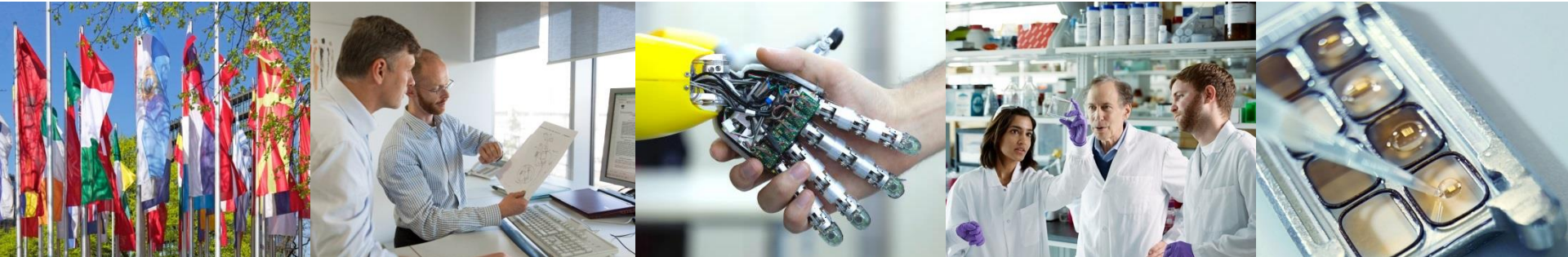




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Artificial Intelligence at the EPO

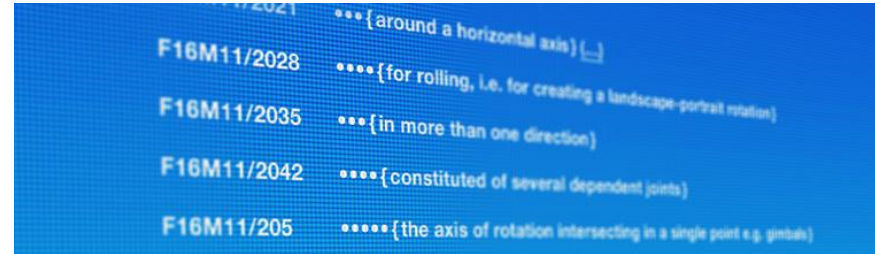


Artificial Intelligence in the patent grant process

- An automated process performing a task based on a learned pattern.
- Many patent grant processes can be supported by AI.
- The EPO processes a large amount of data: in 2017, 165 590 patents were filed and over 105 000 patents were granted.
- Our prior art collection represents a huge amount of structured data that can be used for ML purposes: 108 million documents in our master database DOCDB, 31 million of patent search reports from more than 30 patent authorities, more than 70 million of full-text records in various languages.

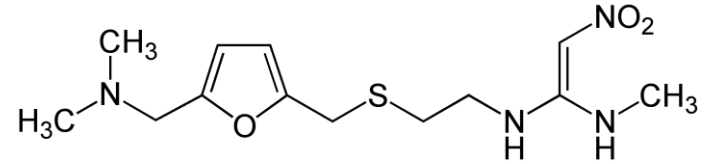
Areas where the EPO uses AI

- Automatic pre-classification of incoming patent applications to assign the file to the right unit.
- Automatic classification and re-classification of patent documents according to the CPC scheme.
- Performing automatic searches on incoming patent applications: selection and merging of documents sets with machine learning methods.



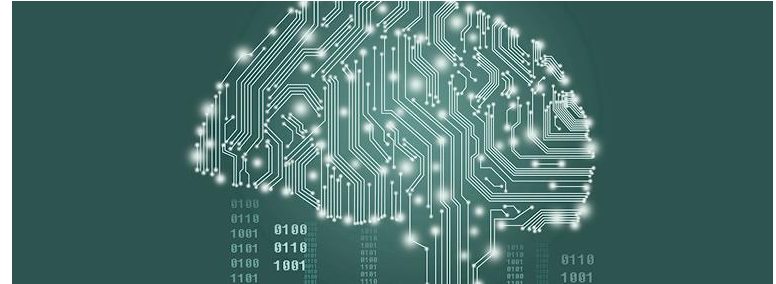
Areas where the EPO uses AI

- Automatic annotation of patent literature: indexing numerical values, chemical compounds.
- Machine Translation through Google's Neural Network based machine: 15 000 request a day covering 32 languages including Chinese, Japanese, Korean and Russian.



1. An alloy composition comprising

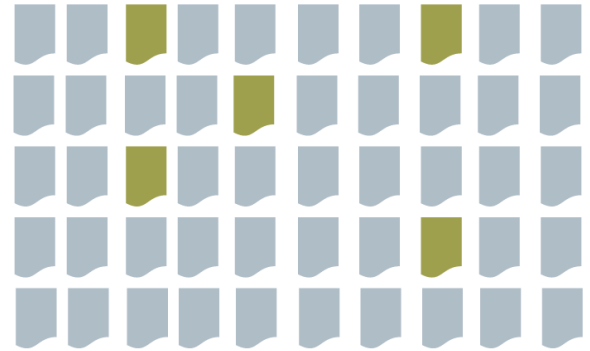
- a) silicon in an amount of 35 to 70 mole percent;
- b) aluminum in an amount of 1 to 45 mole percent;
- c) a transition metal in an amount of 5 to 25 mole percent;
- d) tin in an amount of 1 to 15 mole percent;
- e) indium in an amount up to 15 mole percent; and
- e) a sixth element comprising yttrium, a lanthanide element, an actinide element, or a combination thereof in an amount of 2 to 15 mole percent,



Machine Learning Support Infrastructure

- The EPO does not rely on anecdotal evidence and uses curated gold standards.
- The EPO has developed a unique infrastructure to benchmark and measure the performance of new search tools: comparing at very large scale results obtained automatically with the ones produced by examiners.
- This infrastructure enables the fine tuning of tools according to technical domains and offers a very objective measurement of the quality delivered by new tools.

Top 50 Documents Returned



Cited Documents **not** Returned



$$\text{Recall @ 50} \quad \frac{5}{10} = 0.5$$

$$\text{Hit Rate @ 50 } recall > 0? = 1$$

Areas where the EPO is testing new possibilities based on Artificial Intelligence

- Automatic detection of problem/solution in patent documents.
- Automatic detection of exclusion from patentability.
- Automatic generation of queries.

BACKGROUND OF THE INVENTION

This invention relates to a device for collecting water from naturally occurring fog.

Prior Art

In arid regions of earth, such as the Arabian Peninsula, fresh water is obtained from sea water by such processes as ion exchange and distillation.

Problems resolved by the invention

The previous methods require large scale facilities and are not suitable for conveniently obtaining fresh water.

Also, since sea water is pumped from the sea and processed, facilities are required for procuring the pretreated water and disposing of the post-treated water.



Thank you for your attention!