ \_ p \_ \_ t \_ \_ \_ \_ s] , using all this information [同時に、即 : i \_ \_ r \_ \_ \_ \_ t \_ \_ \_ \_] to [決定をする : m \_ \_ \_ \_ \_ d \_ \_ c \_ \_ s \_ \_ \_ \_ s] and control the vehicle.

These are just some examples of AI in [日々の生活 : e \_ \_ \_ \_ \_ d \_ \_ \_ \_ l \_ \_ \_ \_] . The technology [急速に進歩している : is a \_ v \_ \_ \_ \_ ing r \_ p \_ \_ l \_ \_] and [～するのが確実なようである : l \_ \_ \_ \_ s s \_ \_ \_ t \_ \_] [～を変化し続ける : k \_ \_ \_ \_ c \_ \_ \_ \_ i \_ \_ \_] [私達の生きる方法 (を) : the w \_ \_ \_ w \_ \_ l \_ \_ \_ \_] . There are risks, however. Is AI learning too much about us? [それがますます強力になるにつれて : \_ \_ \_ it b \_ c \_ \_ \_ \_ s i \_ c \_ \_ \_ \_ i \_ \_ \_ l \_ \_ p \_ w \_ \_ f \_ \_ \_] , our biggest challenge may be [それを制御する立場に踏みとどまること : s \_ \_ \_ \_ ing i \_ \_ c \_ n \_ r \_ \_ \_ o \_ \_ it] .