al elements of the foundation system. In case of non-uniform base deformation, the redistribution of contact pressures occurs and the system comes into equilibrium under a constructive solution.

The folded foundation proposed can be used for transmission towers which are applied in water-saturated, fen and soft soils and the non-uniform base deformation.

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GOOGLE'S NEURAL TRANSLATION TECHNOLOGY

At the heart of all innovations is a change of some kind but this does not necessarily mean that the change always has to be radical and wholesale. Creating a translation machine has long been seen as one of the toughest challenges in artificial intelligence. For decades, computer scientists have tried using a *rules-based approach* — teaching the computer the linguistic rules of two languages and giving it the necessary dictionaries.

In the mid-1990s, researchers began favouring a so-called *statistical approach*. They found that if they fed the computer thousands or millions of passages and their human-generated translations, it could learn to make accurate guesses about how to translate new texts. It turns out that this technique, which requires huge amounts of data and much computing horsepower, is right up Google's alley. Google's infrastructure is well suited to this. People, who work there,

can take approaches that others cannot even dream of.

It is true that automated translation systems were far from perfect and even Google will not put human translators out of a job anytime soon. Experts claim that it is difficult for a computer to break any sentence into parts, then translate and reassemble them. Nevertheless, Google's service is good enough to convey the essence of a news article, and it has become a quick source for translations for millions of people.

Like its rivals in the field, notably Microsoft and I.B.M., Google has fed its translation engine with the transcripts of United Nations proceedings, translated by humans into six languages, and those of the European Parliament, translated into 23 languages. This raw material serves to train systems for the most common languages. Today Google has scoured the text of the Web, as well as data from its book-scanning project and other sources, to move beyond those languages. For more obscure languages, it has released a "tool kit" that helps users with translations and then adds those texts to its database.

While many translation systems like Google use up to a billion words of text to create a model of a language, Google went much further: a few hundred billion English words. The more texts you process, the better the model becomes. In 2007, the company began offering 800-GOOG-411, a free directory assistance service that interprets spoken requests. It allowed Google to collect the voices of millions of people so it could get better at recognizing spoken English. A year later, Google released an effective search-by-voice system.

Google's translation system needed improvement, but it was getting better fast. The current quality improvement curve is still steep. Indeed, Google Translate is getting brainier. The online translation tool recently started using a *neural network* to translate between some of its most popular languages – and the system is now so clever it can do this for language pairs on which it has not been explicitly trained. The network works on entire sentences at once, giving it more context to figure out the best translation. This system is now operating for eight of the most common language pairs on which Google Translate works. It can handle multiple pairs – and it can translate between two languages. For example, if the neural network addresses to translation between English and Japanese, and English

and Korean, it can also translate between Japanese and Korean without first going through English. It enables Google to scale the system to translate between a large numbers of languages.

Furthermore, Google's researchers suggest that their system achieves this breakthrough by finding a common ground whereby sentences with the same meaning are represented in similar ways regardless of a language – which they say is an example of an "interlingua". This approach, called *zero-shot translation*, still does not perform as well as the simple approach of translating via an intermediary language. Nevertheless, the field is progressing fast, and Google's results will obviously create awareness of the research community and industry.

In addition, Google Translate currently supports 103 languages and translates over 140 billion words every day. Google's users and ordinary people have no doubt that they will be able to train a single neural machine-translation system that works on 100 plus languages in the near future.

Thus, neural translation technology can have benefits for simple texts translation. It arouses the question concerning human translators' professional engagement. In spite of the problem mentioned, a good human translator understands the meaning of the source text, as well as its stylistic and lexical characteristics, and can use that knowledge to give a more accurate translation.

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EVOLUTION OF THE PRODUCTIVE STRATA STRUCTURE OF PERVOMAYSKE DEPOSIT OF KRYVBAS IN THE CONTEXT OF THE THIRD ORE BODY FORMATION

The Pervomayske deposit of low grade magnetite ores (magnetite quatzites) is being mined by Pivnichnyi Iron Ore Mining and Processing Combine. Its productive strata has three ore bodies. The first and the second bodies are extensions towards the north of the fifth