

Modern Software in the IPR Sector

A 10 min Snapshot sequence of methods, success factors and examples

22.08.2018, Bjørn Lillekjendlie, NIPO

Gjør ideer til verdier

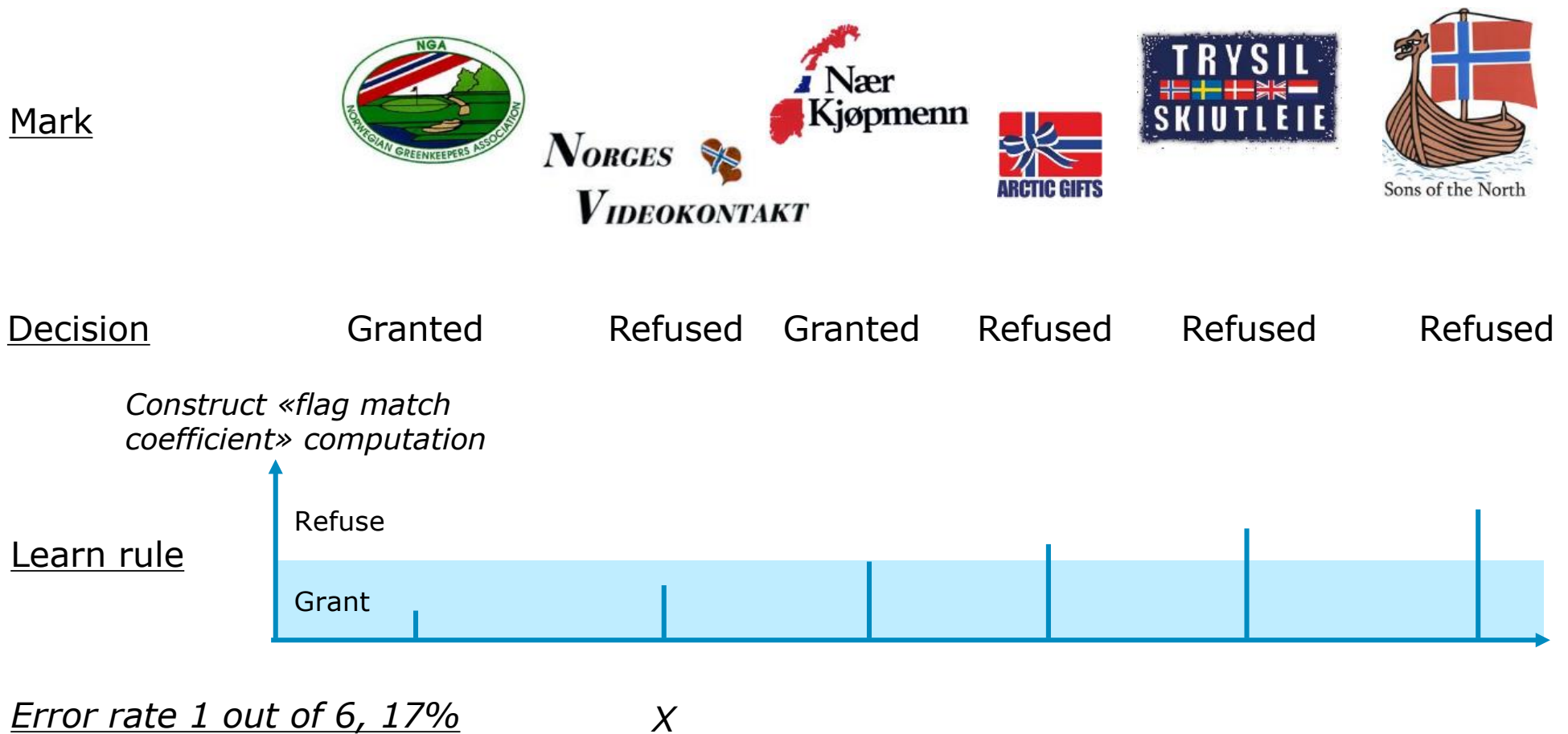
Method A) - Programmed Rule Sets

- **IF** (received_timestamp > 2018.08.18 24:00) **THEN**
 case_status = reinvocation_filed_too_late;
- **IF** (number_of_claims == 0) **THEN**
 patent_status = Refused;
- **IF** (inventor_transfer delaration == None **AND**
 inventor **Is Not** applicant **THEN**
 SendMessageTo(contactPerson, «Please provide ...»);

Standard office automation

Large rule sets may automate complex tasks, like expert systems for mortgages

Method B) - Pattern Recognition, train



Method B) - Pattern Recognition, use

New application



*Perform «flag match
coefficient» computation
and get number*

Apply learned
rule



GRANT

(Absolute grounds for rejection)

For success - look for:

- Well defined input-outputs (rule sets, formalities)
- Large data sets (>100.000 cases)
- Defined metrics / known correct decisions
- No long chains of reasoning, background knowledge, etc.
- Limited need for detailed explanations
- Tolerance for errors

Examples

A) Rule based systems

- Automated formality control
- Application assistants



Christina Klingenberg, the automated letter box at PVS

Oppsummering

Om merket

Ditt merke : NIR Presentation

Endre

Ord | Gir enerett til ett eller flere ord eller forkortelser

Har du søkt samme varemerke i et annet land enn Norge? Nei

Produkter

Hvilke produkter skal du markedsføre og selge?

Endre

45

Juridiske tjenester i forbindelse med anvendelse av industrielt rettsvern

Juridiske tjenester for prosedyrer i forbindelse med industrielt rettsvern

Forvaltning av industrielt rettsvern og opphavsrettigheter for andre

Fremskaffelse av informasjon om industrielt rettsvern

Rådgivning i forbindelse med industrielt rettsvern

The digital trademark assistant at NIPO

Hvem er kontaktperson for denne søknaden?

Endre

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Telefon: 99000098

Hvem eier varemerket?

Endre

BJØRN LILLEKJENDLIE, JAKTLIA 8, 1361 ØSTERÅS - NO

Rule based systems

- Automated formality control
- Application formality assistants
- Application reality assistants

*Geography warnings
from the IP Australia
trademark assistant*


The screenshot displays the 'Step 1 / 6' of the IP Australia trademark assistant. The user has entered 'Sydney Plumbing' as their trade mark. A warning icon (a yellow triangle with an exclamation mark) is present next to the input. Below the input, a summary box indicates that 'trade marks contain "Sydney Plumbing"' and that 'Step 3 will explore this further.' A 'View results' link is provided. Under the heading 'Your trade mark may contain...', a specific warning is shown: 'A major Australian geographical name: "SYDNEY"'. The interface concludes with the text 'Ok, the next step is to identify your goods and services. Let's continue.' and an illustration of a woman.


B) Pattern matching systems

- Machine translation

SHAFT ELEMENT OF A **BICYCLE** BOTTOM BRACKET, AS WELL AS CRANK ARM
BOTTOM BRACKET ASSEMBLY COMPRISING SUCH A SHAFT ELEMENT

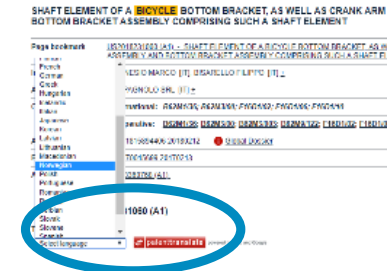
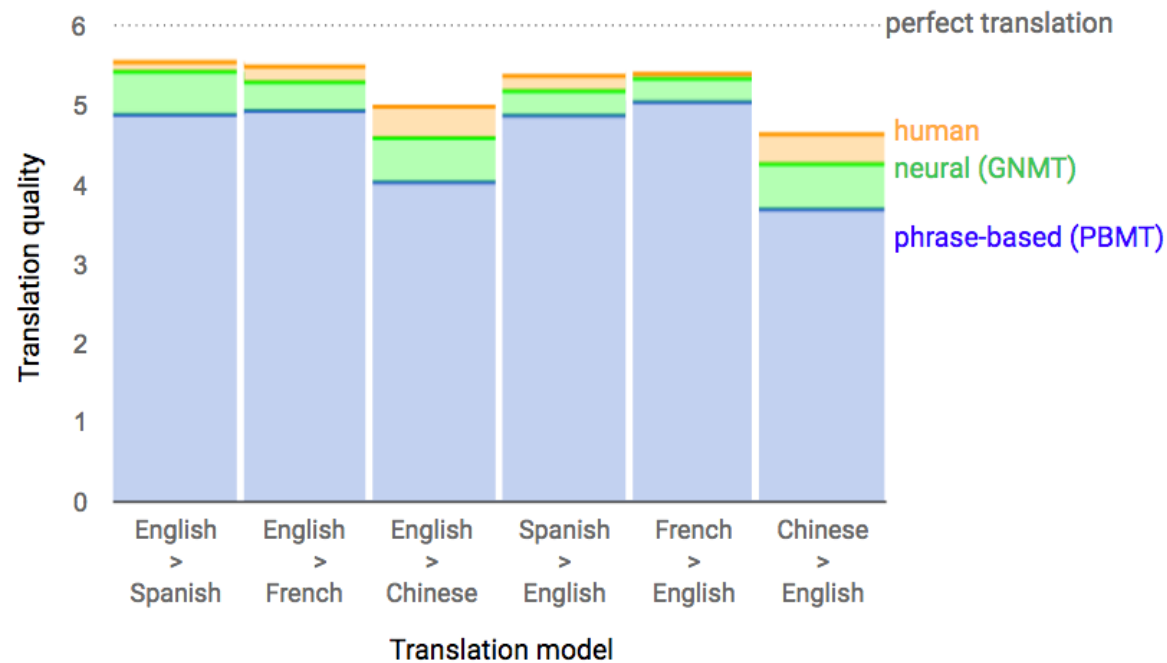
Page bookmark [US2018231060 \(A1\) - SHAFT ELEMENT OF A BICYCLE BOTTOM BRACKET, AS W
ASSEMBLY AND BOTTOM BRACKET ASSEMBLY COMPRISING SUCH A SHAFT EL](#)

| | |
|-----------------|---|
| French | |
| German | NESIO MARCO [IT]; BISARELLO FILIPPO [IT] ± |
| Greek | |
| Hungarian | PAGNOLO SRL [IT] ± |
| Icelandic | |
| Italian | national: B62M1/36 ; B62M3/00 ; F16D1/02 ; F16D1/06 ; F16D1/10 |
| Japanese | operative: B62M1/36 ; B62M3/00 ; B62M3/003 ; B62M9/122 ; F16D1/02 ; F16D1/0 |
| Korean | |
| Latvian | 1815894406 20180212  Global Dossier |
| Lithuanian | |
| Macedonian | 70015699 20170213 |
| Norwegian | |
| Polish | 3360768 (A1) |
| Portuguese | |
| Romanian | |
| Russian | |
| Serbian | 1060 (A1) |
| Slovak | |
| Slovene | |
| Spanish | |
| Select language | |

 powered by EPO and Google

B) Pattern matching systems

- Machine translation



Pattern matching systems

- Machine translation
- Image search

Accepto, search for similar marks, two parts (Wienercodes)

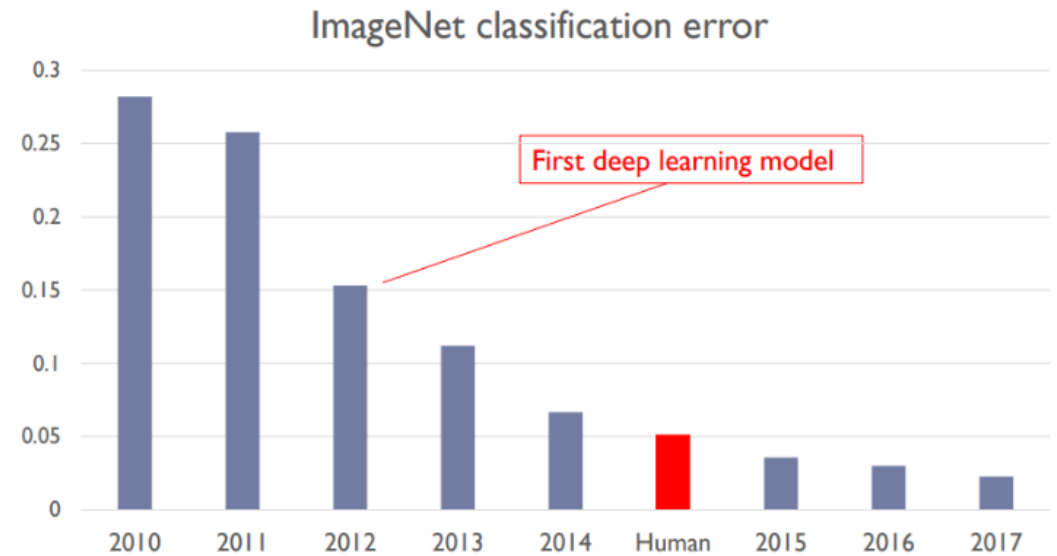
- high contrast N-letter
- flag/graphical part

No similar marks found, no reason to reject on relative grounds



Pattern matching systems

- Machine translation
- Image search



Baidu, 2018

Pattern matching systems

- Machine translation
- Image search
- Patent pre-classification

C07K
A61K
A61P

80-95% accurate
coarse class prediction

3. Computer has learned from
examples the relation between feature
numbers and the coarse classes

1. Take all raw text

SAMMENKOPPLINGSANORDNING MELLOM TO SYKLER

Denne oppfinnelse vedrører en sammenkopplingsanordning mellom to sykler. Nærmere bestemt dreier det seg om en sammenkopplingsanordning mellom en første sykkel og en andre sykkel hvor en støtteramme forbinder den første sykkel til den andre sykkel og hvor et styrestag, direkte eller indirekte, er koplet mellom den første sykkelens framhjulsoppheng og den andre sykkelens framhjulsoppheng.

Fra norsk patent 322351 er det kjent å kople sammen to sykler ved hjelp av en støtteramme som kan koples på en første sykkel og som ved behov løsbart er innrettet til å kunne koples til en andre sykkel. Dette kan være hensiktsmessig for eksempel når et barn sykler sammen med en voksen. Når barnet ikke lenger ønsker å sykle selv, eller når for eksempel trafikale forhold tilsier det, kan sykkelene koples sammen slik at sykkelne følges, hvorved personen som sitter på den første sykkel kan sørge for styring og fremdriften av begge sykler.

Ifølge NO 322351 er det koplet et styrestag mellom sykkelens framhjulsoppheng for å sikre at sykkelene følger hverandre.

Det har vist seg at anordningen ifølge NO 322351 betinger at underlaget hvor det sykles er relativt fast for å kunne fungere på en sikker måte.

Annen relevant bakgrunns-teknikk er angitt i følgende patentpublikasjoner:
- 110 4706730 A -



2. Computer parses text and computes many numbers/features

[-0.04522994277374881, 0.025473958311447155, -0.06628664584189913,
0.18718296882001882, -0.13694844140489182, -0.01331681676699475, -0.00911932999616
4864, 0.022658465252568116, 0.11821706793198098, -0.007483911065249665, 0.2280017714
9668945, 0.13898653180737078, 0.09378956788203714, -0.0943885678658482, 0.19435760037
2550226, -0.0814040068240341, 0.19041481480389895, 0.08384007454374831, 0.110355124
25767242, -0.044164355821557555, 0.07954868251344301, -0.0718518784941525, 0.03243588
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0.12635298782281587, 0.011312579138625403, 0.19280986523212792, -0.1350915485500096

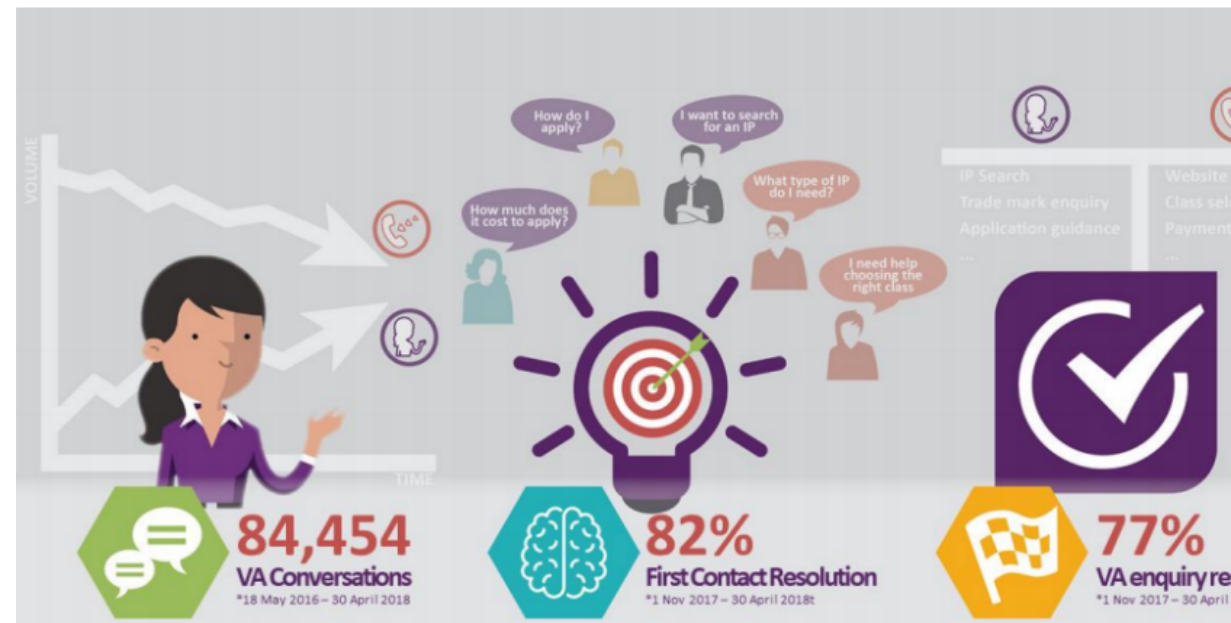


Pattern matching systems

- Machine translation
- Image search
- Patent pre-classification
- Chat bots



Virtual Assistant - Alex



Pattern matching systems

- Machine translation
- Image search
- Patent pre-classification
- Chat bots

*Reading comprehension
has also become «equal
to humans»*

Reading comprehension – single document

The Stanford Question Answering Dataset

| Rank | Model | EM | F1 |
|-------------------|--|--------|--------|
| | Human Performance Stanford University (Rajpurkar et al. '16) | 82.304 | 91.221 |
| 1 Mar 19, 2018 | QANet (ensemble) Google Brain & CMU | 83.877 | 89.737 |
| 2 May 10, 2018 | MARS (ensemble) YUANFUDAO research NLP | 83.520 | 89.612 |
| 3 Mar 06, 2018 | QANet (ensemble) Google Brain & CMU | 82.744 | 89.045 |
| 4 May 09, 2018 | MARS (single model) YUANFUDAO research NLP | 82.587 | 88.880 |

Pattern matching systems

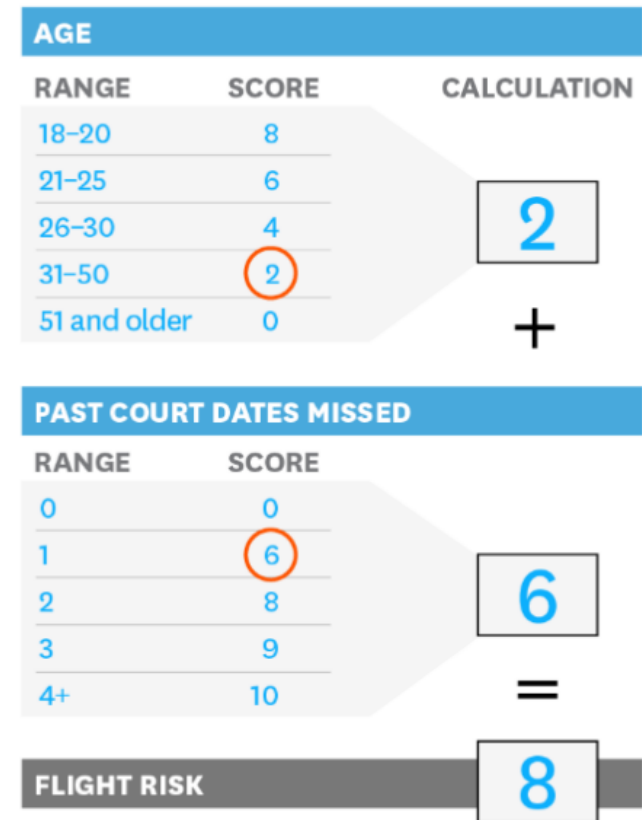
- Machine translation
- Image search
- Patent pre-classification
- Chat bots
- Court decisions

Court decisions

When defendants first appear in court, judges must assess their likelihood of skipping subsequent court dates. (US)

- Select manually 2-5 reasonable factors
- Let computer estimate best score factors based on many known court cases
- Try different combinations of factors and choose the best

Result: Detain half as many defendants without appreciably increasing the number who fail to appear at court (100.000 real cases in a major US city)



SOURCE JONGBIN JUNG ET AL.

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For the curious ones

Wipo conference, AI at USPTO, UK IPO, AU IPO, EPO, JPO, KIPO, Ruspat, WIPO,

http://www.wipo.int/edocs/mdocs/globalinfra/en/wipo_ip_itai_ge_18/wipo_ip_itai_ge_18_p1.pdf

And a number of presentations ending with ...p2.pdf, ...p3.pdf

And a few other AI / legal business snapshots, ...

- <https://jolt.law.harvard.edu/digest/a-primer-on-using-artificial-intelligence-in-the-legal-profession>
- <http://200.hls.harvard.edu/events/hls-in-the-world/artificial-intelligence-practice-law/>
- <https://www.businessinsider.com/joshua-browder-saves-motorists-2-million-with-parking-appeal-website-2015-12?amp;IR=T&r=UK&IR=T&IR=T>
- <https://hbr.org/2017/04/creating-simple-rules-for-complex-decisions>